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Research Papers

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STUDY OF ELECTROCHEMICAL ENERGY STORAGE MATERIALS

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ABSTRACT
Now a day's energy is one of the basic needs of the modern era. For a sustainable future, use of renewable energy source is increased. The generated Electrochemical energy is stored in Energy storage devices i.e. batteries. The materials used in these devices play an important role in efficient, clean, excellent cycling stability and versatile use of energy storage. High performance energy storage materials and devices is a challenging issue for the researcher. Nanoparticle, Graphene, Carbon Nanotubes, Supercapacitors, Nanocrystalline materials are widely used in electrochemical energy storage systems. Introduction of various materials, Study of main categories of materials and electrodes are discussed in the present study.

Keywords: Electrochemical Energy, Storage Material, Storage Devices, Batteries.

INTRODUCTION
Energy is one of the basic need of today's era. Green energy i. e. Renewable Energy is the demand of sustainable future (1). While using the renewable energy source energy storage is a challenging task for the researchers. Study shows that the demand of high performance and stability of electrochemical energy storage devices has significantly increased in recent years. Various types of storage devices, electrochemical batteries are available in market. A battery is composed of one or more electrochemical cells placed in series or in parallel. High performance and excellent stability depends on the material used in the electrochemical batteries. Besides this batteries must be cost effective, eco-friendly and durable (2).

Types of Batteries:
Storage batteries are divided into two types.

1. Primary Batteries:
Frederic Daniel has invented the primary battery named Daniel Cell with two separate compartments in 1836. Primary battery is a galvanic cell which is used once and discarded. It is non rechargeable battery. These types of batteries are commonly referred as dry cell or disposable battery. In the primary types of battery the electrochemical energy produced by the decomposition of electrode material. Once the electrochemical reaction is complete the battery life gets over and should have to replace the battery (3).

2. Secondary Batteries
Secondary batteries are rechargeable batteries. Gastone Plante was first invented the rechargeable Lead Oxide Cell in 1859. Plante used Lead and Lead Oxide as Cathode and Anode respectively. These electrodes were immersed in Sulfuric Acid. These types of cells are used in transport batteries (4). The newest development for secondary batteries is the flow-cell battery, which allows for cheap large-scale (GWh) energy storage using large basins (5).

Many researcher are working for the improvement of the life and storage capacity of the electrochemical storage batteries. Various energy storage materials are used for this. Some most common electrochemical energy storage materials are discussed.

ENERGY STORAGE MATERIALS:

1. Zink and Copper
Zink and Copper metal is used in primary type of battery. Daniel used the Zink and Copper metals for the electrodes. Robert groove replaced copper electrode with Platinum rod. He immersed the electrodes in Nitric Acid. This cell produced harmful Nitric Oxide (4).

2. Lead and Acid
The Lead–Acid was first and most used material in secondary batteries. French Physicist Gaston Planté used Lead as negative electrode and Lead Oxide as a positive electrode. Both the electrodes were immersed in the solution of Sulfuric Acid (5). Lead–acid batteries have relatively low energy density but able to supply high surge currents. These batteries have relatively short cycle lifespan and requires long charging time. These are the main challenges for the development of Lead Acid battery. (6)

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3. Nanoparticle

Use of nanomaterials in energy storage devices improves the battery performance. Nanomaterials are at least one dimension of less than100nm. Nanomaterials are either in nanopowder form or as nanostructured films with wire, rod, whisker or columnar morphologies which are actively being pursued to maximize cycle life with minimum compromise in energy density (7, 8). Nanoparticles Increases the available power from a battery and decreases the time required to recharge a battery. These materials can be used as a coating to separate the electrodes from any liquids in the battery, when the battery is not in use.

4. Carbon-Black Nanomaterial

Carbon black nanomaterils has been used around for several decades in Lithium-ion batteries since its early days (9). Carbon-black used in electrode does not store electrical energy and merely acts as a passive conductivity enhancer to improve power capability.

5. Hollow Iron Oxide Nanoparticles

Hollow Iron Oxide Nanoparticles containing very high concentration of cation vacancies efficiently utilized for reversible Li ion intercalation without structural change. Cycling in high voltage range results in high capacity (~132 mAh/g at 2.5 V), 99.7% Coulombic efficiency, superior rate performance (133 mAh/g at 3000 mA/g) and excellent stability. Cation vacancies in hollow iron oxide nanoparticles are also found to be responsible for the enhanced capacity in the conversion reactions (10).

6. Graphene

Graphene is used in a battery as a component of electrode. It improves the electrical conductivity of cathode materials. It improves the charging and discharging cycle of the battery ultimately improves the performance of the battery. $LiCoO_2$, $LiMn_2O_4$and $LiFePO_4$ are all commonly used cathode materials in lithium-ion batteries. Graphene battery is high capacity energy storage battery because of its light weight and durability.

7. Supercapacitors

Electrochemical capacitors also called as supercapacitors consist of two electrodes separated by an ion-permeable membrane (separator), and an electrolyte ionically connecting both electrodes. When the electrodes are polarized by an applied voltage, ions in the electrolyte form electric double layers of opposite polarity to the electrode's polarity. A supercapacitor is having the much higher capacitance and lower voltage limit as compare to the solid-state capacitors. It stores 10 to 100 times more energy per unit volume or mass than electrolytic capacitors, can accept and deliver charge much faster than batteries, and tolerates many more charge and discharge cycles than rechargeable batteries(11).Unlike ordinary capacitors, supercapacitors do not use the conventional solid dielectric, but rather, they use double-layer capacitance on one electrode and electrochemical battery electrode as the other(12).

CONCLUSION

The resent work based on the studies on the high performance and life of electrochemical energy storage devices. Electrochemical performance open up new opportunities for battery research.

REFERENCES

1. Larcher D and Tarascon J-M 2014 Towards greener and more sustainable batteries for electrical energy storage *Nat. Chem.* 7 19.
2. Goodenough J B and Park K-S 2013 The Li-ion rechargeable battery: a perspective *J. Am. Chem. Soc.* 135 1167–76.
3. (S.S. Hosseiny, M. Wessling, in Advanced Membrane Science and Technology for Sustainable Energy and Environmental Applications, 2011).
4. Erik M. Kelder Materials for Electrochemical Energy Storage Devices 2019 The Author. This is an Open Access chapter published by World Scientific Publishing Company.
5. Secondary Batteries, Odne Stokke Burheim, in Engineering Energy Storage, 2017.
6. Yong Zhang, Cheng-gang Zhou, Jing Yang, Shun-chang Xue, Hai-li Gao, Xin-hua Yan, Qing-yuan Huo, Shi-wen Wang, Yang Cao, Ji Yan, Ke-zheng Gao, Li-xia Wang, Advances and challenges in improvement of the electrochemical performance for lead-acid batteries: A comprehensive review, Journal of Power Sources**,** Volume 520, 1 February, 2022, 230800
7. Zhang Y, Liu Y, Liu M. 2006. Nanostructured Columnar Tin Oxide Thin Film Electrode for Lithium Ion Batteries. Chem. Mater.. 18(19):4643-4646. https://doi.org/10.1021/cm0519378

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8. Teki R, Datta MK, Krishnan R, Parker TC, Lu T, Kumta PN, Koratkar N. 2009. Nanostructured Silicon Anodes for Lithium Ion Rechargeable Batteries. *Small.* 5(20):2236-2242. https:// doi.org/ 10.1002/ smll. 200900382.

9. Chen Y, Wang C, Liu G, Song X, Battaglia VS, Sastry AM. 2007. Selection of Conductive Additives in Li-Ion Battery Cathodes. *J. Electrochem. Soc.*154 (10):A978. https://doi.org/10.1149/1.2767839

10. Bonil Koo, Hui Xiong, Michael D. Slater, Vitali B. Prakapenka, Mahalingam Balasubramanian, Paul Podsiadlo, Christopher S. Johnson, Tijana Rajh and Elena V. Shevchenko, Hollow Iron Oxide Nanoparticles for Application in Lithium Ion Batteries, American Chemical Society *Nano Lett.* 2012, 12, 5, 2429–2435, April 2, 2012, https://doi.org/10.1021/nl3004286.

11. Häggström, Fredrik; Delsing, Jerker (27 November 2018). "IoT Energy Storage - A Forecast". *Energy* Harvesting and Systems. **5** (3–4): 43–51. doi:10.1515/ehs-2018-0010. S2CID 64526195. Retrieved 30 October 2020.

12. Bueno, Paulo R. (28 February 2019). "Nanoscale origins of super-capacitance phenomena". Journal of Power Sources. 414: 420-434. Bib code: 2019JPS...414..420 B. doi:10.1016/ j.j powsour. 2019.01. 0 10.ISSN 0378-7753.S2CID 104416995,

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SYNTHESIS AND CHARACTERIZATION OF SOME NEW CHLOROCHROMONES BEARING PYRAZOLE MOIETY

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ABSTARCT
A simplified method has been developed for the synthesis of chlorochromones which are obtained from oxidative cyclization of chalcones. Main feature of this method is High yield, simple workup procedure and mild reaction condition. All newly synthesized chlorochromones structures have been confirmed by its ^{1}H NMR, FT-IR and mass spectra. All newly synthesized chlorochromones has been screened for its antimicrobial activity against Gram +ve and Gram –ve microorganisms.

Kewords: Pyrazole Aldehyde, Chalcones, Chlorochromones, Antimicrobial, Gram +ve and Gram –ve Microorganisms.

INTRODUCTION

Chromones and their derivatives are of great importance due to their potential numerous applications as bioactive compounds and versatile building blocks for the synthesis of number of heterocyclic compounds[1-4]. Halogenated chromones with a variety of substituents at second position are reported to have antisarcom-180, broncho-dilatory and coronary spasmolytic, properties. The 3-chlorochromones are associated with antibacterial as well as antifungal activities[5-7]. From the Chalcones we synthesized chlorochromones. Chalcones are also used as precursor and their analogues having an-unsaturated carbonyl system are very adaptable β, α substrates for the evaluation of a a lot of organic reactions.[8] The chalcones and its derivatives were initiate to have good analgesic, anti-inflammatory and antibacterial activities.[9] The chalcones which is precursor for the synthesis of a number of heterocyclic compounds, are well-known for their particularly antibacterial and antifungal as well as antiinfective activities, since a long time [10]. The number of methods are used for the synthesis of 3-halochromones were reported by different coworkers. 3-halochromone synthesized from enaminoketone with halogen containing reagents are reported by Gammill[11]. The 3-Chlorochromones are allied with antiviral, antifungal, antioxidant, and antibacterial activities [12].

MATERIALS AND METHODS

Chemicals which are used for the synthesis of chlorochromones compounds were obtained from Sigma Aldrich and SD Fine chemicals. Melting points of these synthesized chemicals were recorded in open capillaries and are uncorrected. By using DMSO-d_6 and TMS as an internal standard, ^{1}H NMR spectra were recorded on Bruker Avance II 400 MHz NMR Spectrophotometer. Using FT-IR Spectrophotometer Model RZX (Perkin Elmer) the infra-red spectra were recorded of these synthesized compounds. By using electro-spray method (ES), Mass spectra were recorded on Macromass mass spectrophotometer (Waters). Purity of the synthesized compounds was checked by using TLC silica gel coated plates which are obtained from Merck as stationary phase and solvent mixture of hexane / ethyl acetate (80:20) as mobile phase.

GENERAL PROCEDURE

General Procedure for the synthesis of 6-bromo-2-(3-(3-bromothiophen-2-yl)-1-(4-fluorophenyl)-1H-pyrazol-4-yl)-3-chloro-4H-chromen-4-one (2g): starting material chalcones (0.25 gm, 0.0007 mmole) was dissolved in fifteen ml of DMSO. In this reaction mixture catalytic amount of cuprous chloride ($CuCl_2$) was slowly added and shake well. At 120^{o}C, in an oil bath the reaction mixture was heated for about 4 hr. After completion of reaction (which was monitored by TLC) reaction mass was left for overnight. To this reaction mixture 10 ml cold water was gradually added and the separated product was filtered, washed carefully with water followed by dil. HCl for many times. Product again washed with water, dried out under vacuum with carefully and crystallized by using ethanol to afford **2g**. The physical data of the synthesized compounds **2(a-g)** is recorded in **Table 1**. Their structures have been confirmed by using ^{1}HNMR, Mass and IR spectra.

IR (2g) (cm^{-1}):963(C-Cl), 1066(Ar-Br), 1571(C=C), 1605 (C=N), 1653(C=O).

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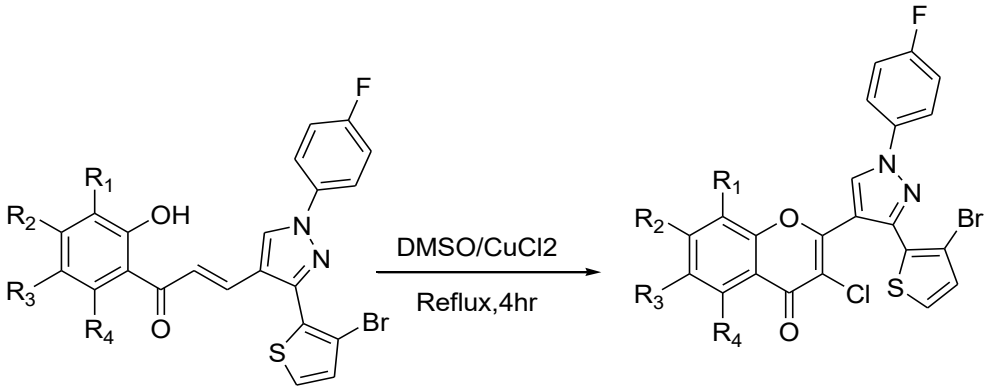
^{1}H NMR (2g) (DMSO-d_6)δ ppm: 6.6157(s, 1H, Ar-H), 7.0079-7.00124(d, 1H, Ar-H), 7.1956-7.1962(d, 1H, Ar-H), 7.43562-7.4574(d, 1H, Ar-H), 7.5963-7.6087(m, 1H, Ar-H), 7.7125-7.7245(d, 1H, Ar-H), 7.8498-7.9603(m,1H, Ar-H), 7.9619-7.9934(d, 1H, Ar-H), 8.2314-8.2391 (d,1H, Ar-H), 8.2918(s, 1H, pyrazole-H).

ES-MS (2g) (m/z):579(M+1), 581(M+3).

IR (2c) (cm^{-1}):971(C-Cl), 1085(Ar-Br), 1551(C=C), 1591 (C=N), 1648(C=O).

^{1}H NMR (2c) (DMSO-d_6)δ ppm: 6.6567(s, 1H, Ar-H), 7.0367-7.0375(d, 1H, Ar-H), 7.4236-7.4296(d, 1H, Ar-H), 7.4587-7.4689(d, 1H, Ar-H), 7.5891-7.6240(m, 1H, Ar-H), 7.7367-7.7564(d, 1H, Ar-H), 7.8756-7.9392(m,1H, Ar-H), 7.9965-8.0029(d, 1H, Ar-H), 8.2984-8.3021(d,1H, Ar-H), 8.3680(s, 1H, pyrazole-H).

ES-MS (2c) (m/z):535(M+1), 537(M+3).



1(a-g) 2(a-g)

Scheme 1: Synthesis of various 2-(3-(3-bromothiophen-2-yl)-1-(4-fluorophenyl)-1H-pyrazol-4-yl)-3-chloro-4H-chromen-4-one

Table 1: Physical data of compounds 2(a-g)

Comp.	R_1	R_2	R_3	M.P. (^{o}C)	Yield (%)
2a	**H**	**H**	**H**	174-176	74
2b	**H**	**H**	**CH_3**	186-188	61
2c	**H**	**H**	**Cl**	202-204	72
2d	**Cl**	**H**	**Cl**	182-184	78
2e	**H**	**H**	**F**	210-212	71
2f	**H**	**CH_3**	**Cl**	170-172	75
2g	**H**	**H**	**Br**	190-192	81

RESULT AND DISCUSSION

All the newly derivatives of chlorochromones were synthesized successfully in reasonable to good yields. All derivatives of chlorochromones compounds were identified on the basis of ^{1}H NMR, melting point range, Mass, IR spectral analysis. By using disc diffusion method, antimicrobial activity was screened of all the newly synthesized derivatives.

Antimicrobial Activity: Synthesized Compounds **2(a-g)** were screened for their in vitro antimicrobial activity against *Staphylococcus Escherichia coli (ATCC 25922), aureus (ATCC 25923), Pseudomonas aeruginosa (ATCC 27853)* by using paper disc diffusion method in this method Gentamycin is used as a reference standard drug. Antifungal activity of these synthesized chlorochromones derivatives were screened against *Candida sp.* in this Nystatin is used as a standard drug. At 100 µg/ml concentration all the tests of synthesized chlorochromones derivatives were evaluated. The culture media for this was Muller Hinton agar. After 24 hr of incubation, the region of inhibition was measured in mm at 37^{o}C. Microbial data for compounds 2(a-g) are summarized below in **Table 2.**

Table 2: Antimicrobial Analysis Data

Sr. No.	Comp.No.	Escherichia coli (ATCC 25922)	Pseudomonas aeruginosa (ATCC 27853)	Staphylococcus aureus (ATCC 25923)	Candida sp.
1	2a	11.3	No Zone	17.1	12

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2	2b	No Zone	9.7	No Zone	No Zone
3	2c	4.5	No Zone	11.8	8.1
4	2d	No Zone	7.9	No Zone	No Zone
5	2e	7.7	No Zone	7.2	7.6
6	2f	No Zone	14.2	No Zone	5.6
7	2g	11.8	7.2	No Zone	9.4
8	Gentamycin	28 mm	23 mm	32 mm	--
9	Nystatin	--	--	--	23 mm

CONCLUSION

The newly were screened against Candida sp. and Gram positive as well as Gram negative bacterial strains. All synthesized chlorochromones derivatives shown good activity as compared to standard drug. The data obtained during the present work exhibit a good agreement between the computed spectral data and experimental spectral data.

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REFERENCES:

1. G. Valdameri, E. Genoux-Bastide, B. Peres, C. Gauthier, J. Guitton, R. Terreux, S. M. B. Winnischofer, M. E. M. Rocha, A. Boumendjel and A. Di Pietro, J Med Chem, 2012, 55, 966.
2. H. Xiang and C. Yang, Org Lett, 2014, 16, 5686.
3. Y. Liu, S. Jin, L. Huang and Y. Hu, Org Lett, 2015, 17, 2134.
4. Z. Mao, A. Lin, Y. Shi, H. Mao, W. Li, Y. Cheng and C. Zhu, J Org Chem, 2013, 78, 10233.
5. Wiley P F; J Am Chem Soc, 4 (1952) 4329.
6. a)Jongerbreur G; Arch Intern Pharmacodynamic, 90 (1952) 384. b) Schmitz J, Hirt R,Eichenberger F E and Lavener H H; Helv Chim Acta 36 (1953) 620. c) Wander A G; Brit Pat, 27 (1955) 4329.
7. Donnelly D, Geoghegen R, Brein O, Phibin E and Wheeler T S; J Med Chem, 8 (6) (1965) 872.
8. Kelly D. R., Carroff E., Lood R. W. F., Heal W. and Roberts S. M., Chem Commun, 2004; 2016.
9. Sam Solomon W. D., Ravi T. K. and Annadurai K., Indian Drugs, 1999; 36(7), 466.
10. Mokle SS, Sayeed MA, Kothawar C. Synthesis and antimicrobial activity of some chalcone derivatives. International Journal of Chemical Sciences 2004; 2 (1): 96- 100.
11. Gammill R. B., Synthesis, 1979; 901.
12. Randhavane P, Karale B. Synthesis and biological screening of some fluorinated dibenzofuran containing 3- chlorochromones and benzothiazepines. Journal of Heterocyclic Chemistry 2009; 46(4): 732-736.

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FISH DIVERSITY OF BENDUSARA RESERVOIR DIST BEED

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ABSTRACT
Fishery is an important branch of agriculture. Fish cultural practices are done since last many centuries; India is second in the culture and production of fish. Bindusara originates in the hills of Balaghat near the village Waghira, in south of district Beed. It is a hilly area. Various small streams contribute to the river. The city of Beed is situated on the banks of Bindusura River. Bindusura is a rapid and seasonal river. A reservoir; Bindusura Project (capacity 7.106 million cubic meters) was constructed on the river in 1955 near the village of Pāli, about 10 km south of Beed.Bindusura river flows from south to north and meets Sindphana river, about 10 km north of Beed town. Total length of the river is about 40 km. The reservoir is present on National highway Solapur –Dhule Total area under irrigation of dam is 2500 ha. The latitude and longitude of the dam is 22'-615^0-770 and 88'-411^0-510 Water is mainly used for irrigation and drinking purpose. More than 20 villages are present near the reservoir. During study the diversity of fishes were studied by collection of fishes from local fishermen monthly. The fishes were identified as per the guidelines given by Jayram (1991) and Jhingran (1988). Study was conducted during 2021-2022 to find the fishery status. The details of fish diversity are given in the text.

Keyword: Bindusara, Fish diversity

INTRODUCTION
India is the fourth largest inland fish producer in the world (4.7 million tonnes in 2008-09). But during the last few decades, the production scenario in inland sector has indicated a mixed trend-an upward looking aquaculture with a declining fishery from river sector.

At present, the major share of inland fish production in the country is from aquaculture and the share of rivers is very low. It is so because our open-water fishery resources, the prime means of sustenance to as estimated 0.45 million inland fishery as well as the only source fish germplasm, have brutally been assaulted through various omissions and commissions on the part of the human beings. The situation needs serious thought and desired action for sustainable fish production and to attain the targeted production of nearly 8.0 million tonnes from inland sector by 2020 (Sinha, 2002) Fish harvesting policies often occurs on industrialization and centralization of facilities in urban areas. During the post-independence phase, commissioning of a large number of river valley projects resulted in the creation of a large reservoir (3,150,000ha) and a network of canals (126,334 km), which have further enhanced the inland open-water fishery resources. The conservation and restoration of rivers are vital for harnessing the direct and indirect benefits from such an ecosystem on a sustainable basis. The water quality of the rivers in the country is being monitored by several agencies, at Central and State level, National River Conservation Directorate, Central Water Commission, State Ground Water Agencies and Central Ground Water Board.

Thus any strategy of fisheries development in the river in the sector needs to give equal emphasis to conservation of the bio-diversity and fish production. The CPCB, under the national programme of Monitoring of Indian National Aquatic Resources (MINARS) is monitoring water quality of ten river basins across India. To assess the impact of water quality on fisheries, Study was conducted during 2021-2022 to find the fishery status.

MATERIAL AND METHOD
During study the fishes were collected from local fishermen monthly and identified on the spot. During collection and identification netting operation and collection method was observed. The local fishermen using the traditional nets i.e. nylon thread nets for fishing. The fish farmer introducing the seeds available from local area. The fishermen use the traditional nets. The details of species identification was done as per the guidelines given by Jayram (1981, 1999, 2006),Talwar and Jhingran(1991), Jhingran(1997).

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Fish Species Diversity

Order: **Osteoglossiformes**
1. Dorsal fins small
2. Anal fin very long and tapering, more than 100 rays, confluent with small caudal fin
3. Pelvic fin rudimentary
4. Bony tongue with curved teeth

Family: Notopteridae
1. Body deep and strongly compressed
2. Abdomen serrated before pelvic fins
3. Barbells absent
4. Dorsal fin small and cylinder, with eight to ten rays
5. Anal fin long based(100to135rays)
6. Scales very small Laterallinecomplete,withabout180scales

Species: *Chitala chitala*
1. Maxilla extends considerably beyond posterior edge of eye
2. Scales small on opercula's, of equal size as on body
3. Pre-orbital smooth
4. Pelvic fin rudimentary
5. Anal fin very long, confluent with reduced caudal fin
6. Five to nine black, rounded spots near caudal region
7. Lateral line curved and complete
8. Bodycoppery-brownonnarrowbackwithabout15transverse silverybars
9. Maximumsize:122cm

Species: *Notopterus notopterus*
1. Maxilla extends to mid orbit
2. Pre-orbital serrated
3. Large scales on opercula's than those on the body
4. No transverse bars on back
5. No rounded spots near caudal origin
6. Pectoral fin moderate, extends beyond anal fin origin
7. Lateral line straight and complete
8. Body silvery-white with numerous fine grey spots
9. Maximumsize:61cm

Order: Cypriniformes
1. Mouth usually protractile and always toothless
2. Body covered with cycloid scales , head scale less
3. Pectoral fin devoid of anosseousspine
4. Lateral line almost always present and complete

Family: Cyprinidae
1. Barbells present or absent if present, one or two pairs
1. Abdomen more or less rounded
2. Upper lip absent
3. Dorsal fin inserted slightly behind pelvic fin base
4. Scales small, lateral line incomplete
5. Abroadsil very lateral band on body
6. Maximumsize:20cm

Species: *Arilius gatensis*
7. Body deep
8. Mouth moderate , jaws short, maxilla extends to below the middle of orbit
9. Barbels with pair, often wanting
10. Dorsal fin inserted in advance of anal fin, extending to above the third anal fin ray
11. Scales moderate, with few radii
12. Tubercles large and well developed on snout and lower jaw
13. Bodysilvery-greywith13-15verticalbars
14. Maximumsize:15cm

Species: Chelafasciata
15. Body greatly compressed
16. Head slightly turned upwards
17. Mouth small, obliquely directed upwards, cleft not extending to below front edge of eye
18. Pectoral fins long, outer ray of pelvic finger much beyond origin of anal fin
19. Lateral line complete
20. Upper half of body grayish while lower half and belly lighter in colour, a dark broad lateral stripe on sides commencing just behind eye and running along middle of body to about base of caudal fin.

Species: *Salmostoma bacaila*

Body elongate and strongly compressed, abdomen not hardened
21. Mouth oblique, lower jaw with a well-developed knob
22. Dorsal fin inserted well behind pelvic fin sand in advance of anal fin
23. Scales very small, lateral line slightly curved
24. Uppersidegreyish-green,oftensilvery;abroad,gleamingwhite-greenbandalong flank
25. Maximumsize:18cm

Species: *Salmostoma novacula*

Body elongate and compressed
26. Mouth oblique, lower jaw with a distinct process
27. Dorsal fin inserted opposite on anal fin
28. Scales small, lateral line gently curved downwards
29. Body silvery with a bright with lateral band
30. Maximumsize:12.5cm

Species: *Salmostoma phulo*

Body elongate and greatly compressed

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2. Paired fins laterally inserted
3. Abdomen rounded or with a sharp edge

Sub-family: Cyprininae

1. Abdomen not compressed and no keel is formed
2. Barbell present or absent
3. Scales on anal sheath
4. Scales small to large, always less than100 along lateral line
5. Upper lips separated from skin of snout by a groove
6. Mouth terminal, sub-inferior or distinctly inferior
7. Lower lip without a Suctorial disc
8. Lower jaw with out any symphysial process
9. Dorsal fin inserted before or opposite to origin of pelvic fins, generally with a spine
10. Lateral line running along median line of caudal peduncle

Species: Catlacatla

1. Body deep, head enormously large
2. Mouth wide and upturned, with a prominent protruding lower jaw; upper lip absent
3. Scales conspicuously large
4. Barballs absent
5. Maximumsize:270cm

Species: Cirrhinusreba

1. Body fairly elongate ,its depth much more than head length
2. Mouth broad; upper lip entire, often fringed in juveniles; a thin cartilaginous covering in side lower jaw
3. One pair of short rostralbar bels generally present
4. Scale hexagonal and moderate
5. Color dark grey dorsally, silvery on flanks and belly
6. Maximumsize:30cm

Species: *Cyprinus carpio*

1. Body robust, more or less compressed, abdomen rounded
2. Mouth small, terminal and protrusible, lips thick and fleshy
3. Barbellstwopairs;onepaireachrostralandmaxillary;maxillarypairlonger
4. Dorsal fin very long , dorsal spines tout and serrated
5. Caudal fin deeply emarginated
6. Lateral line straight
7. Side soft body golden-yellow, fins with reddish or gold
8. Maximumsize:110cm

Species: Hypselobarbus

1. Body relatively deep and compressed with considerable rise in the profile from dorsal
31. Abdomin alkeel not hardened
32. Mouth oblique, lower jaw with a distinct symphysial process
33. Dorsal fin inserted opposite to origin of anal fin
34. Scales small, lateral line curves gently downwards
35. Body silvery with a bright silvery lateral band

Maximumsize:12cm

Species: *Salmostoma sardinella*

Body elongate and compressed

36. Mouth oblique, lower jaw with rudimentary symphysial process
37. Dorsal fin inserted above or slightly behind origin of anal fin
38. Scales medium
39. Body silvery
40. Maximumsize:15cm

Species: *Securiculagora*

41. Body fairly elongate and compressed
42. Mouth oblique left extending to front edge of eye
43. Abdomen with a sharp keel, extends from below operculum to anal fin
44. Dorsal fin short, inserted slightly in advance of origin of anal fin
45. Scales very small
46. Body bright silvery
47. Maximumsize:23cm

Sub-family: Rasborinae

48. Abdomen not compressed and no keel is formed
49. Barbells present or absent
50. No scales on anal sheath
51. Scales small to large,always less than 100 along lateral line
52. Upper lips Separated from skin of snout by a groove
53. Mouth terminal, sub-inferior or distinctly inferior
54. Lower lip without Suctorial disc
55. Lower jaw generally with asymphysial process,
56. Dorsal fin inserted behind base of pelvic fins, devoid of spine
57. Lateral line, if present, abruptly bent downwards and, if complete, running along lower half of caudal peduncle

Species: *Parluciosoma labiosa*

1 Body elongate and compressed

58. Mouth small; lower lip hypertrophied, more fleshy and flabby than upper lip and project s beyond jaw, with three distinct lobe-like structures
59. Pectoral fins short than head length
60. Lateral line incomplete, extends posterior anal fin
61. A broad black lateral band on side; along

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fin
2. Mouth slightly sub terminal
3. Barbelsone pair, extend beyond mid-orbit
4. Scales relatively small
5. Dorsal fin inserted anterior to pelvic fins
6. Maximumsize:30cm

Species: Labeoangra

1. Dorsal profile of the body more convex than ventral
2. Snout over hanging mouth, with a distinct lateral lobe on each side
3. Mouth rather small, lips and continuous
4. Barbells one short maxillary pair
5. Body with a black strip
6. Maximum size:22cm

Species: Labeobata

1. Mouth inferior, lips thin, lower lip slightly fringed, a small tubercle above mandibular syphilis
2. Barbells pair of minute maxillary
3. Golden-yellow above and on dorsal half off lanks, silvery on lower half of lanks and belly
4. Maximumsize:61cm

1. **Species: *Labeo calbasu***
2. Mouth inferior, lips thick and conspicuously fringed
3. Barbells two pairs (rostraland maxillary)
4. Dorsal fin with a fairly long base
5. Body blackish-green, lighter below
6. Maximumsize:90cm

1. Species: Labeorohita

1. Snout fairly depressed, projects beyond mouth, devoid of lateral lobe
2. Mouth small and inferior; lips thick and fringed with a distinct inner fold to each lip
3. Barbells one pair of small maxillary, concealedin lateral groove Scales moderate
4. Bodybluishalongback,becomingsilveryonth eflanksandbeneath,withreddish mark one ach scale during breeding season
5. Maximumsize:100cm

Species: Puntiuschola

1. Bodyfairlydeepandcompressed
2. Barbells one short maxillary pair
3. Last unbranched ray of dorsal fin osseous, fairly strong and smooth
4. Lateral line complete
5. Rosy spot/blotch on operculum and a deep black blotch near base of caudal fin
6. Maximumsize:12cm

Species: Puntius guganio

1. Mouth terminal
2. Barbells absent
3. Last unbranched dorsal fin ray osseous, dorsum, a narrow black median line from occiputto base of caudal fin
62. Maximumsize:8.5cm

Family: Gobidae

63. Pelvic fins united, usually forming adhesive sucking disc
64. Usually two dorsal fins, but often one; spinous dorsal fin when present separate from soft dorsal fin and with 2-17 flexible spines
65. Body scales ctenoid or cycloid, often partly or totally absent
66. Teeth generally small and conical in one to several rows on both jaws

Species : Giossogobius

Body elongated and somewhat compressed

67. Eyes small; iris without process in pupil
68. Branchiostegal membranes attached to side of isthmus
69. Body yellowish-brown with five dark blotches on flank
70. Maximumsize:30cm

Sub-order:Channoidei

71. Dorsal and anal fins very long
72. Fin spines absent
73. Accessory branchialorgan present
74. Caudal fin rounded
75. Scales small, but scales on head larger than on body

Family: Channidae

76. Body elongate and cylindrical
77. Shape of the head resembles that of snake
78. Dorsal and anal fins very long and entirely soft rayed
79. Mouth large with toothed jaws and palate
80. Supra-branchial organ well developed
81. Pelvic fins usually present with six rays
82. Caudal fin rounded
83. Scales small, cycloid or ctenoid
84. Colour usually in shades of grey, brown and black, often with distinctive markings

Species: Channamarulius

85. Body elongate and fairly rounded in cross section
86. Eyes moderate
87. Mouth large, deeply cleft, maxilla extends behind orbit
88. Caudal fin rounded
89. Bodyabovelaterallinegreyish-green,with5-6darkovalblotchesonflank;dorsal and anal fins with white spots; a distinct pale-edged ocellus at base of caudal fin towards upper side; juveniles with an orange band running from eye to middle of caudal fin
90. Maximumsize:180cm

Species: Channa punctatus

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strong and serrated on Its posterior edge
4. Lateral line in complete
5. One small black spot at base of anterior dorsal fin rays and a black blotch at side of caudal fin
7. Maximumsize:8cm

Species: Puntiussinghala

1. Body elongate with a convex dorsal profile
2. Mouth sub-terminal and small
3. Barbels absent
4. Last unbranched dorsal fin ray non-osseous, weak and smooth
5. Scales large; lateral line complete
6. Dorsal and caudal fins reddish with black tips
7. Maximumsize:15cm

Species: Puntiusticto

1. Body elongated
2. Mouth terminal and small
3. Barbells absent
4. Dorsal fin inserted slightly posterior to pelvic fin origin.
5. Last unbranched dorsal fin ray osseous, fairly strong and serrated at its posterior edge
6. Scales medium, lateral line usually complete, often ceases after 6 scales
7. Bodyoftenwithtwolateralspots;firstoneextending over third And fourth scales, and second one over18thand19thscales of Lateral line, dorsal fin in male with red border
8. Maximum size:10cm

Species: Rohteeogilbii

Body deep and strongly compressed, dorsal profile more convex, than abdomen

1. Mouth small, lower jaw shorter
2. Barbells absent
3. Dorsal spine strong and coarsely serrated; a pre-dorsal spine present, somewhat concealed by scales
4. Scales small
5. Body purplish-silvery along back, fading to silvery-white on belly
6. Maximumsize:15cm

Sub-family: Channidae

1. Body elongated, sub cylindrical anteriorly, abdomen rounded, head depressed with plate like scales
2. Gill opening wide, Accessory respiratory organ are in the form of a thin bony lamellae present in a cavity in gill chamber.
3. Dorsal fin long with 39 to 40 rays, anal fin
91. Body elongate and fairly rounded in cross section
92. Eyes moderate
93. Mouth large,lower jaw longer, maxilla reaching below the hind border of eye
94. Pectoral fin extend to anal fin, pelvic fin about 75% of pectoral fin length, caudal fin rounded
95. Scales on summit of head, large
96. Body black to light green on dorsal side and flanks while ventral side white to pale yellow, several dark blotches on flanks; some specimens with numerous black spot s body, also on dorsal, anal and caudal fins
97. Maximumsize:31cm

Sub-order: Masatacembeloidei

98. Body eel like, compressed and elongated with minute scales, head long and pointed
99. Dorsal and anal fins long
100. Anterior part of dorsal fin composed of isolated spin
101. Caudal fins short, either confluent with dorsal and anal or narrowly separated
102. Pelvic fins absent

Family: Mastacembelidae

103. Body eel-like and compressed, with a characteristic a elongated shape
104. Snout pointed with a fleshy rostral appendage
105. Dorsal fin long, preceded by a series of isolated stout spines(usually14-35), anal fin usually with 2-3 spines and 30-90soft rays, no pelvic fins, caudal fin distinct, often connected to posterior ray of dorsal or anal fin
106. Scales small and cycloid
107. **Species: Macrognathusaral**
108. Body elongate
109. Long fleshy snout with trilobed tip
110. No spines on preorbital or preoperculum bones
111. Mouth very small
112. Dorsal fin inserted far behind tip of pectoral fin, last dorsal spine small
113. Caudal fin rounded and distinctly separated from dorsal and anal fins
114. Laterallinewelldeveloped
115. Body brownish or greenish, marbled above and yellowish below; body with two broad pale longitudinal bands extending its entire length; dorsal fin often with 3-11ocelliatitsbase;dorsalandcaudalfwith numerous fine streaks
116. Maximumsize:38cm

Species: Mastacembelusarmatus

Body relatively slender

117. Preopercle with 2-3 usually conspicuous spines
118. Preorbital spines strong and usually piercing

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with 26 rays, caudal fin rounded .
4. A black spot white edged ocellus on the basal portion of the caudal fin is present.
5. Fish distributes throughout India, Srilanka, Pakistan, Bangladesh.

Sps. Channa marulius

Sub-family: Channidae

1.Body elongated, sub cylendrical anteriorly, abdomen rounded, head depressed with plate like scales on the body

2.Gill opening wide, Accessory respiratory organ are in the form of a thin bony lamellae present in a cavity in gill chamber.

3. Dorsal fin long with 40 to 42 rays, anal fin with 26 rays, caudal fin rounded.

4. Body is silver white .elongated.

5. Fish distributes throughout India and allied countries.

Sps. *Channa punctatus*

Species:Ambelypharyngodola

1. Bodyelongate
2. Mouthlarge
3. Barbelsabsent
4. Abdomenmoreorlessrounded
5. Upper lipabsent
6. Dorsalfininsertedslightlybehindpelvicfinbase
7. Scalessmall,laterallineincomplete
8. Abroadsilverylateralbandonbody
9. Maximumsize:20cm
10. Abdomenmoreorlessrounded
11. Upper lipabsent
12. Dorsalfininsertedslightlybehindpelvicfinbase
13. Scalessmall,laterallineincomplete
14. Abroadsilverylateralbandonbody
15. Maximumsize:20cm
16. Abdomenmoreorlessrounded
17. Upper lipabsent

skin
119. Mouth small
120. Spinous dorsal fin inserted above middle or posterior third of pectoral fin, last dorsal spine small and hidden beneath skin
121. Dorsal and anal fins broadly joined to caudal fin
122. Body rich brown and usually with zigzag lines; often a black band through eye continuing in an undulating course along upper half of side,often a row of black spots along base of soft dorsal fin, and short black bands over back under dorsal spines
123. Maximumsize:61cm

Family: Siluridae-

Species:Wallagoattu

1. Body elongated, sub cylindrical , Abdomen rounded, Head snake like Snout some what obtuse, Mouth opening moderate.
2. Eyes lateral Dorsal fin long with 29 to 55 rays.

3Anal fin long with 21 to 36 rays.

3. Caudal fin rounded scale small, pelvic fin more than half of the pectoral fin..
4. Lateral line interrupted with 37 to 100 scales, fish found in India, Nepal Pakistan.

DISCUSSION

The fishes collected during the study belonged to five different orders and families. Various species recorded were identified

REFERENCES

- **Jayaram, K. C., 1999.** The fresh water fishes of the Indian region. Narendra Pub.House,Delhi.
- **Jayaram, K. C., 2006**. Catfishes of India. Narendra Publishing House, Delhi, 386 pp.
- **Jhingran, V. G., 1997**. Fish and Fisheries of India, 3rd ed. Hindustan Publishing Corporation (India), Delhi.
- **BIS, 1978, 1999. Pomfret** – Fresh and Frozen Specifications – IS 4780 of 1978 and IS 4793 of 1999. Bureau of Indian Standards.
- **Day, F. 1889**. The Fauna of British India, including Ceylon and Burma Fishes. Taylor and Francis, London, vol. 1 & 2, 548+509 pp.
- **Talwar, P. K. and Jhingran, A. G., 1991**.- Inland Fishes of India and Adjacent Countries, vol. 1&2. Oxford and IBH Publishing Co. Pvt. Ltd, New Delhi, 1158pp.

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SYNTHESIS, CHARACTERIZATION AND BIOLOGICAL STUDIES OF THIOSEMICARBAZONE SCHIFF'S BASE AND ITS METAL COMPLEXES

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ABSTRACT
Thiosemicarbazones are Schiff-grounded ligands of significant natural significance and their natural applicability has been studied for a considerable quantum of time period. When the thiosemicarbazones bind with metal ions, they've shown an array of implicit anticancer, antimicrobial and antioxidant conditioning etc. They've also set up multitudinous operations in Analytical Chemistry. This present paper summarizes some of the antimicrobial character of thiosemicarbazone-grounded complexes, especially with transition metal ions. Thiosemicarbazones (TSCs) are a class of Schiff bases generally attained by the condensation of thiosemicarbazide with a suitable aldehyde or ketone. TSCs have been the focus of pharmacologists and biologists due to their wide range of pharmacological goods. One of the promising areas in which these excellent metal chelators are being developed is their use against cancer.

Keywords: Thiosemicarbazones, Antimicrobial Activity.

INTRODUCTION
Thiosemicarbazones (TSCs) are the condensation product of carbonyl compounds (aldehydes, ketones) and thiosemicarbazide. Thiosemicarbazones and their metal complexes appeal to both analytical as well as biological researchers due to their numerous applications in coordinating the central metal ions and also biological approaches. Large number of authors studied analytical applications of thiosemicarbazones. [1-3]. The recent reviews discussed the analytical and biological applications of thio and phenyl thiosemicarbazones. Wood et al. reviewed the applications of Cu(II)-diacetyl-bis(N4methyl-thiosemicarbazones) as a radiotracer for tumorhypoxia. [4]. Garoufis et al. reviewed antimicrobial and antitumor activities of Pd(II) coordination compounds including thiosemicarbazone complexes.[5] Therapeutic activities of transition metal complexes of thiosemicarbazones have also been studied.[6-7] Kathiravan et al. reported antifungal property of thiosemicarbazones.[8] Two novel transition metal complexes Cr(III), Mn(II), of 1-(2-hydroxybenzylidene)-4-ethyl-4-phenylthiosemicarbazide have been synthesized and characterized by elemental, spectroscopic (FTIR) S t u d i e s . The FTIR spectral data show the bonding of central metal ion to Schiff's base ligand via the nitrogen of azomethine, sulphur of thioketonic group and oxygen of phenolic group. The molar conductance measurements of the complexes in DMSO decides electrolytic nature of Cr(III), Mn(II). On the basis of spectral studies an octahedral geometry may be predicted for both complexes. The Schiff's base ligand and its transition metal complexes have been characterized for their antibacterial activity against *Staphylococcus aureus, Bacillus substilis* species and antifungal activity against *Aspergillus niger and Fusarium oxysporum* species at 250 ppm and 500 ppm concentration. Both metal complexes indicate considerable activity in comparison to the activity of ciprofloxacin.

MATERIALS AND METHODS:
Synthesis of Schiff base (1-(2-hydroxybenzylidene)-4-ethyl-4- phenylthiosemicarbazide- Schiff base Ligand is synthesized by mixing together ethanolic solution of N-4- Ethyl, Phenyl-3-Thiosemicarbazide (0.01 M, 1.95 gm) and Salicylaldehyde (0.01M, 1.22 gm) in equimolar ratio. The mixture refluxed for 30-45 minutes. This reaction mixture was chilled (overnight). Yellow colored crystals were formed which was filtered, washed with alcohol. It was recrystallized from DCM- Alcohol mixture and subsequently dried over CaCl2 in vacuum desicator. The ligand is insoluble in alcohol slightly soluble in acetone, dichloromethane but completely soluble in DMF and DMSO. Yield of the ligand: 85%, M.P-170^{o}C. Proposed molecular formula: C16H17N3OS (M.Wt. 229.39). The reaction of ligand formation can be represented as below (Scheme-1).

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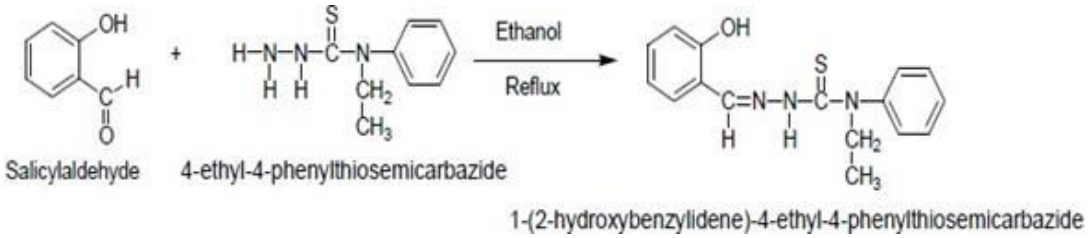

Scheme-1.-Synthesis of Schiff's Base Ligand

Hot methanolic solution of metal salt (1mmol) eg. Chromium chloride hexahydrate (0.26gm), Mangenese chloride hexahydrate (0.23gm) were mixed with hot methanolic solution of Schiff's Base ligand (2mmol). The reaction mixture was then refluxed for 1-2 hour on heating mantle. The solid precipitate formed was allowed to keep overnight then it was filtered, washed and dried in vacuum over anhydrous calcium chloride in desiccators (Yield-75-78%). The relevant data included in the (Table 1)

Table-1. Physical and analytical data of ligand and its metal complexes.

Compound	Mol.Wt.	MolarCond. (Ω-1 cm2 mol-1)	Color	Yield	Elemental Analysis (%), Found (Calculated)				
					C	H	N	S	M
Ligand	299.39	—	Yellow	85%	63.12	07.76	15.13	09.90	-
					(63.1)	(06.7)	(15.0)	(10.71)	
[Cr(C32H34N6O2S2)]	651.72	140	Brown	76%	57.99	06.18	12.70	08.88	09.29
					(58.0)	(06.19)	(12.6)	(08.83)	(08.9)
[Mn(C32H34N6O2S2)]	657.77	150	Brown	78%	57.72	06.19	13.80	10.78	08.60
					(57.7)	(05.9)	(13.8)	(09.99)	(08.5)

RESULTS AND DISCUSSIONS:

a) FTIR Studies

The probationary assignments of the IR spectral bands to predict the structural identity of the ligands and their metal complexes given in (Table no.2). To study the binding mode of ligand to metal in complexes.

In the solid state the ligand remains in the thione form as ν(S-H) band predicted to be at 2575 cm^{-1} is absent. A sharp ν (N-H) band is observed at 3030, 2990 cm^{-1} for O-N-S donor ligand. A sharp ν(C=S) band and a low intensity δ(C=S) band are seen in ligand at 1315, 748 cm^{-1} while in the case of metal complexes it is in the range of 1277-1380 cm^{-1} and 710-780cm^{-1}. Ligand shows ν(-OH) band at 3220 cm^{-1} due to presence of intramolecular hydrogen bonding and free (OH) band in complexes at 3400-3460 cm^{-1} and at 1480 cm^{-1}, show the presence of coordinated. (9) Other characteristics absorption bands at 1520, 1615, 1180 cm^{-1} due to C=N, N-N and C-O vibration respectively.

Table- 2: FTIR spectral data of the ligand and its metal complexes (in cm^{-1}).

Ligand / MetalComplexes	N (C-O)	N (O-H)	δ (O-H)	ν (N-H)	ν (C=N)	N (N-N)	Nδ (C=S)
Ligand	1125	3260	1480	2980	1520	1615	1305,755
[Cr(C32H34N6O2S2)]	1210	—	1445	2949	1546	1599	1290,710
[Mn(C32H34N6O2S2)]	1180	—	1440	2939	1543	1598	1280,766

b) Antibacterial and Antifungal activity

Thiosemicarbazones and their metal complexes exhibit a vast variety of biological characteristics. (10,11) The antibacterial properties of the newly synthesized ligand 1- (2-hydroxybenzylidene)-4-ethyl-4-phenylthiosemicarbazide Ligand and their transition metal complexes were done successfully. Results of these studies are included in (Table-4). The studies were carried out on *Aspergillus niger, Fusarium oxasporium* species and *Staphylococcus aureus, Bacillus substilis* species using paper disc method on appropriate medium. (12) The susceptibilities of certain strains of bacteria and fungus to the thiosemicarbazone ligands and their transition metal complexes were evaluated by measuring the size of the bacteriostatic diameter. The result shows that the ligands as well as their metal complexes are more active against the bacteria and fungi and have high antimicrobial and antifungal activity in comparison with the activity of standard ciprofloxacin.

Table-3: Antibacterial and Antifungal activity of ligand and their transition metal complexes. [Diameter of inhibition zone in (mm)].

Ligand/Metal Complex	Antibacterial activity		Antifungal activity	
	Staphylococcus aureus	Bacillussubstilis	AspergillusNiger	Fusarium Oxysporium

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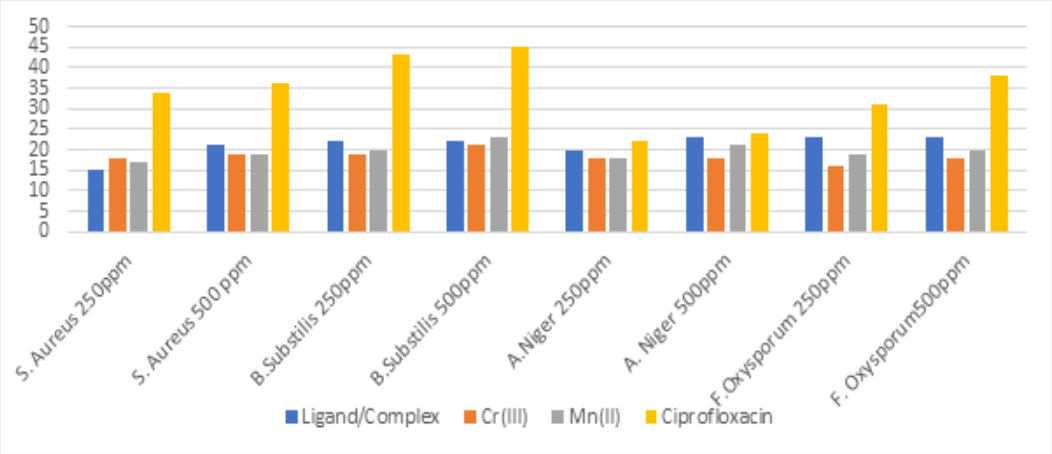
	250 ppm	500 ppm	250 ppm	500 ppm	250 ppm	500 Ppm	250 ppm	500 Ppm
Ligand	15	21	22	22	20	23	23	23
[Cr(C32H34N6O2S2)]	18	19	19	21	18	18	16	18
[Mn(C32H34N6O2S2)]	17	19	20	23	18	21	19	20
Ciprofloxacin	34	36	43	45	22	24	31	38



Graph-1: Comparative study of antimicrobial activity of ligand and its transition metal complexes.

CONCLUSION

Synthesis of the Schiff base ligand and its transition metal complexes are carried out. From the analytical and spectral data, it can be concluded that the synthesized complexes are stable. Ligand and its metal complexes also show very high antibacterial and antifungal activity at both 250 ppm and 500 ppm concentrations. In view of the foregoing discussions, the high melting points and insolubility in common organic solvents, also concluded that the three common coordinate sites are phenolic oxygen, azomethine nitrogen and thiol sulfur.

REFERENCES

1. R.B. Singh and H. Ishii, Crit. Rev. Anal. Chem., 22, 381 (1991).
2. 2. R.B. Singh, B.S. Garg and R.P. Singh, Talanta, 25, 619 (1978).
3. 3. S.L. Narayana, S.A. Reddy, K.J. Reddy, S.-O. Baek and A.V. Reddy, Asian J. Chem., 24, 1889 (2012).
4. 4. K.A. Wood, W.L. Wong and M.I. Saunders, Nucl. Med. Biol., 35, 393 (2008).
5. 5. A. Garoufis, S.K. Hadjikakou and N. Hadjiliadis, Coord. Chem. Rev., 253, 1384 (2009).
6. 6. P.J. Blower, J.R. Dilworth, R.I. Maurer, G.D. Mullen, C.A. Reynolds and Y. Zheng, J. Inorg. Biochem., 85, 15 (2001).
7. 7. J.R. Dilworth and R. Hueting, Inorg. Chim. Acta, 389, 3 (2012).
8. 8. M.K. Kathiravan, A.B. Salake, A.S. Chothe, P.B. Dudhe, R.P. Watode, M.S. Mukta and S. Gadhwe, Bioorg. Med. Chem., 20, 5678 (2012).
9. Rajesh Malhotra, Sudhir Kumar, Jyoti, Hari Ram Singal, Kuldip Singh Dhindsa. Indian J.Chem., 39 A, 2000; (421).
10. Thangadurai T. D., Gowri M. and Natarajan K., Synthesis and Reactivity in Inorganic,Metal-Organic and nano metal chemistry, 2002; (32): 329.
11. Kizileikli J., Kurti Y. D., Akkurt B., Genel A. Y., Birteksoz S., Otut G. and Ulkuseven B.,Folia Microbial, 2007; (52): 15.
12. C. H. Collins and Lye., Microbiological methods 4th Ed. Butterworth, London, 1976; 235.

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SECOND ADMINISTRATIVE REFORMS: RECOMMENDATIONS ON LOCAL SELF GOVERNMENT (VIth report)

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ABSTRACT
73rd and 74th constitutional amendments in respect of local self-government bodies, provisions have been made regarding their functions, financial resources, election, reservation, constitutional status. The primary responsibility of the local self-government bodies is to improve the standard of living of citizens by providing civic facilities. But these urban and rural local self-government bodies are facing problems like financial problems, political problems, corruption, lack of transparency, accountability, increasing urbanization, lack of adequate resources. It submitted its report to the Central Government in October 2007 with a detailed review of the relevant constitutional provisions, powers and functions and financial resources keeping in mind the need for democratic decentralization and empowerment.

Keywords: Local Self Government, Second ARC & Recommendations

Local self-government is the government of a specified area by the local people through the representatives elected by them. The evolution and development of local self-government bodies in India has been reviewed since ancient times. During Vedic period, *Janapada*, during Mauryan period *Nagarsabha* used to perform administrative and social functions and revenue collection functions. During the British period, the foundation of the local self-government bodies has been laid with the establishment of the Madras Municipal Corporation in 1688. After that Municipalities were established in Mumbai and Calcutta. Development work and judicial work were done through them. Lord Mayo's Economic Decentralization Report of 1870 and Lord Ripon's Report of 1882 also contributed significantly. The Morley-Minto Reforms of 1909 and the Montague Chelmsford Reforms of 1919 gave a broader form to citizen participation in the governance process.

Local Self Government

After the independence of India, provision has been made for Gram Panchayat under Article 40 in Part IV of the Constitution. Which includes the guiding principles of state policy. Efforts have been made to realize Mahatma Gandhi's dream of village self-government by developing rural areas and making villages/villages self-reliant. For this, in 1952 many schemes were implemented for the development of rural areas under the Community Development Program and in 1953 the National Extension Service Program was launched. In 1952, the Second Five Year Plan recommended that 'organisationally Gram Panchayats should be linked to higher level popular bodies and all general administration and selective development work in the district or sub-division except law and order, judicial administration and revenue collection should be entrusted to democratic bodies'[1]. A three-tier Panchayat Raj system was established in India from 02 October 1959 for democratic decentralization as per the recommendations of the Balwant Rai Mehta Committee. Since then, each state has made and implemented separate laws related to these institutions. Also, the contribution of Ashok Mehta Committee, Singhvi Committee in the context of rural development and Panchayat Raj has been important at the national level.

After 1990, the 73rd and 74th constitutional amendments have been made by including important subjects like Panchayat Raj Institutions and Urban Local Institutions, constitutional status, equality in function and structure, election, financial matters, reservation system. Provisions have been made under Articles 243 to 243ZG of the Constitution of India. Also, Part IX and Part IXA have been added to the Constitution. The responsibility of their implementation has been entrusted to each state government. It can be said that the 73rd and 74th constitutional amendments have started a new chapter in the process of democratic decentralization.

Objective

Objective of this paper to study the recommendations of the Second Administrative Reforms Commission on local self-government.

Second ARC & Recommendations

In August 2005 Central Government constituted the Second Administrative Reforms Commission under the chairmanship of Mr. Veerappa Moily and entrusted it with 13 subjects, one of which was Local Self-Government. The Commission submitted its Sixth report to the Central Government in October 2007 with a detailed review of the relevant constitutional provisions, powers and functions and financial resources of the existing rural and urban local bodies in India.

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The Second ARC opinion 'Local self-government is a government in its own right, hence it is an integral part of the existing system of governance of the country. Unless they are given autonomy, it is impossible to reform the local area[2]'.

Many State Governments have not been effectively implemented as per Articles 243(G) and 243(W) of the Constitution relating to the powers, authority and responsibility of the local government. The Commission has observed both the Schedules relating to Local Government that the constitutional provisions relating to the structure of Local Government are very strong, binding and necessary. Strengthening or empowerment of local government without imposing any unnecessary restrictions on the freedom of functioning of the States would also be desirable and recommended by the Commission in this regard. Article 243(G) should be researched for the purpose of empowering Panchayats under the provisions of the Constitution to perform the functions contained in the Eleventh Schedule. Also, amendments are required in Article 243(W) for empowerment of urban local bodies'[3]. Through this, Panchayat Raj and Urban local bodies will be planning and implement plans for economic development and social justice.

In order to strengthen the local institutions, the Parliament should establish legislative councils in each state by law and elect members through the local government.[4] The third level of government, the local self-government bodies, should participate in the law-making process of the state legislature. For this, legislative councils should be established in all the states for democratic decentralization and empowerment of local government and the members of the house should be elected only through local government. By doing this, the members of the legislative council involved in the work of the legislature will be aware of the development and rights of the local government and make laws and rules, which will benefit these institutions while working.

The fact that the responsibility of establishing the Panchayat Raj system is entrusted to the State Government and the decision to determine its level must be left to the State Legislature so amendments in Article 243(B)1[5]. Only if members and presidents are elected by the people at every level, the people will get proper representation. Apart from this, efforts are important so that women and other classes get proper representation in this government. District Planning Committees have been weaker and less innovative in some states. For this, the Commission should have a single Zilla Parishad with representation from all urban and rural areas. which will act as local administration in the entire district being responsible for the functions of both the annexures (11th and 12th). There will be no need for District Planning Committee when development plans are implemented in urban and rural areas with proper coordination.

'Government of India should prepare a structural law for Local Self-Government and pass it in the Parliament. (This Act may be made under Article 252 of the Constitution.) Under this Act broad principles of devolution of powers, responsibilities and functions of local self-government and community should be laid down'[6]. Which should include relevance, democratic decentralization, work outline, real work distribution, convergence, citizen centric theory. Due to this, these institutions will carry out their functions and responsibilities in a more responsible role.

The main sources of income of local bodies are property tax, water tax and due to arrears and inefficient collection system they are unable to fulfill their responsibilities. Fund distribution to these organizations can be done on the basis of availability and quality of civic facilities and the Commission has recommended as follows to widen the financial system by implementing the recommendations of the State Finance Commission. Research in Article 243 I and Y to make the local government financially viable, the State Finance Commission should make transparent and objective rules for disbursement of funds according to the backward areas. To submit to the State Legislature within six months an action report and financial provision on the recommendation of the State Finance Commission[7].

Through training, knowledge, skills and performance, human resource development as well as by determining policies and programs according to changing conditions to achieve those results and developing participatory culture can be created.

In this regard, the Commission has recommended that 'Capacity building efforts in rural and urban local self-government bodies should be organized with particular focus on organizational requirements and skill development of the individuals and representatives working therein. To complete some of the functions of local government through government or private systems, capacity development is necessary with the guidance and cooperation of the state government in control and operation. Fiscal management, rural development, disaster management and general management should be given priority in comprehensive training under training institutes. The State Finance Commission should make recommendations taking into account the training costs

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and financial assistance should be provided for educational research as it is important under institutional capacity building[8].

For this, it is important to plan an up-to-date comprehensive training program at the national and state level and give the freedom to local training institutes to implement it as per requirement by providing financial and technical support. Due to democratic decentralization, local self-government is responsible for providing many services, thus capacity building can be done by imparting competence and skills in engineering, disaster management, planning management, modern technology and accounting.

The government has to deal with the problems of corruption in local governance, local corruption, patronage, arbitrary exercise of powers and inefficiency. This affects the services and facilities related to the life of the local people. In financial matters, the state government maintains control through financial regulations, administrative supervision, audit. In order to remain accountable to the public, the local self-government should establish good governance with emphasis on task delivery, grievance redressal mechanism, social audit and transparency. Recommendations made by the commission in this regard are that the state government should establish autonomous and empowered audit committees for each local self-government body at the district level to monitor the authenticity of financial information, internal control, compliance with laws and ethical conduct of persons involved in local governance. It is necessary to set up a committee of the State Legislature to control this committee and properly define the term public servant with attention to corruption and administrative complaints. Also, Citizen Report Card/Evaluation Card can be used for evaluation of civic services and facilities[9]. Through the citizen report card, the concerned self-government organization gets information about the standard, quality of the services and facilities provided by you and the expectations and thoughts of the public.

With the development of new technologies through the information technology revolution, e-Governance can be effectively used to provide various services from one place by increasing complex and complicated tasks, ease of processing, citizen and officer interaction, accountability and transparency. For this purpose, the commission has recommended the use of information and messaging technology by the local government bodies in their work[10]. Providing services and facilities through information technology tools helps to save citizens' time and provide transparent and dynamic services.

The Central Panchayat Raj Ministry should use Nirman software to distribute funds to Panchayat Raj institutions[11]. Which will speed up the fund distribution and help in transparent transactions. Local Self Government should ensure continuity and accountability. It is recommended that the local self-government should utilize the Information and Communication Technology which will result in process simplification; enhancement of transparency; and accountability while providing delivery of services through single window.

For democratic decentralization, the government has enacted a special law, the Panchayati Raj Act, 1996. Which is known as PESA. It applies to nine scheduled areas of the state. Andhra, Maharashtra, Chhattisgarh, Gujarat, Himachal Pradesh, Jharkhand, Madhya Pradesh, Odisha, Rajasthan were the states. The *gramsabha* has been accepted as the most powerful component of the panchayat system. PESA arranges for maximum exercise of power/authority at the lowest level by introducing a strong principle of relevance in the structure. That is, the Gram Sabha of this village will be the liaison for the protection of the traditions, customs, culture, collective resources and dispute resolution of the citizens. Here the Gram Sabha's approval and advice is mandatory for the development programme. After observing the experience of the state government in this regard, the commission has recommended as follows.

Union and State laws affecting the provision of wages should be amended immediately so that they can be reshaped in accordance with this Act. Also, the Government of India should consider issuing special orders under Part 3A of the Fifth Schedule of the Constitution to those States which do not show willingness in implementing the PESA Act'[12]. Priority has been given to effective enforcement of laws and enabling governance arrangements for the protection of tribal rights. Special measures and skill improvement should be made for them and their development should be prioritized and brought into the flow of development. Emphasis has been placed on the observance of women's presence and population in the Gram Sabha. Professional and technical factors should be considered while preparing tribal development plans. A report on the implementation of the PESA Act should be prepared every year and submitted to the Governor.

Proper management is important keeping in mind the growing urbanization and the need of the metropolis. Due to urbanization many socio-economic problems, poverty, hunger, unemployment and crime have increased. Apart from this, due to the increasing demand for land resources, environmental problems such as pollution, sanitation, water and electricity have arisen on a large scale. Development program implementation costs must

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be reflected in order to provide better services to citizens. In this regard 'public-private partnership projects for redevelopment of urban areas need to be encouraged through a transparent and structured regulatory governance system of incentives and financial penalties.

Recommendations have been made after reviewing the important issues regarding urban and rural local self-government bodies. There is no doubt that through their effective implementation these institutions will be empowered to provide quality service and facilities to the citizens.

REFERENCES

1. Government of India, Second ARC Sixth Report, LOCAL GOVERNANCE An Inspiring Journey into the Future, Oct. 2007, p.04.
2. ibid, p. 15
3. ibid, p. 34
4. ibid, p.36
5. ibid, p.41
6. ibid, p.74
7. ibid, p. 85
8. ibid, pp.92-93
9. ibid, pp.132-134
10. ibid, p. 150
11. ibid, p. 209
12. ibid, p.238
13. Singh, S.K.,(1992), Role of Panchayati Raj in India, Radha Publications, New Delhi
14. Sharma, Manoj.,(2004), Local Government (Rural and Urban), Anmol Publications Pvt. Ltd New Delhi

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APPLICATION OF MOBILE TECHNOLOGY FOR DISSEMINATION OF INFORMATION SOURCES THROUGH LIBRARY SERVICES

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ABSTRACT
The papers aim to study the impact of mobile based library service and technology for use of information resources available for library users. Today we are at the age of Smart phones, Tablets and the social media. The user's way of access information has been dramatic changes by using the mobile technology and this technology open the many new doors of learning. The mobile technology provides good opportunity for libraries to provide services to user 24/7 anywhere and anytime. This technology innovation has not just set out open doors as well as difficulties for libraries.

Keywords: Mobile Technology, Library Services, Information Access, Information Retrieval, Library Users, Mobile Applications, Smart phones.

INTRODUCTION

Library and information centers have always ready to adopted new technologies to assist in their objective of providing users with effective and efficient services, as well as timely access to needed information. The advancement of technology transformation has been upgraded to the application of the library form conventional library to hybrid library, after that point, computerized library, automated library, Web 2. 0 and Smart phone-based library services. Presently a day's smart phones have turned into the fundamental piece of personnel existence about correspondence and likewise services to understudies in electronic learning.

The present ICT scenario change the administrative management and internal activities of the knowledge resource center's for giving admittance to its assortment. Present libraries are profoundly inspired by medium of scattering data, like portable telephones, phone lines and mobile network & WWW. Educational libraries need to be tested the fulfilling their user requirements, objective audience (Teachers, Scientists and Scholars) are requesting and influential. The world wide web has created dramatic change for scholars, researchers and faculties to find there need or any educational material on their smartphone 24/7. Like mostly research and academic libraries have reason to take part for promoting their resources and services. From an advertising correspondences context, this challenges mostly of the library to captivate the stakeholders to use the library services. Mobile based library services & electronic mails ensure powerful tool to response the stakeholders' questions from within and out of the library user community.

The use of mobile devices (Smart phones, I-pads, Personal Device Assistance) likely raises the interest for such gadgets to get to web based resources. Then again application with regards to libraries ought to put an accentuation on the setting that receives the most use for web resources. For example, library hours, institutional repository, research guides and directional aids. In this manner, library digital mobile application provides online facility to access and download the library resources available through library anywhere and anytime.

Dissemination of Information using mobile services

The approach of portable advances is impacting the manner in which data is being conveyed and gotten to. Pathways to correspondence and data move become less bulky as user can get to library resources at the solace of their homes without coming to the library. Maybe, most libraries and user in present appear to know nothing about the data administrations and conveyance possibilities of the smart phones. On this note, various available library services that could be accessed with the help of mobile are discussed below:

- **Online Databases**

This technology provides opportunity to use to get access and retrieve information easily. An online database is a database accessible from a local network or the Internet, as opposed to one that is stored locally on an individual computer or its attached storage. Online databases are hosted on websites, made available as software as a service product accessible via a web browser. They may be free or require payment, such as by a monthly subscription. Exe. INFLIBNET N-List, SCI Finder, PubMed/ Medline, Science Direct, Web of Science, Scopus, J-Store etc.

- **Short Message Service (SMS) Notification**

The library user database profile and mobile numbers are archived by library staff to be utilized for the motivation behind furnishing them with any update. Libraries use short message service to alert users with

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respect to fess, renewals, charges, arrangement of library stack, interlibrary facility, issue return notification, new arrivals, news announcement, event reminders, and other requested information.

- **Library Instruction and library Manuals**

Every year at the beginning library organized the user orientation programme for new comers, the stakeholder who miss the above programme, they can easily get the access of information on their smart phones. Some library introduces the audio/video tour can produce fairly quickly and it also save the time of library staff to guide new users about library and its services available through the library. The library manual also helps users to know about library infrastructure, facilities and offline and online library service.

- **OPAC/ MOPAC**

Libraries are providing access to their OPACs via mobile-optimized websites. The library website site supports a mobile OPAC and allows users to browse library collections.

M-OPAC allows user to search a book from any registered colleges / Institutes libraries. M-OPAC app display consolidated library data at a glance. User can search books by different tags like: Title, Author, Publisher, Subject and Keywords. User would be able to see information regarding the book like Author, Publishers, Publish year, Accession numbers with Series code, ISBN, Call No (Classification Number + Book Number), Quantity of Book

- **News Reminder Service:**

This library service reminds user about the important events, programs, exhibitions and instruction and so on.

- **New Title Notification Service:**

This type of library service provides information about newly acquired titles. This service accompanies the preview and reservation of new titles.

- **Reference Service**

Regarding the reference query user can ask the question to librarian through text, WhatsApp message or video calls. This reference service easily provided with the help of smart phone. It is possible for Librarian to take the feedback from users.

- **Library Websites**

Library website is a mirror that helps library to promote and market the library resources and services. Information about the library vision and mission, library manuals, available resources and services so on is display on the website. Libraries now have a website that enables information dissemination and access by all types of users (Shonhe, 2017).

Mobile library services tools

- **Mobirise AMP(**www.mobirise.net**)**

It is installed in all smart phone like any mobile app that we download from play store. By using this app you can easily build your own website fast, free and without any coding or programming.

- **Boopsie (Paid) Mobile platform-as a-service. (**www.boopsie.com**)**

Boopsie is cloud based customized mobile app generally use in any mobile devices. this app specially design for those library that provide support to search and all major ILMS.

- **Aurasma (**www.aurasma.com**)**

This application use in both android system like Apple iOS and Android, specially use for picture acknowledgment innovation utilizes a mobile phone's or alternately tablet's camera to perceive certifiable pictures and afterward overlay media on top of them in the structure of activities, recordings, 3D models and web pages

- **Browzine (**www.thirdiron.com**)**

System required for above is Apple iOS, Android and Kindle fire. The application having facility to browsing and reading a journal easy on smart mobile phone.

- **Library anywhere(**www.librarything.com/forlibraries**)**

Easily access through the any mobile web, Android and Apple iOS. This app provides detailed information of library likely search of library catalogue, book place in stack and access of online databases. Stakeholders can find the library location, library hours, ask reference questions to library staff and information about library events.

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MOBILE BASED LEARNING APPS

- **IIT Delhi e-resources**

It is a single window search mobile app for IIT Delhi e-resources, Including e- Books, Journal Databases, OPAC and Institutional Resources etc. (https://library.iitd.ac.in/)

- **National Digital Library of India**

NDL app supports both the format of smartphone like android and iOS. By using this app you can easily access all the resources. (https://ndl.iitkgp.ac.in/)

- **IIM Ahmedabad**

This app develops by Vikram Sarabhai Library, IIM Hyderabad provide links of various resources and services. Knowledge@IIMA is a new feature that provides the link of faculty directory, research papers and Doctoral thesis. (https://library.iima.ac.in/)

- **IISER Bhopal Library App**

The central library IISER Bhopal launches this app for user that provides online library, e-library and information services. (https://www.iiserb.ac.in/library/)

- **IIM Libraries Consortium App**

This app divided in to different section like faculty directory, Publication, Union Catalogue and consortium membership. All IIM institute connected through this app.

ICT Skill Required

To provide the ICT based services library staff need to acquire the recent knowledge about the technology to provide the mobile based library services.

- Library staff must have knowledge of hardware and software.
- The content of app suitable for a desktop computer and mobile devices
- Updated library website that helps user to access all the library facilities.
- Consult QA after update for minimal issue faced by users
- To make constant changes in device and mobile apps need support and updates
- Create awareness about the app and their services and features

CONCLUSION

The advancement of ICT, new technology tools, use of smart phones and different mobile app try to fulfill the demands of the library users. Present mobile trend provides new pathway to access the library and information service by using the mobile phones. To make certain profitable utility of mobile-based technologies, there is want to have proper perception of how every of the technology is used which requires personnel or institutional training on the use of digital library. Information Communication Technologies are changing the way information is delivered and accessed; therefore, it is essential for academic libraries to position themselves to flow with the changing trend and ensure that the library and related institutions continue to be relevant even in emergency situations

REFERENCES

1. Ajzen, I. (1991), “The theory of planned behavior”, Organizational Behavior and Human Decision Processes, Vol. 50 No. 2, pp. 179-211.
2. Bentler, P.M. (1990), “Comparative fit indexes in structural models”, Psychological Bulletin, Vol. 107 No. 2, pp. 238-246.
3. Bhanudas R P, Relevance of it in libraries: Desire a tread a front to advanced library in current trends. IP Indian J Libr Sci Inf Technol 2021;6(1):53-56
4. Breeding, Marshall. “Preserving Digital Information”. Information today 19:5 (2002).
5. Communication Technology (JLICT), 6(1-2), 42-47.
6. Davis, F.D. (1989), “Perceived usefulness, perceived ease of use, and user acceptance of information technology”, MIS Quarterly, Vol. 13 No. 1, pp. 319-340.

ISSN 2394 - 7780

7. Hanson, Cody W. 2011. “Libraries and the Mobile Web”, Special Issue of Library Technology Reports, v. 47, no. 2 (February/March 2011
8. https://www.researchgate.net/publication/271906602_Mobile_Based_Services_Application_and_Challenges
9. Kumbhar, Sagar & Pawar, Rohan. (2014). Mobile Based Services: Application and Challenges. 10.13140/2.1.2373.2000
10. Mohamed Ally and Gill Needham. 2008. “Mlibraries: libraries on the move to provide virtual access”, Proceedings of the First International libraries Conference London.
11. Negi, D. S. (2014). Using mobile technologies in libraries and information centers. Library Hi Tech News, 31(5), 14-16.
12. Ogunsola, L. A. (2011). The next step in librarianship: Is the traditional library dead? Library Philosophy and Practice (e-journal). Retrieved from http://unllib.unl.edu/LPP/ogunsola2.htm
13. Prabhakaran, A., & Kalyani, K. (2014). The thumb generation: ICT application in libraries. Journal of Library, Information and
14. R. b. P, Marathwada Shikshan Prasarak Mandal's college library automation: A study. IP Indian J Libr Sci Inf Technol 2018;3(1):56-60
15. Saxena, A., & Yadav, R. (2013). Impact of mobile technology on libraries: A descriptive study. International Journal of Digital Library Services, 3(4), 1-58.
16. Sharma, S., Durand, R.M. and Gur-Arie, O. (1981), “Identification and analysis of moderator variables”, Journal of Marketing Research, Vol. 18 No. 3, pp. 291-299
17. Shonhe, L (2017) A Literature Review of Information Dissemination Techniques in the 21st Century Era. Library Philosophy and Practice (e-journal). 1731. Retrieved from https:// digital commons. unl.edu/ libp hilprac/1731
18. Sreenivasan, J. and Noor, M.N. (2010), “A conceptual framework on mobile commerce acceptance and usage among Malaysian consumers: the influence of location, privacy, trust and purchasing power”, Wseas Transactions on Information Science and Applications, Vol. 5 No. 7, pp. 661-670
19. Tao, D., McCarthy, P. G., Krieger, M. M., & Webb, A. B. (2009). The Mobile Reference Service: A case study of an onsite reference service program at the school of public health. Journal of the Medical Library Association, 97(1), 34-40. doi:10.3163/1536-5050.97.1.006
20. Venkatesh, V. and Davis, F.D. (2000), “A theoretical extension of the technology acceptance model: four longitudinal field studies”, Management Science, Vol. 46 No. 2, pp. 186-204.

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SYNTHESIS OF METAL OXIDE COMPOSITE FOR BIOMEDICAL FIELD

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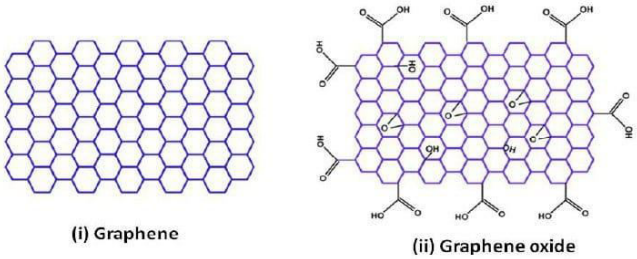
ABSTRACT
Polyaniline/ Graphene Oxide composites were synthesized by electrochemical polymerization technique. The composites with regards to the structural properties of the materials were investigated by electrochemical parameters. Graphene oxide in polymer matrix. show highest sensitivity. Its good environmental as well as electrical conductivity tenable by appropriate doping make Pani an ideal active material for biomedical field.

Keywords: Polyaniline Graphene Oxide, Electrochemical method Biomedical field.

INTRODUCTION
Metal oxide dispersed polymer composites exhibit unexpected hybrid properties synergistically derived from both components. Graphene and Graphene oxide structure is as shown in figure 1.



Grapheme has e selective and exceptional drug loading and release characteristics chemical stability, and excellent optical, electrical, and thermal properties. Moreover, it can react to several stimuli such as electric field, pH, and temperature, serving as a drug carrier. A magnetic field is used to keep the drug's particles in the targeted area. [1-6]

(CPs) and its composite are chemical polymerization, electrochemical polymerization and photo-polymerization. Composites of conducting polymer which performance better expected to find applications in many fields [7]. Polyaniline (PANI) is a conducting polymer chemical structure as shown in figure 2.

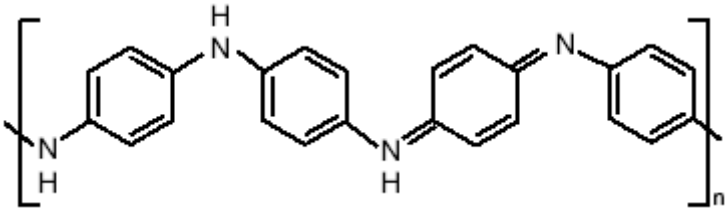


Figure 2: Basic Structure of Polyaniline

The conducting polymer/inorganic nanoparticles composites show unique Magnetic properties that have attracted more and more attention, as they combine the merits of conducting polymers and inorganic nanoparticles. These composites can have wide potential applications in diverse areas such as chemistry, physics, materials, and biomedical science [8-9].

GALVANOSTATIC METHOD
Polyaniline and polyaniline/Iron oxide nanocomposites were synthesized by Galvanostatic method electrochemical polymerization technique. It is a fixed oxidation current is supplied with no control over the resulting potential of the system. it provides more control over the film thickness and it is reproducible too. Because this can affect the morphology and the conductivity of the polymer film as well as the potential of the system during synthesis [10-15]. The formation of PANI/ Graphene oxide composites with regards to the magnetic structural properties of the materials Figure 2 Galvanostatic electro polymerized technique as below

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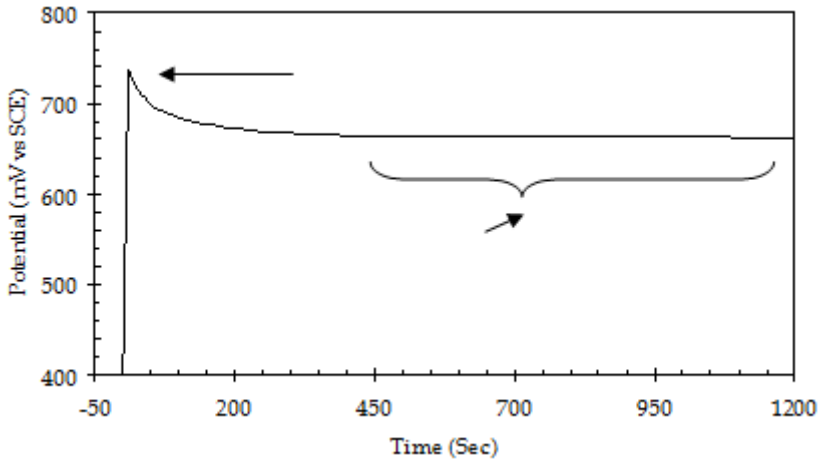

Figure 2: Galvanostatic Electropolymerized technique

RESULT AND DISCUSSION

Magnetism is a very specific interaction, which suffers drastic changes at the nanoscale regime [16]. The intrinsic magnetic properties of a given material promotes the magnetic moments of the atoms to be parallel, and a net saturation magnetization oxides with a rather uniform composition are the most common rare earth (RE) metals are currently aimed for biomedical applications. Nanoparticles the heating is mainly related to the reversal mechanisms of the magnetization within the particle In biomedical applications, MNPs with "Small" particles like the superparamagnetic iron oxide nanoparticles are better suited for magnetic nano vector purposes for the small size and Can be dispersed in aqueous media to their hydrophilic Surface high magnetization in a magnetic field, which makes them ideal for magnetic targeting. [17-19]

CONCLUSION

The PANI-Graphene oxide composites had been synthesized using Galvanostatic method are suitable and used magnetic targeting for biomedical field.

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REFERENCES

1. Stejskal. J and Gilbert R. G. Pure and Applied Chemistry.74, 857-867 (2002)
2. L. I. Nadaf, K. S. Venkates, Material Science Research India, 2015, 12, 108-111, doi: 10.13005/msri/120204.
3. Graphene oxide-polyaniline conducting composite film deposited on platinum-iridium electrode by electrochemical polymerization of aniline: Synthesis and environmental electrochemistry application

   https://doi.org/10.1016/j.apsadv.2022.100212
4. Electro polymerization of Graphene Oxide/ Polyaniline composite for high performance supercapacitor https://doi.org/10.1016/j.electacta.2012.11.035
5. Applications of Graphene and Graphene Oxide in Smart Drug/Gene Delivery: Is the World Still Flat? https://doi.org/10.2147/IJN.S265876
6. Magnetic graphene oxide: Synthesis approaches, physiochemical characteristics, and biomedical applications. https://doi.org/10.1016/j.trac.2021.116191
7. Graphene Oxide Thin Films with Drug Delivery Function

   https://doi.org/10.3390/nano12071149
8. Vinayak, G.K Sridhar B. Chakradhar, Jakeer Hussain & M. V. N. Ambika Prasad, Ferroelectrics,486, 106–113, (2015).
9. Ahuja T Rajesh, D. Kumar, Recent progress in the development of nanostructured conducting polymers/nanocomposites for sensor applications. Sensors and Actuators B, 136(1), 2009,

ISSN 2394 - 7780

10. Magnetic Graphene Oxide Nanocarrier for Targeted Delivery of Cisplatin: A Perspective for Glioblastoma Treatment.
11. Improving the drug delivery characteristics of graphene oxide basedpolymer nanocomposites through the "one-pot" synthetic approachof single-electron-transfer living radical polymerization. https://doi.org/10.1016/j.apsusc.2016.03.207
12. Polymer-Graphene Nanocomposites: Preparation, Characterization, Properties, and Applications DOI: 10.5772/50408
13. Progress in conductive polyaniline- based nano composite for biomedical applications: A review https://doi.org/10.1021/acs.jmedchem.9b00803
14. Fabrication of Free-Standing, Electrochemically Active, and Biocompatible Graphene Oxide-Polyaniline and Graphene-Polyaniline Hybrid Papers.

    https://doi.org/10.1021/am100293r
15. Polyaniline/graphene-basednanocomposites https://doi.org/10.1016/B978-0-12-817915-4.00010-5
16. Preparation of conductive polyaniline/graphene nanocomposites viain situ emulsion polymerization and product characterization Polyaniline/graphene-basednanocomposites. https:// doi.org/ 10.1016/ j.synthmet. 2014.08.007
17. Recent progress in graphene based polymer nanocomposites. https:// doi.org/ 10.1080 /23312009. 2020.1833476
18. Graphene and Graphene Oxide as a Docking Station for Modern Drug Delivery System. https:// doi.org/ 10.2174/1567201811666140605151600
19. Electrically Controlled Drug Delivery from Graphene Oxide Nanocomposite Films https:// doi.org/ 10.1021/nn406223e

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POULTRY FARMING :A RURAL EMPLOYMENT

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ABSTRACT
Today in India poultry farming is consider as fastest growing segment of agriculture. Poultry is consider as good source of protein, vitamins and minerals such as iron, selenium, zinc, vitamin B and also vitamin B12. Poultry meat is rich in omega 3 fats i.e. provide essential polyunsaturated fatty acids. Chicken meat involved desirable monounsaturated fat and 1/3 of less healthy saturated fats. Chicken meat does not contain trance fat which causes coronary heart disease therefore chicken meat is consider as healthy meat. Rural poultry farming contribute about 21% of national egg production in India. Poultry farming has become the most remunerative business than any other business in the developing countries. It is consider as per- eminence business which carries a scope for quick and large profit. Therefore the solo objective of this review is to focus on various aspects related to the poultry farming and it's management.

Keywords: Poultry farming, Employments, Diseases, Remunerative.

INTRODUCTION
Livestock and poultry farming provide a major contribution to India's economy (1). Poultry farming is may possible in different climatic atmosphere. It require small space, low investment, quick return from outlay and well distributed turn over throughout the year. Backyard poultry farming is consider as important component for poor people of rural sector not only for augmenting animal protein in the form of egg and meat but also to improve their subsidiary income. Now a days women's are now coming out of their seclusion and take part in poultry farming because this business gives huge remunerative. In general it is observed that women contribute more than men in animal husbandry activity as invisible worker (2,3).

The Government of India has focused on the women's development and empower them by organizing various programs and schemes all over the country. Empowerment can be defined as the full potential and power of women in all spheres of life (4). Women can also play a major role in improving basic health care of backyard poultry that does not require much manpower. Pre and post training knowledge of farm women regarding poultry rearing.

Sr.no.	Topic	Before (%)	After (%)
1.	Knowledge on breeds	23	80
2.	Knowledge on feed preparation	32	89
3.	Knowledge on vaccination to poultrybirds.	15	93

Poultry farming can be very important occupation for majority of the landless families, suitable measures adapted to upgrade the backyard poultry and promote small to medium scale poultry farming. It also provide a good source of self employment. Before jump into the poultry farming business care should be taken to educate the rural people about the prerequisites of poultry farming and disease prevention strategies to achieve better productivity and income returns.

Advantages of promoting poultry farming in rural areas:

- Provide subsidiary employment and helps alleviating unemployment and job scarcity.
- Inspire self confidence and self sufficiency in rural people.
- Reduce malnutrition and ensures nutritional security.
- Management is not require i.e. ladies and children can be involved easily.
- Poultry farming need minimum use of land.
- By products such as poultry manure have excellent value in organic agro-farming whichwould fetch higher return to villagers.
- Job opportunities can be created through consultancy services.
- Increased poultry production will strengthen the national economy.

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CONCLUSION

Poultry farming has tremendous potential which has not been exploited to it's full capability in rural areas. Rural poultry is an important element in diversifying agricultural production and increasing household food security. Chickens provides readily harvestable animal protein to rural households. Therefore efforts need to be made for public awareness about "Virtues of poultry business" and it's "products" by blending science, spirituality so that poultry farming should gain popularity not only in traditional rural families but also in higher educated and scientific society.

REFERENCE

1. Nath B.G., Pathak P K and Mohanty A K 2012. Constraints analysis of poultry production at Dzongu area of north Sikkim in India Iranian journal of applied animal science 2(4) 397-401
2. Begam Y. suitability of animal husbandry practices and it's adoption among farm women. Msc thesis IVRI, Izatnagar, 1994.
3. Rehman S A study of social and economic aspects of livestock owning Gujjar and Bakarwal tribe of Jammu and Kashir. PhD thesis division of extension education IVRI, Izatnagar, 1995.
4. Renganathan R. women's empowerment through development programmers kisan World2004; 31: 13-14
5. Spradbrow P B Newcastle disease in village chickens, poultry science review (1993- 1994); 5: 57-96
6. Alders R facilitating women's participation in village poultry projects (1996) vol III : 441-447
7. Dolberg F the review of household poultry production as a tool in the poverty reduction with a focus on Bangladesh and India (2004)
8. Alders R G, Fringe R and Mata B V characteristics of the 1-2 live thermostable Newcastle disease vaccine produced at INIVE (march 2000) : 6-9
9. Handa M C 'an overview of livestock and poultry production' (2003) 94-103
10. Landes M, Persaud S and Dyck J "India's poultry sector :development and aspects"(2004) 4-3
11. Menard, Claude, Klein, Peter G "Organizational issues in the agrifood sector: toward a comparative approach" (2004) 86(3): 750-755
12. Oluyemi J A and Robert F A "Poultry production in warm wet climates" (1979)ISBN 0-333-25312-4
13. Alders R, Cambaza A B and Harun M village chickens food security and HIV/ AIDSmitigation (2003)
14. Kumar S and Anand S " Contract farming India: prospects and challenges" Kurukshtra(2007) 55, 29-30

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MAHATMA GANDHI'S: A CRITICAL STUDY OF ECONOMIC THOUGHT

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Overview : Indian, leader of Indian Notional Congress, religious leader son of Prime Minister of a princely State, Gandhi was educated in Gujarat and England, where he qualified as a barrister. On return to India he was unable to secure employment in the legal profession and then left for south Africa in 1883. In south Africa Gandhi was employed by a firm of Muslim lawyers in Pretoria and become involved in number of non-violent protest that he was to use later in India.

Gandhi returned to India 1915. Immediately he Joined in the task of building the Indian National Congress (Congress) as a mass movement. His simple style of a white loincloth, white shawl, and sandals appealed to rural masses who soon gave him the title "Mahatma" (grant saint).

Implementation in India: During India's freedom struggle as well as after India's independence in 1947, Gandhi's advocacy of homespun khadi clothing, the khadi attire (which included the Gandhi cap) developed Mohandas Karamchand Gandhi : life & Thoughts.

Into popular symbols of nationalism and patriotism. India's first prime minister. Jawaharlala Nehru was a socialist as well as close supporter of Gandhi while Nehru was influenced by Gandhi's aversion to the brand of socialism practiced in the soviet union, he was also an exponent of industrialization and critical of Gandhi focus of rural economics Gandhian activists such as Vinoba Bhave and Jayaprakash Narayan were involved in the sarvodaya movement, which sought to promote self –sufficiency amidst India's population by encouraging land redistribution, socio-economic reforms and promoting cottage industries. The movement and poverty while were eroding with industrialization and modernization. Sarvodaya also included Bhoodan, ar the gifting of land and agriculture resources by the landlords (called zamindars) to their tenant famers in a bid to end the medieval system of zamindari. Bhave and other promoted bhoodam as a just and peaceful method of land redistribution in orders crate economic equality, and ownership and opportunity without crating class based conflicts.

Modern Interpretations: Gandhi's ideas have insured social-economic policies in postcolonial Africa and Asia, but have also been criticized as impractical and idealistic, especially on the macrocosmic scale. Main attempts at implementation have centered around microeconomic initiatives. The proximity of Ganhdiam economic thought to socialism has also evoked criticism from the advocates of free market economic. To many, Gandhian economics represent an alternative to mainstream economic ideologies as a way to promote economics productivity without an emphasis on peace. Classes in societies. Gandhian focus on human development is also seen as an effective emphasis on the eradication of poverty, social conflict and backwardness in developing nation Gandhian social- economic ideas have gained the interest and attention of an increasing number of people across the world.

Gandhi's Economic Ideas:
Gandhi's thinking on socio-economics issues was greatly influenced by the American Writer Henry David Thoreau. Throughout his life, Gandhi sought to develop ways to fright India's Hendry David Thoreau. Independence movement. Gandhi's championing of Swedish and noncooperation were centered on the principles of economic self sufficiency. Gandhi sought to target European made clothing and Indian-Made goods Gandhi sought to incorporate peaceful civil resistance as a means of promoting national self –sufficiency Gandhi led farmers of Chapman and Kheda in a satyagraha (civil disobedience and tax resistance) against the mill owners and land – lords supported by the British government in an effort the farmers and workers and defend their economic rights.

Gandhi and his followers also funded numerous ashrams in India Gandhi had pioneered the ashram settlement in south Africa. The concept of ashram has been compared with the commune, where its inhabitants would seek to produce their own food, clothing and means of living, while promoting a lifestyle of self – sufficiency, personal and spiritual development and working for wider social development. The ashrams included small farms and houses constructed to help in any nasecessary, promoting the values of equality. Gandhi also espousdthe nation of "trusteeship," which centered around denying material pursuits and human dignity rather than arterial development. Some of gandhi's closest supporters and admirers included industrialists such as Ghanshyamdas Birla, Ambalala Sarabhi, Jamnala Bajaj and J.R.D. Tata, who adopted several of Gandhi's progressive ideas in managing labor relations while also personally participating in Gandhi's ashrams and social-political work.

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OVERVIEW:

Spiritual angle

In his own words Gandhi takes us through some of the experiences in his life, with each chapter forcing at least one important learning lesson to him. Going through the introduction section of the autobiography may suggest what to expect during the five part that follow.

The spiritual angle becomes evident when Gandhi writes," What I want to achieve what I have been striving and printing to achieve these years – is self – realization, do see God face to face, to attain Moksha (Salvation). I live and move and have my being in pursuit of this goal."

One of this main beliefs was using nonviolence as a means of protesting against acts of oppression and using international law to seek justice. This meant he never raised his fists As Gandhi said :

An eye for an eye makes the whole world blind:

There are many causes I am prepared to die for but no causes I am prepared to kill for. The embracing of nonviolence was part of his wider mission to seek truth. Gandhi tried to achieve this by leering fro his own mistakes and conducting experiment on himself. Gandhi found that uncovering the truth was not always popular as many people were resistant to change, preferring instead to existing status quo because of inertia, self-interest.

The truth is far more powerful than nay weapon of mass destruction.

Gandhi said that the most important battle to fight was in overcoming his own demons, fears and insecurities. He though it was all too easy to blame people, governing powers or enemies for his personal action and wellbeing. He notes the solution to problems could normally be found just by looking in the mirror.

Etymology : For Gandhi, truth was the sovereign principle, inclusive of many other spiritual principles and school of thought." It is not my purpose to attempt a real autobiography. I simply want to tell the story my numerous experiments with truth, and as may life consists of nothing but those experiments it is true the story will take the shape of an autobiography.

In this autobiography, Gasdhi has recounted the period from his birth (1869) up to the year 1921. In the last chapter, he notes, My life from this point onwards has been so public that there is hardly anything about it that people do not know."

Although Gandhi was born a Hindu he was critical of many religions, including Hinduism. He wrote in his autobiography: Thus if I could not accept Christianity either as a perfect, or the greatest religion, neither was I then convinced of Hinduism being such. Hindu defects were pressingly visible to me. If untouchability could be a part of Hinduism being such.

He then went on to say : As soon as we lose the moral basis, we cease to be religious. There is no such thing as religion over riding morality. Man for instance, cannot be untruthful, cruel or incontinent and claim to have god on his side.

Gandhi was critical of the hypocrisy in organized religion, rather than the principles on which they were based. He also said the following about Hinduism:

Hinduism as I know it entirely satisfies my soul, fills my whole being .. when douts haunt me, when disappointments stare me in the face, and when I see nit one ray of light on the horizon, I turn to the face, and when I see not one ray of light on the horizon, reference and notes :

1) Weber, thorns 2006 Gandhi Gandhism and the Gandhians Roli books pvt. Ltd. (page on 286)
2) Sofri Gianni Gandhi and India A century in focus 1995 ISBN I-900624125 (page No.87)
3) Ibd page no.192
4) Ibd page no.67
5) Ibd page no.126
6) Gandhi Mk – nonviolent Resistance (Satyagraha 1961 page -11)
7) Ibd page no.37
8) Ibd page no.6
9) Gandhi the man biography by Eknath ISBI 0 -915132-96-6

ISSN 2394 - 7780

10) Ibd page no. 29
11) Insian political thinker A.K.S. Parihar pgae no.25,26
12) Govt.ac.in.
13) Unvercity news august 2012 page no.32,33

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ELECTROCHEMICAL SENSING USING COMPOSITE MATRIX

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ABSTRACT
Polyaniline (PANI) is a conducting polymer and organic semiconductor and neurotransmitter Adrenaline is chemical messenger which released by neuron. and polyaniline/ Adrenaline composites were synthesized by electrochemical polymerization technique. The formation of Pani/ Adrenaline composites with regards to the structural properties of the materials were investigated by electrochemical parameters. Adrenaline in Polyaniline matrix this synthesizes composites show electrical conductivity and sensitivity for potentiometric sensing. will try to improved. which is useful for biomedical application.

Keywords: Polyaniline, polyaniline Composite, Electrochemical Method, Potentiometric Sensing, Biomedical applications

INTRODUCTION
Polymers are widely used multipurpose materials in different fields due to some advantageous nature. These are flexibility, processability, environmental stability, low cost, light weight, etc. [1].The proposed sensing of PANI is mainly based on the interaction phenomenon due to the presence of active sites in PANI chains. [2-3]. It is detected by transducer by signal as resistance. Understanding the sensing properties of PANI depends on the reversible binding of the target molecule with the sensing Matrix which may be present in the sensed environment. Therefore, a molecular level understanding of the sensing mechanism can provide adequate information for the sensitivity and selectivity issues induced by analyte, moisture and temperature changes.

Polyaniline-neurotransmitter composites, Composites of conducting polymer with unique physical properties have attracted more and more attention in past decades. This composites which performance better expected to find applications in many fields, such as photoelectrochemical devices, electrochemical devices, Biosensors Chemical Sensors. The influence of PANI chemical structure emeraldine base. Figure 1. Show the basic Structure of Polyaniline.

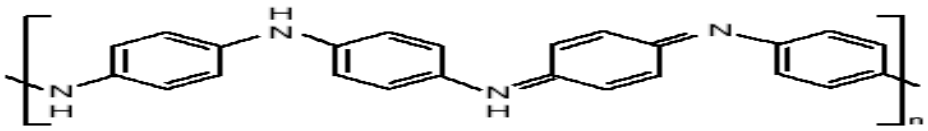

Figure 1: Structure of Polyaniline

The Role of Neurotransmitters as electrochemical signalling molecules are essential for proper brain function and their dysfunction is involved in several mental disorders. Neurotransmitter we have taken Adrenaline neurotransmitters, Epinephrine (also called adrenaline) are responsible for your body's so-called "fight-or-flight response" to fear and stress [4]. These is stimulate your body's response by increasing your heart rate, , as well as heighten attention and focus [5]

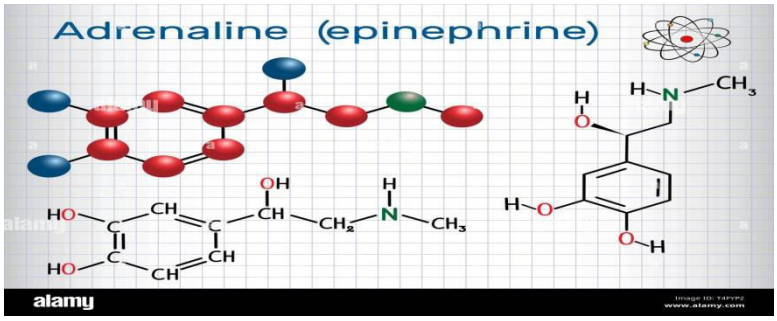

Figure 2: Structure of Adrenaline

The emergence of polymer nanocomposites is largely based on a consideration in which polymer matrix is reinforced by uniformly dispersed nanosized particles [6-7]. polymer nanocomposites with improved properties other than individual components or their macro- and micro-counterpart [8-9]. The suitable polymers have conjugated π-electron system along the polymer backbone. Conducting polymeric layers can be incorporated in many different types of transducers, [10-11]. For sensing measurement, usually a thin polymer film is directly

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deposited onto the sensor substrate by electrochemical polymerization. technique can also be used to deposit thin films onto the substrates [12]. he nanostructured forms of polymer appear to be the most promising to develop highly sensitive and stable electrochemical sensor.

METHOD

Galvanostatic Method is a fixed oxidation current is supplied with no control over the resulting potential of the system. it is used because it provides more control over the film thickness and it is reproducible too. The galvanostatic method enables a more uniform polymer film to be produced by applying constant current. Figure 3 show the Galvanostatic Technique.

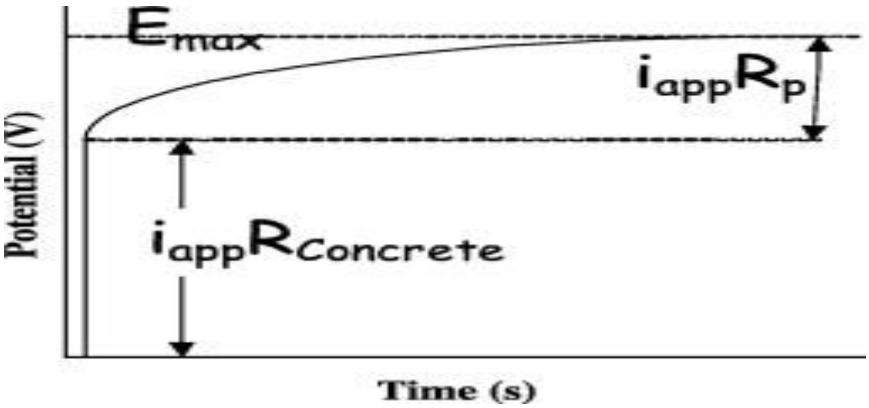

Figure 3: Galvanostatic pulse technique with current confinement guard ring

RESULT AND DISCUSSION

The Pani-neurotransmitters composite as materials.. Neurotransmitters as electrochemical signalling molecules detection are crucial in brain studies. Galvanostatic mode is an electrochemical measuring mode for electrochemical analysis or for the determination of electrode reaction based on the control of the current flowing through the system which is useful for biomedical application. The synthesized composites including structural particle size analysis with conductivity measurements.

CONCLUSION

The composites matrix synthesized with the help of galvanostatic method is useful for Electrochemical Sensors and Biomedical Applications.

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REFERENCES

[1] Forrest, S.R. (2004), The Path to Ubiquitous and Low-Cost OrganicElectronic Appliances on Plastic, Nature, Vol. 428, pp. 911-919.

[2] Wu, Z., Chen, X., Zhu, S., Zhou, Z., Yao, Y., Quan, W., and Liu, B. (2013), Room Temperature Methane Sensor Based on GrapheneNanosheets/Polyaniline Nanocomposite Thin Film, IEEE Sensors Journal, Vol. 13, pp. 777-782.

[3] Misra, S. C. K., Mathur, P., Yadav, M., Tiwari, M. K., Garg, S. C., andTripathi, P. (2004), Preparation and Characterization of Vacuum Deposited Semiconducting Nanocrystalline Polymeric Thin Film Sensors for Detectionof HCl, Polymer, Vol. 45, pp. 8623-8628.

[4] Silverberg, A.B.; Shah, S.D.; Haymond, M.W.; Cryer, P.E. Norepinephrine: Hormone and neurotransmitter in man. Am. J. Physiol.-Endocrinol. Metab. **1978**, 234, E252. [CrossRef] [PubMed]

[5] Purves, D.; Augustine, G.J.; Fitzpatrick, D.; Hall, W.; LaMantia, A.; McNamara, J.; White, L. Neuroscience Third Edition; Sinauer Associates: Sunderland, MA, USA, 2004; pp. 129–165.

[6] Das, T. K., and Prusty, S. (2012), Review on Conducting Polymers and TheirApplications, Polymer-Plastics Technology and Engineering, Vol. 51, pp. 1487–1500.

[7] Alexandre, M., and Dubois, P. (2000), Polymer-Layered Silicate Nanocomposites: Preparation, Properties and Uses of a New Class of Materials, Materials Science and Engineering (R), Vol. 28, pp. 1-63.

ISSN 2394 - 7780

[8] Binitha, N. N., and Sugunan, S. (2008), Polyaniline/Pillared Montmorillonite Clay Composite Nanofibers, Journal of Applied Polymer Science, Vol. 107, pp. 3367–3372.

[9] Janata J., and Josowicz, M. (2003), Conducting Polymers in ElectronicChemical Sensors, Nature Materials, Vol. 2, pp. 19-24.

[10] Deng, Z., Stone, D. C., and Thompson, M., (1996), Selective Detection ofAroma Components by Acoustic Wave Sensors Coated with ConductingPolymer Films, The Analyst, Vol. 121, pp. 671-679.

[11] Porter, T. L., Eastman, M. P., Pace, D. L., and Bradley, M. (2000), Polymerbased Materials to be used as the Active Element in Microsensors: AScanning Force Microscopy Study, The Journal of Scanning Microscopies, Vol. 22, pp. 304-309.

[12] Bai, H., and Shi, G. (2007), Gas Sensors Based on Conducting Polymers, Sensors, Vol. 7, pp. 267-307.

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EVALUATION OF RADIOLOGICAL DATA OF TITANIUM OXIDE (TIO_2) USING GAMMA RAY SPECTROMETRY

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ABSTRACT
Radiological parameters such as mass attenuation coefficients (μ_m), total attenuation cross section (σ_t), molar extinction coefficient (ε), effective electronic cross section (σ_e) and effective atomic number (Z_{eff}) of titanium oxide were measured using NaI (Tl) based gamma spectrometry. The current study used ^{57}Co, ^{133}Ba, ^{137}Cs, ^{54}Mn, ^{60}Co, and ^{22}Na as radioactive sources. The study made use of the gamma ray transmission method in a narrow beam with good geometry setup. Win-XCOM based data were compared to the measured data. The other important parameters have also been calculated from the obtained μ_m values and their variations with photon energy have been plotted. The obtained result shows that, μ_m, σ_t, ε and Z_{eff} were strongly depends on the photon energy, chemical composition and density of the materials.

INTRODUCTION
Knowledge of absorption, penetration, attenuation and photon interactions with functional material such as oxide is essential in radiation medicine and biology, nuclear technology and space research (Jakson and Hawkes, 1981). Data on the transmission and absorption of X-rays and gamma rays in biological shielding and dosimetric measurements, as well as the study of photon interactions with matter, are significant. Now in recent years the study of interactions of radiation with different material has become an extremely important in our routine life, especially in medical applications and it gives the increasing use of radioactive isotopes in different fields (Pradip Dahinde, R. R. Bhosale, 2020).

Oxide materials gained significant importance as a result of their varied applications in the fields of medical biology and physics (Kaewkhao et al., 2008). Understanding attenuation and energy absorption of photons in matter depends heavily on the mass attenuation coefficient (μ_m) and mass energy absorption coefficient (μ_{en}/ρ). Data for elements, compounds, and combinations as a function of photon energy were reported by Seltzer (1993). Hubbell (1999) reviewed photon interaction cross-section data in the context of medicine and biology. A precise evaluation of the interaction characteristics is required when choosing the material for radiation shielding and protection (Teli etal 2001). An investigation is conducted to determine the radiological effects that gamma radiation has on titanium oxide and to give literature that is currently not available for the particular topic. The findings examined in this article may be helpful for dose rate assessment and gamma radiation shielding. Numerous fields have found great utility in the measured values of the mass attenuation coefficient of gamma and x-rays on dosimetric, biological, and shielding materials (R, Tharanathan, 2003, D Jackson, D Hawkes 1981).

The Oxide has a wide range of uses in almost every field. From a theoretical and experimental point of view (pradip Dahinde, R. R. Bhosale 2020), the study of gamma ray interactions with oxide materials is quite interesting. In the energy range of 122-1330 keV, the values of mass attenuation coefficients and total atomic cross sections of metal oxides are investigated. These estimated theoretical values are compared to the studied values, which are shown to be a good match (Berger M.J. and Hubbell J.H., 1987, 1999)..

The most vital and accurate measurement of the average number of interactions between light photons and substance in a given mass per unit area thickness of the material under study is the mass attenuation coefficient (m) (Hubbell, 1999). In addition to μ_m other essential factors in comprehending photon dosemetry include Z_{eff} (effective atomic number), σ_t (total attenuation cross section), ε (molar extinction coefficient), and σ_e (effective electronic cross section) of complex molecules of biological importance. Based on the photon interaction cross-section by fitting data over constrained photon energy and atomic number ranges, Z_{eff} is calculated (Hawkes and Jackson,1981).The present work is aimed at measuring the radiological para-meters of photon such as μ_m,σ_t, ,σ_e ε and Z_{eff} for Titanium Oxide using the NaI(Tl) based gamma ray spectrometry (Pradip Dahinde, 2022).

2. Theory:
We are researching here some theoretical parameters of some oxide that have been used to determine the mass attenuation coefficient μ_m in the present work and other similar parameters which are based on it. The

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relationship is generally referred to as the Beer-Lambert law as a parallel beam of the measured intensity I of the transmitted mono-energetic X-ray or γ-photons passing through matter relevant to the incident intensity I_0.

$$I = I_0 e^{-\mu_m X} \quad (1)$$

Where I_0 and I are incident and transmitted photon intensities respectively, γ-photons

X is mass per unit area (g/cm^2), μ_m is mass attenuation coefficient (cm^2/g) given by the following equation for a compound or mixture of elements (Jackson D. F. and Hawkes D.J., 1981; Hubbell and Seltzer, 1995). By using the Eq. (1) we obtain the following equations for the linear attenuation coefficient;

$$\mu = 1/t \ ln \ (Io/I) \quad (2)$$

The sample's mass attenuation coefficient is calculated by means of the following equation:

$$(\mu/\rho)_i = \sum_i W_i (\mu/\rho)_i \quad (3)$$

Where W_i is the weight fraction and $(\mu/\rho)_i$ is the mass attenuation coefficient of the i^{th} constituent element. Weight fraction is given by

$$W_i = n_i A_i / \sum_j n_i A_j \quad (4)$$

Where A_j is the atomic weight of the i^{th} element and n_i is the number of formula units.

A fundamental parameter for the description of photon interaction with matter is the total attenuation cross-section (σ_t). Value of the coefficient of mass attenuation (μ_m) the following relationship is used to determine the total atomic cross-section section (σ_t) (Hubbell, 2006; Erzeneoğlu et al., 2006).

$$\sigma_t = \frac{A}{N_A X} \ln(I_o / I) \quad (5)$$

Where, A is molecular weight and N_A is Avogadro's number (6.02486×10^23).

The coefficient of molar extinction (ε) is a calculation of how intensely a chemical species attenuates light at a given wavelength, using the following equation to calculate the value of the coefficient of molar extinction (ε).

$$\varepsilon = 0.4343 N_A \sigma_t \quad (6)$$

The electronic cross-section (σ_e) is for an element is expressed by the following relation

$$\sigma_e = \frac{\sigma_t}{\bar{Z}} \quad (7)$$

Where $\bar{Z}$ is mean atomic number.

Effective atomic number (Z_{eff}) is also an important parameter and it is given by the equation as,

$$Z_{eff} = \frac{\sum_i W_i f_i A_i (\mu/\rho)_i}{\sum_i f_i (A_j / Z_j)(\mu/\rho)_j} \quad (8)$$

Where f_i is the mole fraction of each constituent element (provided $\sum_i f_i = 1$) and A_i is the atomic weight. In this study all the quantities are directly used (Manchaca et al., 2008).

3. Experimental Set Up and Measurements:

In the current investigation, the six radioactive sources ^{57}Co, ^{133}Ba, ^{137}Cs, ^{54}Mn, ^{60}Co, and ^{22}Na were used. The NaI(Tl) detector collimated and picked up gamma rays with energies of 122,356,511,662,835,1173,1275, and 1332 keV that were generated by the radioactive sources mentioned above. The Titanium Oxide (TiO_2) under investigation with a 13-bit multichannel analyzer, the signals from the detector were amplified and examined. Pellets with a consistent thickness of 0.13g/cm^2 that were contained in a cylindrical plastic container with the same diameter as the sample pellets were the subject of the experiment. With the help of a microscope, the

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sample diameters were measured. The attenuation of photons in the empty containers was found to be nigligible. Each sample pellet was weighed using a precise digital scale with a 0.001 mg precision. To acquire a consistent value for the mass, the weighing was repeated numerous times. The mass of the sample was assumed to be the mean of this collection of values.

The mass per unit area was calculated for each pellet using the diameter and mean value of the mass of the pellet. The sample thickness was chosen to meet the following ideal condition as much as possible (Creagh 1987). Using a narrow beam configuration with good geometry, photon energy of transmitted and incident types were measured. Fig. 1 shows a schematic representation of the experimental setup. Based on measurements of the un attenuated photon intensity I_0 (with an empty plastic container) and the attenuated photon intensity I (with sample), Eq. (3) was used to determine titanium oxide's mass attenuation coefficients. Berger and Hubbell also designed the Win-Xcom program me to calculate the values of the mass attenuation coefficients (1987).

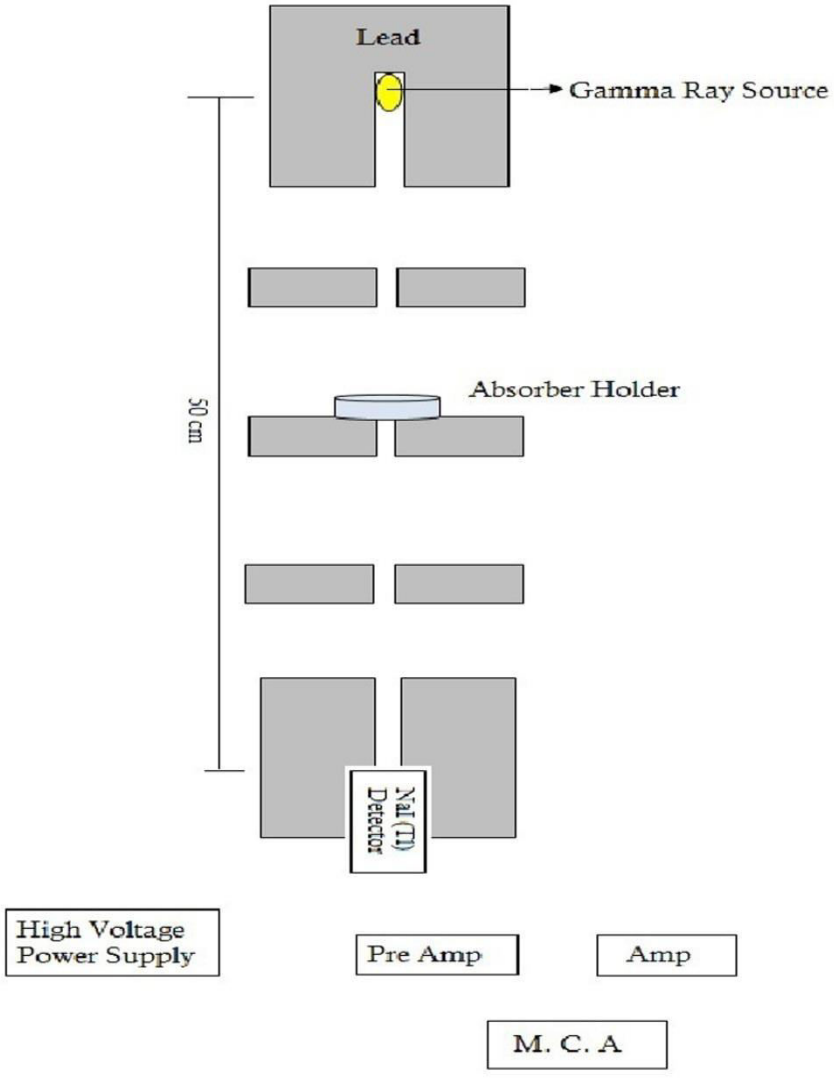

Fig 1: Schematic view of the experimental set-up.

Only when a high percentage of high Z impurities are present in the sample may the inaccuracy caused by sample impurities be significant. Since there was no content of high Z impurities in the saturated titanium oxide samples utilised in the current study, sample impurity adjustments were not applied to the observed data. The samples were of high purity (99.9%). The sample material's non-uniformity introduces an error fraction that is nearly half the root mean square deviation in mass per unit area. For all of the energies of interest, the uncertainty in the mass per unit area and the inaccuracy resulting from sample non-uniformity in the current work is 0.05 percent. It is also a consequence of the multiple scattering inside the sample. In the multichannel analyzer used in the present study, there was a built-in provision for dead time correction. The pulse piles of effects were kept mini- mum by selecting an optimum count rate and counting time.

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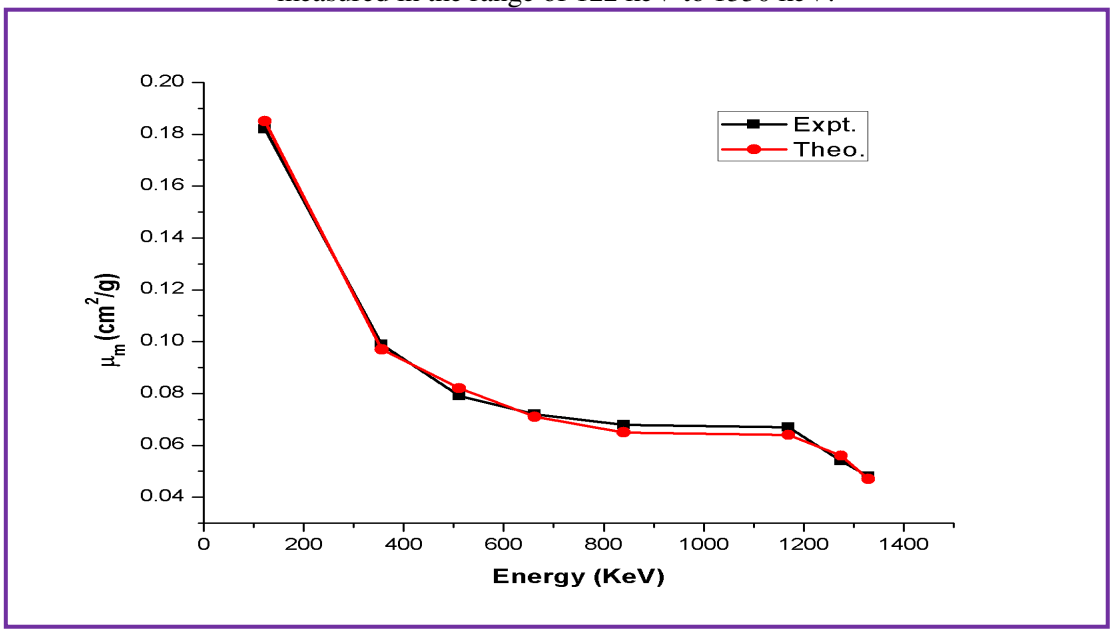
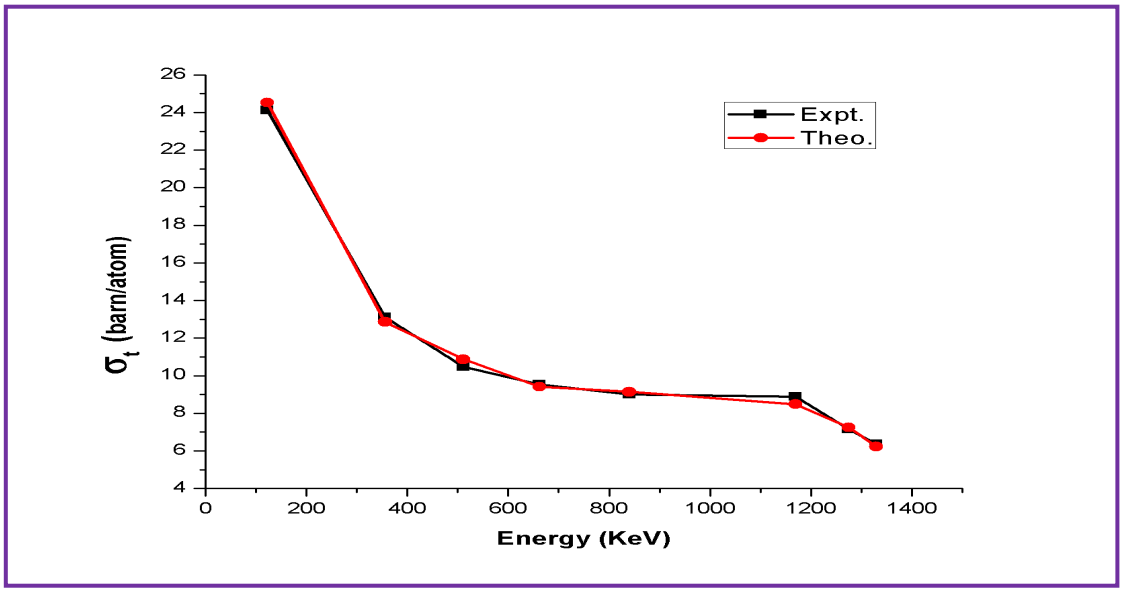
Table: The following table gives the information about experimental and theoretical values of mass attenuation coefficient (μ_m), total atomic cross sections (σ_t), electronic cross sections (σ_e), molar extinction coefficients (ε), effective atomic numbers (Z_{eff}) titanium oxide measured in the range of 122 keV to 1330 keV.

Sr. No.	Energy range keV	μ_m Expt.	μ_m Theo.	σ_t Expt.	σ_t Theo.	σ_e Expt.	σ_e Theo.	ε Expt.	ε Theo.	Z_{eff} Expt.	Z_{eff} Theo.
1.	122	0.182	0.185	24.13	24.53	1.485	1.51	6.311	6.416	16.18	16.24
2.	356	0.099	0.097	13.12	12.86	0.867	0.846	3.431	3.363	15.12	15.19
3.	511	0.079	0.082	10.47	10.87	0.706	0.731	2.738	2.843	14.81	14.85
4.	662	0.072	0.071	09.54	09.41	0.655	0.644	2.495	2.461	14.55	14.61
5.	840	0.068	0.065	09.01	09.14	0.629	0.598	2.356	2.390	14.32	14.39
6.	1170	0.067	0.064	08.88	08.48	0.631	0.601	2.322	2.218	14.06	14.10
7.	1275	0.054	0.056	07.16	07.25	0.512	0.517	1.872	1.896	13.98	14.02
8.	1330	0.048	0.047	06.36	06.23	0.456	0.445	1.663	1.621	13.92	13.98

Figure : The plot of (a) mass attenuation coefficient (μ_m), (b) total atomic cross sections (σ_t),(c) electronic cross sections (σ_e),(d) molar extinction coefficients (ε),(e) effective atomic numbers (Z_{eff}) of **titanium oxide** measured in the range of 122 keV to 1330 keV.



(a)



(b)

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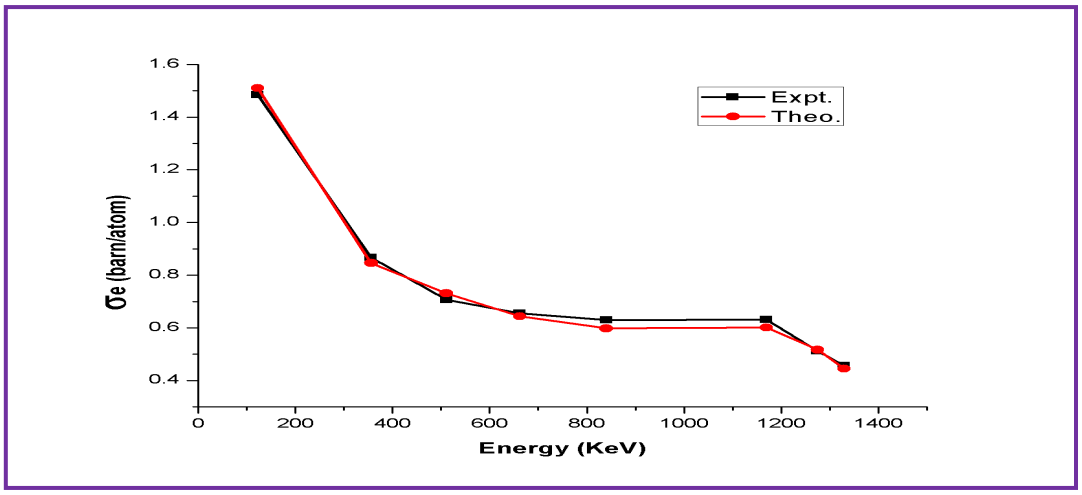
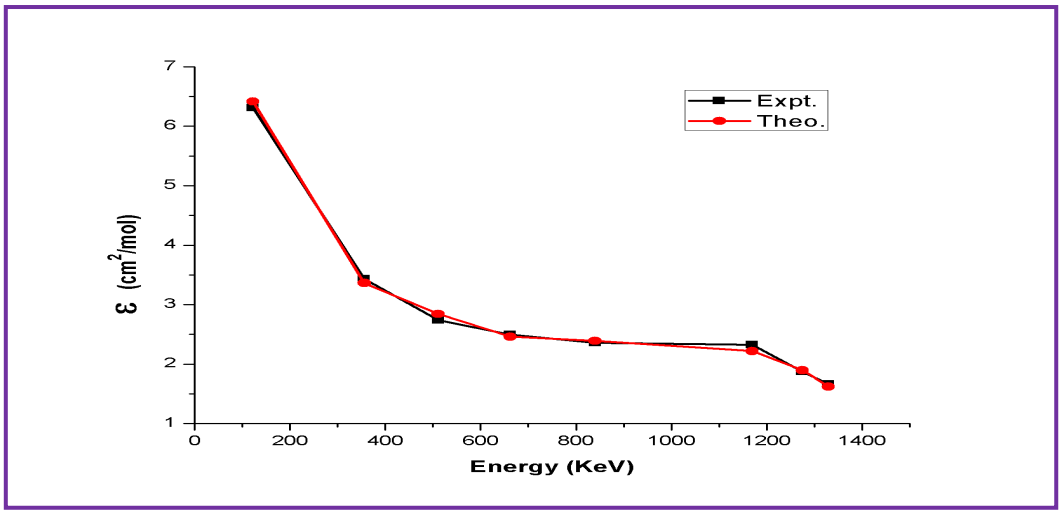
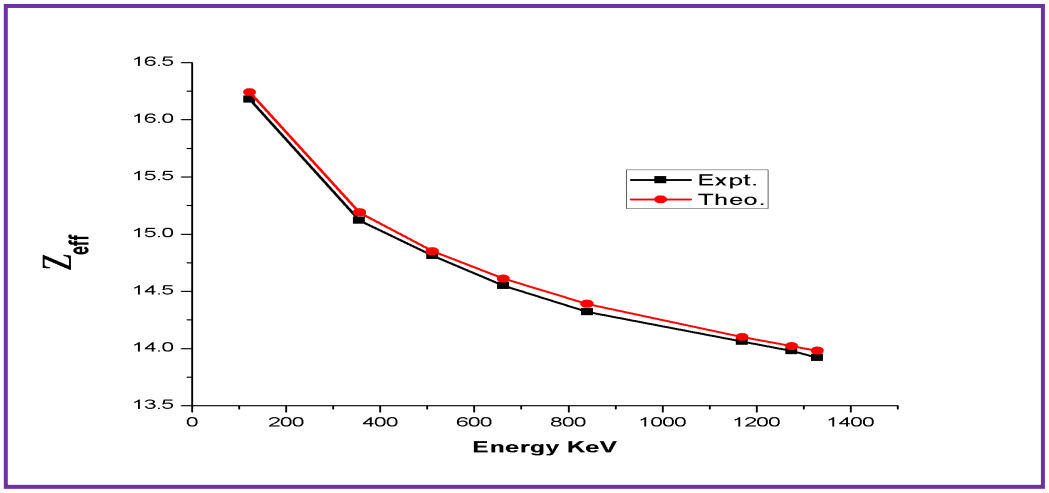


(c)



(d)



(e)

4. RESULTS AND DISCUSSION

The experimentally determined values of μ_m (cm^2/g) for titanium oxide (TiO_2) at 122, 356, 511, 662, 840, 1175, 1275, and 1330 keV, the typical curve of μ_m vs photon energy is shown in Fig. 2. The fluctuation of theoretically determined μ_m values against energy is also seen in Fig. (2). It is obvious that the μ_m depends on photon energy and decreases as photon energy increases. The theoretical values of μ_m derived using the Win-XCOM program me based on the mixture rule agree with the experimental values of μ_m Depending on the uncertainties of I_0 (without attenuation), I (after attenuation), mass thickness measurements, and counting statistics, the overall experimental uncertainty associated with the μ_m values is dependent on these factors. Typical total uncertainty in the measured experimental (μ_m) values is estimated to be 2–3%. Measured values of

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σ_t and ε for the presently studied for titanium oxide in above table. The typical plots of σ_t and ε as a function of photon energy (E) are displayed in Fig. b and Fig. c respectively .The behavior of σ_t and ε with E is almost similar to the behavior of μm versus E. Calculations of ε (Sandhu etal.2002) were carried out using t he XCOM program and our calculations are based on Win-XCOM which is updated version of XCOM. In this work more accurate results with less than 1% error are obtained. It is seen from Table and Fig. (c) That ε values for the present sample initially decrease with E and tend to be almost constant. For the composite materials, such as the titanium oxide studied in the present study, values of σ_e are given in above Table. Fig. d shows that typical variation of σ_t versus E for titanium oxide (TiO2) sample.

5. CONCLUSIONS

Gamma ray spectrometry based experimental study has been undertaken to determine mass attenuation coefficient (μ_m), total attenuation cross section (σ_t), effective electronic cross section(σ_e), and molar extinction coefficient (ε) for titanium oxide. At different photon energies emitted by the radioisotopes, namely, ^{60}Co, ^{57}Co, ^{133}Ba, ^{54}Mn, ^{22}Na and ^{137}Cs. The investigated sample titanium oxide (TiO2) For the investigated photon energies μ_m values decrease with photon energy. The variation of σ_t and (σ_e with photon energy is identical to μ_m. The measured data were compared against Win-XCOM based data andtheagreementiswithin1%.

REFERENCES

1. Berger, M,J., Hubbell,J.,H., 1987 XCOM: photon cross sections database, web version 1.2, 1999. Availble from:⟨http://physics.nist.gov/xcom⟩,originally published as NBSIR 87-3597: XCOM: Photon Cross Sections on a Personal Computer, Washington, D C.
2. Hubbell, J.H., 1999. Review of photon interaction cross section data in the medical and biological context. Phys. Med. Biol. 44, R1–R22.
3. Jackson, D.F., Hawkes, D.J., 1981. X-ray attenuation coefficients of elements and mixtures. Phys. Rep. 70, 169–233.
4. Jackson, D.F., Hawkes, D.J., 1981.X-rayattenuationcoefficients of elements and mixtures. Phys.Rep.70, 169–233.
5. Kaewkhao, J., Laopaiboon, J., Chewpraditkul, 2008.Determinationofeffective atomic numbers and effective electron densities for Cu/Zn alloy. J.Quant. Spectrosc.Radiat.Transfer109 (2008), 1260–1265.
6. Pradip Dahinde. R. R. Bhosale,, 2020. Mass attenuation coefficient and atomic cross section of Geo_2 in the energy range 122- 1330 keV ,Innovate journal of science, Vol. 8, Special Issue 1, 2020.
7. Seltzer, S.M., 1993. Calculation of photon mass energy-transfer and mass energyabsorption coefficients.
8. Teli, M.T., Mahajan, C.S., Nathuram, R., 2001. Measurement of mass and linear attenuation coefficient of gamma rays for varies elements through aqueous solution of salts. Indian J. Pure Appl. Phys. 39,
9. Pradip Dahinde. Mass Attenuation Coefficient and Effective Atomic Number of Yttrium Oxide at Energies 122 Kev to 1330 Kev, Asian journal of organic and medical chemistry, Vol. 7, 30-35.

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1, 3, 4-OXADIAZOLE DERIVATIVES: SYNTHETIC STRATEGIES AND THEIR PHARMACOLOGICAL ACTIVITY- A MINI REVIEW

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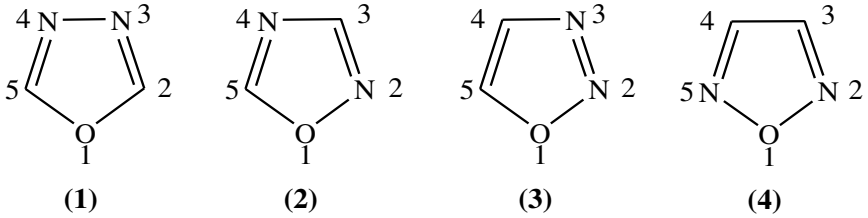
ABSTRACT
Biologically active compounds play a key role in the fight against diseases affecting both human and animal living organisms, as well as plants. Finding out about new molecules with a potential biological effect, not yet described in the literature, is one of the most important aspects in the development of medicine and agriculture. Compounds showing desirable biological activity include heterocyclic moieties such as 1,3,4-oxadiazoles. The oxadiazole molecule is composed of two nitrogen atoms and one oxygen atom, forming a five-membered heterocyclic ring. Structures of this type have been successfully used in the treatment of various diseases in humans and animals, and also play an important role in modern agriculture. It has been proven that many oxadiazole derivatives exhibit antibacterial, antiviral, and blood pressure lowering, antifungal, antineoplastic, and anticancer, and antioxidant, anti-inflammatory and analgesic properties. Due to the constantly growing interest in heterocyclic systems of this nature, new methods of obtaining complex structures containing oxadiazole rings are sought. This article discusses various methods of synthesis of 1,3,4-oxadiazole derivatives and exhibiting biological activity.

Keywords: 1, 3, 4-oxadiazoles; Synthesis; Pharmacological Activities.

INTRODUCTION
Pharmacologically relevant heterocyclic compounds play a key role in the fight against diseases affecting both human and animal living organisms, as well as plants. Oxadiazoles are the heterocyclic compounds containing one oxygen and two nitrogen atoms in a five membered ring [1, 2]. It is considered to be derived from furan by substitution of two -CH= groups with two pyridine type nitrogen (-N=). There are four possible isomers of Oxadiazole viz; 1,3,4-Oxadiazole (1), 1,2,4-Oxadiazole (2), 1,2,3-Oxadiazole(3) and 1,2,5 Oxadiazole (4) [Figure 1].



Figur 1- Isomers of Oxadiazole

Molecules with 1,3,4-oxadiazole ring structures have potential pharmacological relevance. These organic molecules are potentially reported for their medicinal importance. In this mini-review, different strategies for the synthesis of biologically important molecules of 1,3,4- oxadiazole ring are briefly summarized. Antimicrobial, anticancer, anti-inflammatory, anti-tubercular, molluscicidal, hypoglycemic, anticonvulsant, and antiprotozoal activities of the title compounds are also briefly reviewed.

In recent years the number of scientific studies with these compounds has increased considerably. Several methods have been reported in the literature for the synthesis of 1,3,4-oxadiazoles.

Considering the importance of 1,3,4-Oxadiazole to both heterocyclic and medicinal chemistry, we have decided to discuss the main synthetic approaches used for obtaining the oxadiazole moiety. Some of the methods are discussed below.

A. Synthetic Strategies:

1. Methods of Synthesis for 5-substituted-2-amino-1,3,4-Oxadiazole:

Scheme-1: Starting from benzohydrazide, Patel and Patel [3] synthesized 5-aryl-2-amino-1,3,4-oxadiazole (**a)** in good yields (62 to 70%).

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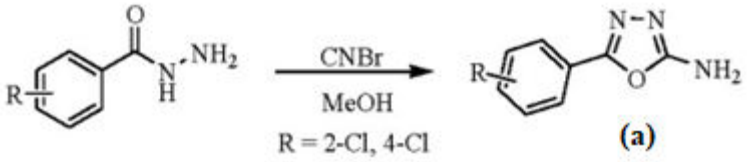
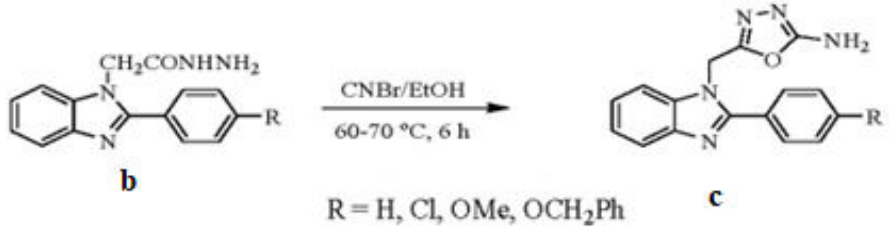
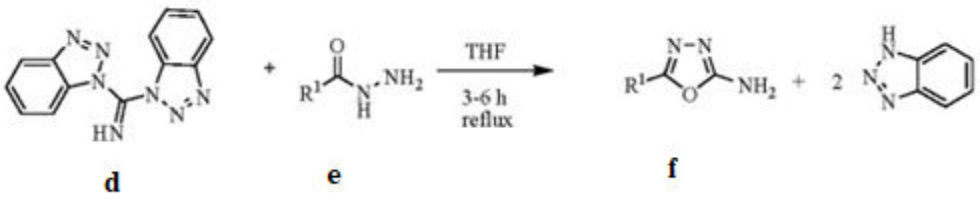


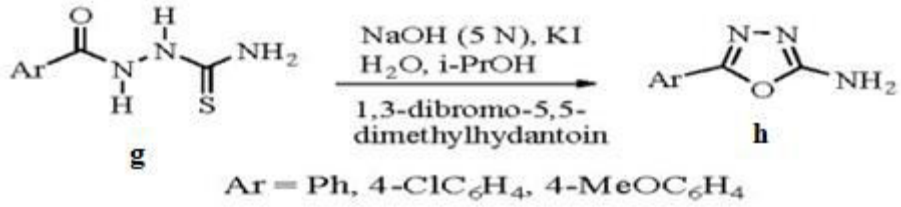
Scheme-2: The reaction between 2-(2-(4- substituted-phenyl)-1H-benzo[d]imidazol-1-yl)acetohydrazide **(b)** and cyanogen bromide, Kerimov and co-workers [4] synthesized a new series of 2-amino-1,3,4-oxadiazoles **(c)** carrying a benzimidazole moiety with 33%–60% yield.



Scheme-3: Katritzky and co-workers [5] prepared 5-aryl-2-amino-1,3,4-oxadiazole compounds **(f)** in excellent yields from the reaction between di(benzotriazol-1-yl)methanimine **(d)** and arylhydrazides **(e)**.

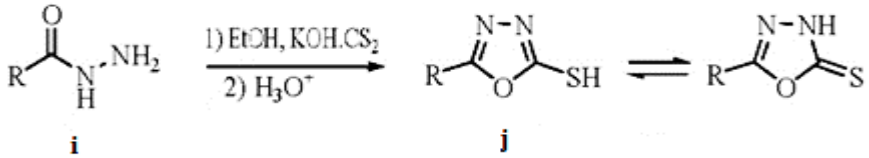


Scheme-4: Compound **(g)** on cyclization to obtained 5-aryl-2-amino-1,3,4- oxadiazoles **(h)** in excellent yield using 1,3-dibromo-5,5-dimethylhydanto. The reagents used is commercially very cheap and safe to work, Rivera and co-workers [6] .



2. Methods of Synthesis for 5-Substituted-1,3,4-oxadiazole-2-thiols:

Scheme-5: Initially reaction between an acylhydrazide **(i)** and carbon disulfide in basic alcohol solution, followed by acidification of the reaction mixture gives 5-substituted-1,3,4-oxadiazole-2-thiols/thiones **(j)** with excellent yield. The existence of thiol-thione tautomerism is known for the compounds **(j)** [7].



3. Methods for Synthesis of 2,5-Diaryl(alkyl)-1,3,4-oxadiazole:

Scheme-6: Zheng and co-workers [8] synthesis 5-(2,4-dichloro-5-flurophenyl)-2-(aryl)-1,3,4-oxadiazole **(l)** in two steps by refluxing the corresponding diacylhydrazines **(k)** with phosphorus oxychloride with excellent yield.

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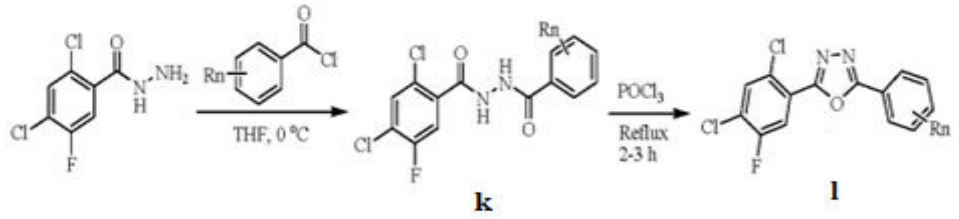
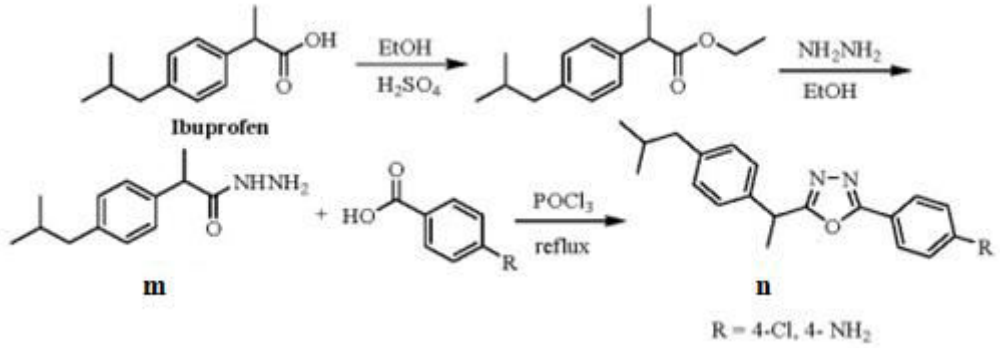
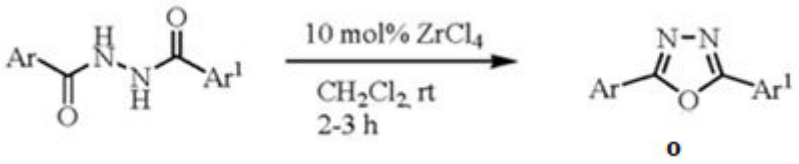


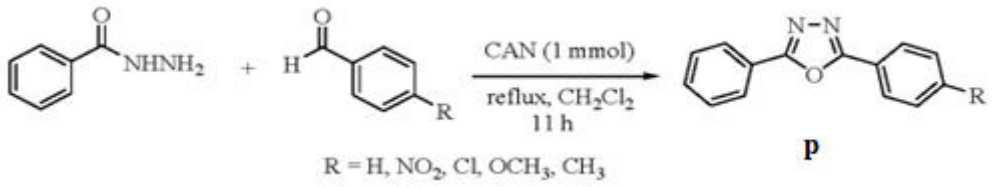
Scheme-7: Amir and Kumar [9] reported the synthesis of novel 2,5-disubstituted-1,3,4-oxadiazole derivatives **(n)**. Ibuprofen as a starting material and Phosphorus oxychloride ($POCl_3$) was used as a dehydrating agent in the reaction of acylhydrazide **(m)** with substituted aromatic carboxylic acids.



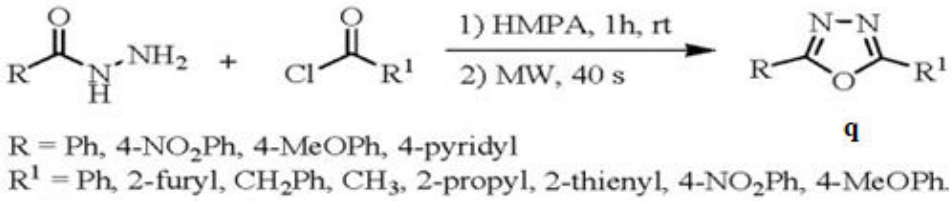
Scheme-8: Sharma and co-workers [10] developed a simple method for the synthesis of 1,3,4-oxadiazoles **(o)** starting from diacylhydrazines using inexpensive $ZrCl_4$ as a catalyst.



Scheme-9: Dabiri and co-workers [11] reported a new procedure for the synthesis of disubstituted oxadiazoles **(p)** through a one-pot reaction of benzohydrazide, and para substituted aromatic aldehydes in the presence of a cerium ammonium nitrate (CAN) and dichloromethane as a solvent.



Scheme-10: Mashraqui and coworkers [12] reported a convenient and rapid, one pot reaction for the synthesis of 2,5-disubstituted-1,3,4-oxadiazoles **(q)** by condensing monoarylhydrazides with acid chlorides in HMPA as a solvent under microwave irradiation, with excellent yield. The process was rapid and no need to add extra acid catalyst or dehydrating reagent.



Scheme-11: Kangani and co-workers [13] reported a one-pot direct synthesis of 1,3,4- oxadiazoles **(r)** in excellent yields (79-94%), from carboxylic acids (1 equiv.) and benzohydrazide (2.2 equiv.) using Deoxo-Fluor reagent.

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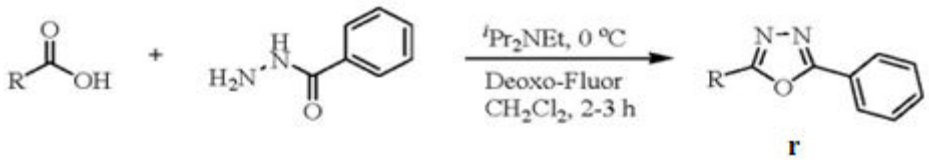
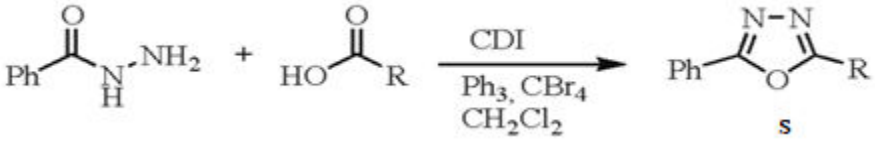


r

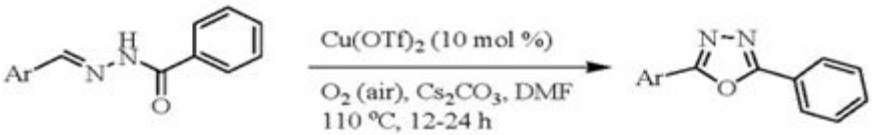
(Carboxylic acid = palmitic acid, linoleic acid, elaidic acid, benzoic acid, p-toluic acid, p-nitrobenzoic acid)

Scheme-12: Rajapakse [14] provide a method which involve one pot synthesis of 2,5- disubstituted-1,3,4-oxadiazoles **(s)** from benzohydrazide and carboxylic acid and using coupling agent 1,1'-carbonyldiimidazole (CDI) and dehydrating agent used is triphenylphosphyne with 23-73% yield.



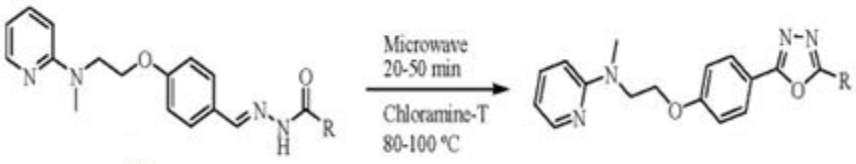
s

Scheme-13: Guin and co-workers [15] reported a direct route for synthesis of both symmetrical and unsymmetrical 2,5 -disubstituted-1,3,4-oxadiazoles **(u)** from N-arylidenearoylhydrazide **(t)** and using $Cu(OTf)_2$ as catalyst with good yield (23-73% yield).



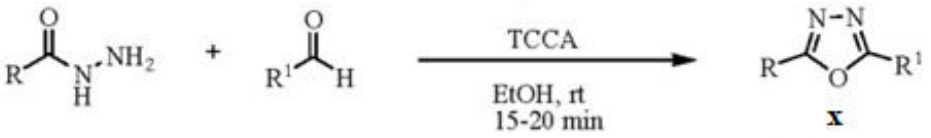
t u

Scheme-14: Gaonkar and co-workers [16] reported oxidative cyclization of N-acylhydrazones **(v)** with chloramine-T under microwave-irradiation to obtained 1,3,4- disubstituted oxadiazoles **(w).**



v w

Scheme-15: Pore and co-workers [17] developed an efficient method for one-pot synthesis of unsymmetrical 2,5-disubstituted 1,3,4-oxadiazoles **(x)** using trichloroisocyanuric acid (TCCA) at ambient temperatures. The main advantages of this method is, it required mild reraction conditions and short reaction time with excellent yield (75-85%).



x

R = Ph, 4-ClC$_6$H$_4$, 4-OCH$_3$C$_6$H$_4$, 4-CH$_3$C$_6$H$_4$ R^1 = Ph, 4-OCH$_3$C$_6$H$_4$, 4-ClC$_5$H$_4$, 4-CH$_3$C$_6$H$_4$

B. Pharmacological activities and recent advances:

A various biological and pharmaceutical actions have been discovered in 1,3,4-oxadiazole derivatives such as antimicrobial, anticancer, anti-tuberculosis anti-inflammatory, anticonvulsant, pesticide, monoamine oxidase inhibitors (MOA), antihypertensive etc.

(a) Antimicrobial Activities:

(i) 5-(5-methylisoxazole-3-yl)-3-substituted aminomethyl-2-thio-1,3,4-oxadiazoles **(1)**, 4- acetyl-2-thio-1,3,4-oxadiazoles (5- methylisoxazole-3-yl) 2-aryl-5-9 and -5- substituted 1,3,4-oxadiazoles **(2)** (5-methylisoxazole-3-yl)-1,3,4-oxadiazoles **(3)** were synthesized using the Mannich reaction [18], and their

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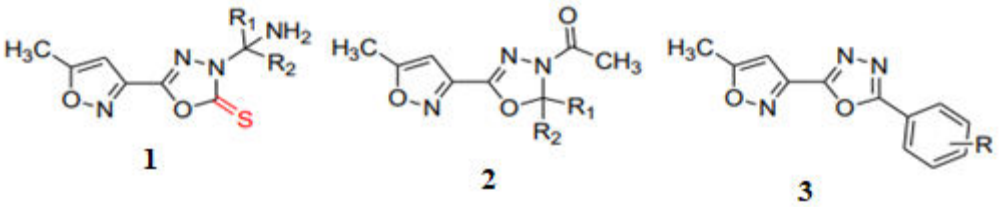
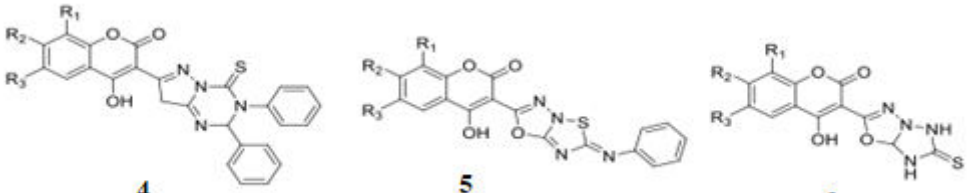
anti-bacterial activation against Staphylococcus aureus, Escherichia coli, and Bacillus subtilis was evaluated by cup plate procedure at 100 g/mL. 4-Acetyl-2-phenyl-(5- methylisoxazole-3-yl) 2-aryl-5-9-substituted 1,3,4-oxadiazoles and 5-substituted 1,3,4- oxadiazoles (5-methylisoxazole-3-yl) were found to be the most active compounds.



1 2 3

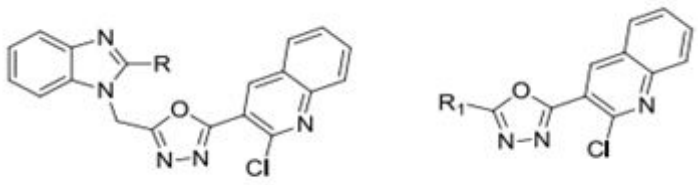
(ii) Some new 1,2,4 triazolo-1,3,4-oxadiazole derivatives **(4)**, oxa-di-azolo [1,3,5]-triazine **(5)**, and triazolo-1,3,4-oxadiazole **(6)** were tested for their in vitro anti-bacterial activity on Gram-negative bacteria (S. typhi and E. coli.) and Gram-positive bacteria (S. aureus) by Mulwad and Chaskar [19]. Tube dilution techniques were used to determine the minimum inhibitory concentration (MIC) of ciprofloxacin, cloxacillin, and gentamicin. The majority of the compounds have considerable biological action.



4 5 6

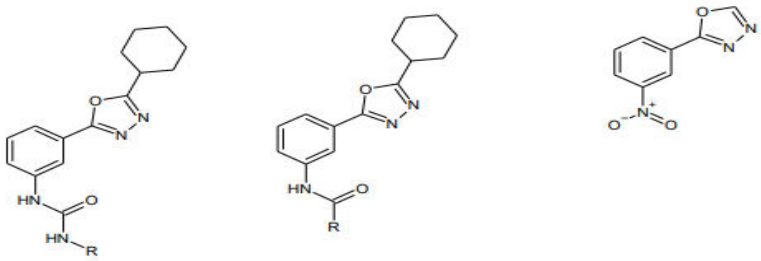
(b) Anti-cancer Activities:

(iii) 2-Chloro-3-{5-[(2-substituted-1-H-benzimidazol-1-yl)methyl]-1,3,4-oxadiazol-2-yl}quinoline **(7)** and 2-chloro-3-(5-substituted-phenyl-1,3,4-oxadiazol-2-yl) quinoline **(8)** were prepared [20] and screened for anti-cancer property against to 60 cancer cell line at a dose of 10−5 Molar on different broad cell lines.



7 8

(iv) A series of 3-(5-cyclohexyl)-1,3,4 oxadiazole-2-yl)-N-substituted aniline was synthesised by Kavitha selvaraj et al., [21] and screened for their anticancer activity.



(c) Anti-Tuberculosis Activities:

(v) A. M. Comrie et al., [22] synthesized α-(5-(2-furyl-1,3,4-oxadiazol-2-ylthio)acetohydrazide and related compound and evaluated for anti-tuberculosis activity. R. Govindarajan et al., [23] reported the synthesized and anti-tubercular activity of pyrazinoyl and related heterocycles.

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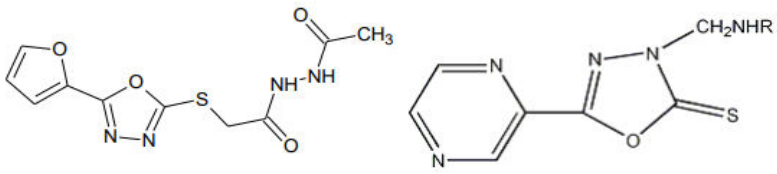
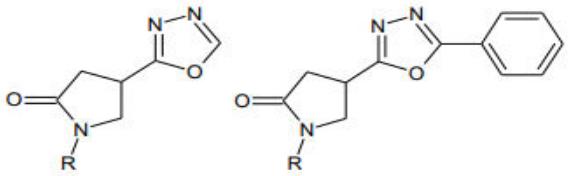
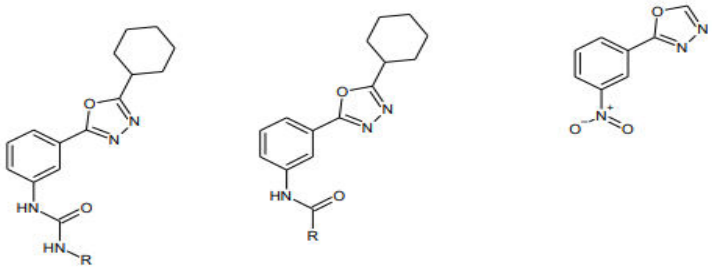


(d) Anti-Inflammatory Activities:

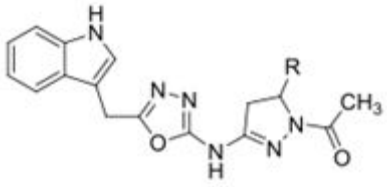
(vi) V.mickevicius et al., [24] synthesized substituted 1, 3, 4-oxadiazole derivatives and screened for anti-inflammatory activity.



(vii) Kavitha selvaraj et al., [25] synthesized a series of 3-(5-cyclohexyl)-1, 3, 4 oxadiazole-2-yl)-N-substituted aniline and screened for anti-inflammatory activity.



(viii) 1-{5-(4-Hydroxy-phenyl)-3-[5-(1H-indol-3-ylmethyl)-4H-pyrazol-3-ylamino]-4,5 -dihydro pyrazol-1-yl}-ethanone (R=p-OHC_6H_5) was synthesized [26] and also tested their anti-inflammatory activity with inhibition at a dose at 50 mg kg^{-1}.



CONCLUSIONS

In this review, the authors successfully narrate the remarkable syntheses of 1,3,4- oxadiazole derivatives. Oxadiazole derivatives reveal a wide range of biological activity and drug discovery programs. We believe oxadiazole research is still in the early stage, and huge potential remains unutilized in pharmaceutical and synthetic stream, further study will open a new era of scientific development particularly novel reactions and applications in organic synthesis methodologies by creative chemists will certainly allow the access to challenging targets in an extremely efficient manner.

REFERENCES

[1] P. Sengupta, M. Mal, S. Mandal, J. Singh, and T. K. Maity, "Evaluation of antibacterial and antifungal activity of some 1, 3, 4 oxadiazoles," Iranian Journal of Pharmacology and Therapeutics, vol. 7, no. 2, pp. 165–167, 2008.

[2] N. Bhardwaj, S. K. Saraf, P. Sharma, and P. Kumar, "Syntheses, evaluation and characterization of some 1, 3, 4-oxadiazoles as antimicrobial agents," E-Journal of Chemistry, vol. 6, no. 4, pp. 1133–1138, 2009.

[3] Patel, N.B.; Patel, J.C. Synthesis and antimicrobial activity of 3-(1,3,4-oxadiazol-2- il) quinazolin- 4(3H)-ones. Sci. Pharm. 2010; 78: 171–193.

[4] Kerimov, I.; Ayhan-Kılcıgil, G.; Özdamar, E.D.; Can-Eke, B.; Çoban, T.; Özbey, S.; Kazak, C. Design and one-pot and microwave-assisted synthesis of 2-amino/5-aryl-1,3,4- oxadiazoles bearing a benzimidazole moiety as antioxidants. Arch. Pharm. Chem. Life Sci. 2012; 345: 349–356.

ISSN 2394 - 7780

[5] Katritzky, A.R.; Vvedensky, V.; Cai, X.; Rogovoy, B.; Steel, P.J. Synthesis of 5-(2- arylazenyl)- 1,2,4-triazoles and 2-amino-5-aryl-1,3,4-oxadiazoles. ARKIVOC, 2002; 6: 82–90.

[6] Rivera, N.R.; Balsells, J.; Hansen, K.B. Synthesis of 2-amino-5-substituted-1,3,4- oxadiazoles using 1,3-dibromo-5,5-dimethylhydantoin as oxidant. Tetrahedron Lett. 2006; 47: 4889–4891.

[7] Koparır, M.; Çetin, A.; Cansız, A. 5-Furan-2yl[1,3,4]oxadiazole-2-thiol, 5-furan-2yl4H[1,2,4] triazole-3-thiol and their thiol-thione tautomerism. Molecules 2005; 10: 475– 480.

[8] Zheng, X.; Li, Z.; Wang, Y.; Chen, W.; Huang, Q.; Liu, C.; Song, G. Synthesis and Insecticidal activities of novel 2,5-disubstituted 1,3,4-oxadiazoles. J. Fluorine Chem. 2003; 123: 163–169.

[9] Amir, M.; Kumar, S. Synthesis and evaluation of anti-inflammatory, analgesic ulcerogenic and lipid peroxidation properties of ibuprofen derivatives. Acta Pharm. 2007; 57; 31–45.

[10] Sharma, G.V.M.; Rakesh, B.A.; Krishna, P.R. Zirconium (IV) chloride mediated cyclodehydration of 1,2-diacylhydrazines: A convenient synthesis of 2,5-diaryl 1,3,4- oxadiazoles. Synth. Commun. 2004; 34: 2387–2391.

[11] Dabiri, M.; Salehi, P.; Baghbanzadeh, M.; Bahramnejad, M. A facile procedure for the one-pot synthesis of unsymmetrical 2,5-disubstituted 1,3,4-oxadiazoles. Tetrahedron Lett. 2006; 47: 6983–6986.

[12] Mashraqui, S.H.; Ghadigaonkar, S.G.; Kenny, R.S. An expeditious and convenient one pot synthesis of 2,5-disubstituted-1,3,4-oxadiazoles. Synth. Commun. 2003; 33:2541– 2545.

[13] Kangani, C.O.; Kelley, D.E.; Day, B.W. One pot direct synthesis of oxazolines, benzoxazoles and oxadiazoles from carboxylic acids using the deoxo-fluor reagent. Tetrahedron Lett. 2006; 47: 6497–6499.

[14] Rajapakse, H.A.; Zhu, H.; Young, M.B.; Mott, B.T. A mild and efficient one pot synthesis of 1,3,4-oxadiazoles from carboxylic acids and acyl hydrazides. Tetrahedron Lett. 2006; 47: 4827–4830.

[15] Guin, S.; Ghosh, T.; Rout, S.K.; Banerjee, A.; Patel, B.K. Cu(II) Catalyzed imine C-H functionalization leading to synthesis of 2,5-substituted 1,3,4-oxadiazoles. Org. Lett. 2011; 13:5976–5979

[16] Gaonkar, S.L.; Nagashima, I.; Shimizu, H. Microwave-assisted solution phase synthesis of novel 2-{4-[2-(N-methyl-2-pyridylamino)ethoxy]phenyl}-5-substituted 1,3,4- oxadiazole library. Org. Chem. Int. 2011, 2011, doi:10.1155/2011/751894.

[17] Pore, D.M.; Mahadik, S.M.; Desai, U.V. Trichloroisocyanuric acid-mediated one-pot synthesis of unsymmetrical 2,5-disubstituted 1,3,4-oxadiazoles at ambient temperature. Synth. Commun. 2008, 38, 3121–3128.

[18] X.P. Hui, C.H. Chu, Z.Y. Zhang, Q. Wang, Q. Zhang, Indian J. Chem., 2002, 41B, 2176-2179.

[19] V. V. Mulwad, A.C. Chaskar, Indian J. Chem., 2006, 45B, 1710-1715.

[20] Shamsuzzaman, T. Siddiqui, M.G. Alam, A.M. Dar, J. Saudi Chem. Soc., 2015, 19, 387-391.

[21] Kavitha Selvaraj, Kannan Kulanthai, Gnanavel Sadhasivam,Saudi Pharmaceutical Journal (2017) 25, 337–345.

[22] Mir and M. T. Siddiqui, Drugs Research Division, P.C.S.I.R. Laboratories, Peshawar Comrie A. M.," School of Pharmaceutical Sciences, University of Strathclyde, Glasgow C.l J. Chem. SOC. (C) , (1971), volume 1/463,2798- 2799.

[23] Govindarajan R and Bhat A.R, IJHC, Apr.-June (2002), Vol. 11, P. 337-338.

[24] Mickevičius V,Vaickelionienė R,Sapijanskaitė ,Chemistry of Heterocyclic Compounds, , (2009) Vol. 45, No. 2,P 269-272.

[25] Kavitha Selvaraj, Kannan Kulanthai, Gnanavel Sadhasivam,Saudi Pharmaceutical Journal (2017) 25, 337–345.

[26] M.Y.S. Khan, G. Chawla, M.A. Mueed, Indian J. Chem., 2004, 43B, 1302-1305

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EMPOWERING FINANCIAL FUTURES: AN IN-DEPTH EXPLORATION OF FINANCIAL LITERACY AND ITS IMPACT ON PERSONAL FINANCE MANAGEMENT IN INDIA

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ABSTRACT
In an increasingly complex and interconnected financial world, the concept of financial literacy takes center stage. This research paper undertakes a comprehensive exploration of the profound influence that financial literacy holds over personal finance management. Financial literacy, defined as the ability to understand and apply financial knowledge to make informed financial decisions, plays a pivotal role in shaping the financial well-being of individuals and households. This study, employing a mixed-methods approach comprising surveys, interviews, and case studies, investigates the current state of financial literacy and its direct impact on various facets of personal finance, including budgeting, investment decisions, debt management, and retirement planning. The findings illuminate the significance of financial education as a powerful tool for empowering individuals to make informed financial choices, ultimately paving the way for a more secure and prosperous financial future.

INTRODUCTION
The realm of personal finance has grown increasingly intricate, with an array of choices spanning investments, mortgages, insurance, and retirement planning. In this complex financial landscape, financial literacy emerges as a fundamental tool for individuals striving to navigate the challenges of personal finance. Financial literacy encompasses the knowledge and skills required to comprehend financial concepts, make sound financial decisions, and ultimately secure one's financial future.

This research paper embarks on a comprehensive exploration of financial literacy and its profound influence on personal finance management. As economic volatility and financial responsibility become more prominent, the role of financial literacy becomes increasingly pivotal. Employing a mixed-methods approach, this study seeks to shed light on the intricate connection between financial literacy and various aspects of personal finance.

LITERATURE REVIEW:

Defining Financial Literacy:
Financial literacy is commonly defined as the capacity to comprehend and apply financial knowledge to make informed financial decisions. It encompasses the ability to manage financial resources effectively, including budgeting, saving, investing, and debt management.

The Importance of Financial Literacy:
Financial literacy is essential for individuals to navigate the complex financial choices they face throughout their lives. It empowers individuals to make informed decisions, plan for the future, and achieve financial security.

The Link between Financial Literacy and Personal Finance:
Existing literature highlights a strong connection between financial literacy and personal finance outcomes. Individuals with higher levels of financial literacy tend to exhibit better financial management practices, including budgeting, investing, and debt reduction.

METHODOLOGY
Secondary Data: Existing data sources, such as government reports and financial literacy studies, are utilized to complement primary data collection.

Assessing Financial Literacy Levels:
1. Regional Disparities: Financial literacy levels often varied significantly between urban and rural areas. Urban populations generally had better access to financial education resources and were more likely to be financially literate compared to their rural counterparts.
2. Gender Gap: There was a noticeable gender gap in financial literacy levels, with men typically having higher financial literacy rates than women. This gap could be attributed to cultural and social factors, as well as differences in access to financial information and opportunities.

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3. Age Groups: Financial literacy tended to increase with age, indicating that older individuals had more exposure to financial matters and, consequently, higher financial literacy. However, younger generations were increasingly seeking financial education through online resources.
4. Educational Background: Education played a significant role in determining financial literacy. Individuals with higher levels of education were more likely to be financially literate and capable of making informed financial decisions.
5. Income Levels: There was a positive correlation between income levels and financial literacy. Higher-income individuals often had better access to financial products and services and were more likely to engage with financial institutions.
6. Government Initiatives: The Indian government, through various agencies and programs, made efforts to enhance financial literacy across the country. Initiatives like the Pradhan Mantri Jan Dhan Yojana (PMJDY) aimed to improve financial inclusion and promote financial literacy among marginalized communities.
7. Private Sector Initiatives: Financial institutions and non-governmental organizations (NGOs) in India also launched financial literacy programs and campaigns to educate people about savings, investments, and responsible borrowing.

The Impact of Financial Literacy on Personal Finance Management:

1. **Effective Budgeting:** Financial literacy equips individuals with the skills to create and maintain budgets. It helps them track income and expenses, allocate funds to different categories, and identify areas where they can save money. A financially literate person is more likely to establish a realistic budget and stick to it.
2. **Prudent Spending Decisions:** Financially literate individuals are better at making informed spending decisions. They can differentiate between needs and wants, prioritize essential expenses, and avoid unnecessary purchases. This leads to more efficient use of financial resources.
3. **Smart Saving:** Financial literacy encourages saving for both short-term and long-term goals. Understanding the importance of saving and the various savings vehicles available, such as savings accounts, certificates of deposit, or retirement accounts, enables individuals to build financial security over time.
4. **Investment Knowledge:** Financial literacy provides individuals with the foundation to understand different investment options, such as stocks, bonds, mutual funds, and real estate. This knowledge helps them make informed investment decisions aligned with their financial goals and risk tolerance.
5. **Debt Management:** Financially literate individuals are better equipped to manage debt effectively. They understand interest rates, loan terms, and the implications of borrowing. They are more likely to use credit responsibly and avoid high-cost debt traps.
6. **Improved Credit Score:** Knowledge of credit and credit scores is a crucial component of financial literacy. Individuals who understand how credit scores work can take steps to maintain or improve their creditworthiness, which can lead to lower borrowing costs and better access to financial products.
7. **Retirement Planning:** Financial literacy empowers individuals to plan for retirement by understanding retirement account options, investment strategies, and retirement income sources. This knowledge helps ensure a comfortable retirement.
8. **Financial Resilience:** Financially literate individuals are more resilient in the face of financial emergencies or unexpected expenses. They are better prepared to handle financial setbacks and have emergency funds in place to cover unforeseen costs.
9. **Avoiding Scams and Fraud:** Financial literacy includes awareness of common financial scams and fraud. A financially literate person is less likely to fall victim to fraudulent schemes and is more cautious when approached with suspicious financial offers.
10. **Overall Financial Well-Being:** Ultimately, financial literacy contributes to overall financial well-being and reduces financial stress. Individuals who are financially literate tend to experience greater confidence and peace of mind in managing their finances.

CONCLUSION

In the dynamic and evolving financial landscape of India, the significance of financial literacy in shaping personal finance management is undeniable. This research paper has undertaken a comprehensive exploration of financial literacy and its profound influence on the financial decision-making of individuals across the country.

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Our findings reveal that financial literacy levels vary widely in India, with disparities observed across different demographic groups, regions, and education levels. Urban areas tend to exhibit higher financial literacy levels than rural regions, while men often outpace women in financial knowledge. Additionally, age and education play pivotal roles in determining financial literacy.

The impact of financial literacy on personal finance management in India is unmistakable. Financially literate individuals are more likely to engage in effective budgeting, prudent spending, and smart saving. They exhibit a greater understanding of investment options, debt management, and retirement planning. Moreover, financial literacy contributes to improved credit scores, financial resilience, and the ability to avoid financial scams and fraud.

Financial education and outreach programs in India, both by the government and private sector, have made notable strides in enhancing financial literacy levels. However, there remains much work to be done, particularly in addressing gender disparities and ensuring that financial education reaches underserved communities.

In conclusion, this research underscores the essential role of financial literacy in empowering individuals across India to navigate the complexities of personal finance management. It emphasizes that financial education is not just a tool for economic empowerment but a means to enhance financial well-being, reduce financial stress, and secure a prosperous financial future for all. As India continues its path of economic growth and financial transformation, fostering a more financially literate population is a crucial step towards broader financial inclusion and economic prosperity.

REFERENCES

1. World Bank. (2014). Global Financial Development Report 2014: Financial Inclusion. World Bank Publications.
2. Indian School of Microfinance for Women (2017). India Financial Inclusion Report 2017. IRDUP.
3. Reserve Bank of India (RBI). (2021). Financial Education in India: A Status Report 2020-21.
4. World Bank. (2017). Global Findex Database 2017: Measuring Financial Inclusion and the Fintech Revolution. World Bank Publications.
5. Cole, S., Sampson, T., & Zia, B. (2011). Prices or Knowledge? What Drives Demand for Financial Services in Emerging Markets? The Journal of Finance, 66(6), 1933-1967.
6. Duflo, E., & Saez, E. (2003). The Role of Information and Social Interactions in Retirement Plan Decisions: Evidence from a Randomized Experiment. The Quarterly Journal of Economics, 118(3), 815-842.
7. International Labour Organization (ILO). (2020). Financial Literacy in the Workplace: A Guide for Educators.

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EMPOWERING WOMEN THROUGH FINANCIAL LITERACY: A CATALYST FOR ECONOMIC INDEPENDENCE AND SOCIOECONOMIC DEVELOPMENT IN INDIA

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ABSTRACT
In India, women's financial literacy and empowerment are central to fostering economic independence and driving socioeconomic progress. This research paper provides a comprehensive exploration of the impact of financial literacy on women's economic empowerment in India. Through an in-depth analysis of financial literacy initiatives, case studies, and empirical data, this study seeks to uncover the multifaceted ways in which enhanced financial knowledge empowers women, narrows gender disparities, and contributes to broader socioeconomic development. The findings underscore the urgency of targeted financial education programs to unlock the full potential of India's female population.

INTRODUCTION
India, a land of rich cultural diversity and economic dynamism, is on a relentless journey toward progress and development. Yet, within this mosaic of growth, one undeniable truth persists: gender disparities continue to shape the social and economic landscape. In this context, the empowerment of women stands as both a moral imperative and a strategic necessity for India's sustained socioeconomic advancement. A pivotal avenue to achieving this empowerment is through financial literacy—the key to unlocking economic independence and fostering socioeconomic development.

The fabric of gender inequality in India, woven over centuries, remains a complex and pervasive challenge. While the nation has made significant strides in various domains, gender disparities persist in income, employment opportunities, educational attainment, and access to financial resources. Women, who constitute nearly half of India's population, often find themselves on the fringes of economic participation, unable to fully harness their potential as catalysts of change.

Financial literacy, defined as the ability to comprehend and apply financial knowledge to make informed decisions, emerges as a potent tool for addressing these disparities. It represents the bridge between economic vulnerability and empowerment, offering women the knowledge and skills required to navigate the intricacies of modern finance and assert control over their financial destinies.

This research paper embarks on an in-depth exploration of the transformative power of financial literacy in empowering women in India. It delves into the multifaceted dimensions of this empowerment, ranging from economic independence to entrepreneurial endeavors and from improved financial decision-making to broader financial inclusion. By analyzing the impact of financial literacy initiatives, case studies, and empirical data, this study seeks to elucidate the intricate ways in which enhanced financial knowledge propels women toward greater self-reliance and contributes to the socioeconomic development of the nation.

METHODOLOGY:
Secondary Data: Existing data sources, such as government reports and financial literacy studies, are utilized to complement primary data collection.

Financial literacy Initiatives in India:
Financial literacy initiatives in India have gained momentum over the years as policymakers and organizations recognize the importance of empowering individuals, especially women, with the knowledge and skills to make informed financial decisions. These initiatives aim to enhance financial awareness, improve money management, and promote economic independence among women. Here are some key financial literacy initiatives and programs in India that you can include in your research paper:

1. **Pradhan Mantri Jan Dhan Yojana (PMJDY):** Launched in 2014, PMJDY is a government program aimed at achieving financial inclusion for all. It encourages women to open bank accounts, avail of banking services, and access credit facilities. The program also offers financial literacy and awareness campaigns to educate women about banking and savings.
2. **Mahila Pradhan Kshetriya Bachat Yojana (MPKBY):** MPKBY is a savings scheme introduced by the Indian Post Office. It is specifically designed to promote savings among women in rural areas. The program provides access to small savings and recurring deposit accounts to help women build financial security.

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3. **National Mission for Financial Inclusion (NABARD):** The National Bank for Agriculture and Rural Development (NABARD) conducts financial literacy and credit counseling programs in rural areas. These initiatives target women in agricultural communities, educating them about financial management and credit options.
4. **Financial Literacy Centers (FLCs):** FLCs are established across various banks in India with the objective of providing free financial literacy training. These centers offer workshops, seminars, and one-on-one counseling sessions to educate women and other segments of the population about financial matters.
5. **Rashtriya Mahila Kosh (RMK):** RMK is a national credit fund for women established by the Ministry of Women and Child Development. It provides micro-credit and financial services to empower women economically, particularly those from marginalized backgrounds.
6. **Corporate Initiatives:** Many Indian corporations and financial institutions run financial literacy programs as part of their corporate social responsibility (CSR) efforts. These programs often include workshops and seminars on financial planning, budgeting, and investment for women in both urban and rural areas.
7. **Non-Governmental Organizations (NGOs):** Several NGOs in India focus on financial literacy and empowerment of women. They offer training programs, financial counseling, and support for women entrepreneurs to start and manage their businesses.
8. **Digital Financial Literacy Initiatives:** With the growing penetration of smartphones and digital payment platforms, there are initiatives to promote digital financial literacy among women. These programs aim to educate women on using digital tools for financial transactions and savings.
9. **State-Specific Initiatives:** Various Indian states have their own financial literacy programs tailored to the specific needs and challenges of their population. These state-level initiatives often collaborate with local organizations and government agencies to reach women in underserved areas.

Assessing the Impact of Financial Literacy on Women's Empowerment:

Assessing the impact of financial literacy on women's empowerment involves evaluating how financial knowledge and skills influence various aspects of women's lives, particularly their economic independence, decision-making abilities, and overall well-being. This assessment seeks to measure the effectiveness of financial literacy initiatives and programs in empowering women to take control of their financial futures and participate actively in economic and social spheres. Here are some key dimensions to consider when assessing the impact of financial literacy on women's empowerment:

1. **Economic Independence:** Financial literacy can empower women by providing them with the knowledge and tools to generate income, manage their finances, and achieve economic self-sufficiency. Assessing economic independence may involve examining changes in women's employment status, income levels, and savings habits after participating in financial literacy programs.
2. **Entrepreneurship and Small Business Development:** Financial literacy can encourage women to become entrepreneurs and start or expand their own businesses. Assessing this impact may include tracking the number of women who have initiated entrepreneurial ventures, the success of these businesses, and the resulting economic contributions.
3. **Improved Financial Decision-Making:** Financial literacy equips women with the skills to make informed financial decisions. This dimension involves evaluating whether women who have undergone financial literacy training demonstrate better financial decision-making, including budgeting, investing, and managing debt, as compared to those without such training.
4. **Financial Inclusion and Access to Banking Services:** Assessing the impact of financial literacy on financial inclusion involves examining whether women are more likely to have bank accounts, access credit facilities, and use formal financial services after participating in financial literacy initiatives. This can enhance their financial security and resilience.
5. **Savings and Asset Accumulation:** Financial literacy often leads to increased savings and asset accumulation. Assessing this impact involves measuring changes in women's savings habits, asset ownership (e.g., property, investments), and their ability to build financial security.
6. **Confidence and Empowerment:** Financial literacy can boost women's confidence in dealing with financial matters. Assessing empowerment may include gauging women's self-assessed confidence levels in financial decision-making and their perceived control over their financial futures.

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7. **Reduction in Gender Disparities:** Evaluating the impact of financial literacy on gender disparities involves assessing whether participation in financial literacy programs leads to a narrowing of economic gender gaps in income, wealth, and decision-making authority.
8. **Long-Term Financial Planning:** Financial literacy can encourage women to engage in long-term financial planning, including retirement planning and investment strategies. Assessing this dimension involves examining whether women have a greater focus on their long-term financial goals and are better prepared for their financial future.
9. **Quality of Life and Well-Being:** Financial empowerment through literacy can have positive spillover effects on women's overall well-being, including their ability to meet basic needs, access healthcare, and provide for their families. Assessing this impact involves considering women's overall quality of life indicators.
10. **Sustainability and Replicability:** Assessing the sustainability and replicability of financial literacy initiatives is essential. It involves evaluating whether the impact observed is durable over time and whether the programs can be scaled up or replicated in different contexts.

Overcoming Challenges and Barriers to Empower Women through Financial Literacy:

1. **Limited Access to Education:** Many women in India have limited access to formal education, which can hinder their ability to acquire financial literacy skills. Illiteracy or low literacy levels can make it challenging to understand financial concepts and participate in financial education programs.
2. **Cultural and Societal Norms:** Deep-rooted cultural norms and gender biases can restrict women's participation in financial matters. Traditional gender roles may assign financial decision-making primarily to men, limiting women's autonomy in managing their finances.
3. **Lack of Awareness:** A lack of awareness about the importance of financial literacy and available resources can deter women from seeking financial education. Some women may not even realize they have the option to improve their financial knowledge.
4. **Accessibility of Financial Services:** In rural and underserved areas, limited access to banking and financial services can be a significant barrier. Women may have to travel long distances to access a bank, which can be both inconvenient and costly.
5. **Financial Inclusion Challenges:** Women may face challenges in obtaining bank accounts or loans due to documentation requirements, lack of collateral, or conservative lending practices. Financial institutions may need to adapt to the specific needs of women.
6. **Digital Divide:** While digital financial services are on the rise in India, there is still a digital divide, especially in rural areas. Women may have limited access to smartphones and the internet, hindering their ability to participate in digital financial literacy programs.
7. **Language and Literacy Barriers:** Language diversity in India can be a barrier to financial literacy initiatives. Content may need to be provided in multiple languages to reach a broader audience. Additionally, addressing low literacy levels through tailored programs is crucial.
8. **Lack of Female Role Models:** The absence of female role models in the financial sector can make it challenging for women to envision themselves as financially empowered. Encouraging female representation in financial education programs and the financial industry can help address this issue.
9. **Resource Constraints:** Financial literacy programs require resources, including funding, trained educators, and materials. Resource constraints can limit the scale and reach of such initiatives.
10. **Sustainability:** Ensuring the sustainability of financial literacy initiatives beyond short-term programs is essential. It may require partnerships with local organizations, government support, and the integration of financial education into school curricula.
11. **Resistance to Change:** Resistance to changing traditional financial behaviors and practices can be a significant barrier. Women and their families may be hesitant to adopt new financial strategies or technologies.
12. **Measuring Impact:** Accurately measuring the impact of financial literacy programs on women's empowerment can be challenging. It requires robust data collection and evaluation methods to assess changes in financial behavior and socioeconomic outcomes.

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CONCLUSION

As we conclude this exploration, we do so with a call to action. Empowering women through financial literacy is not an option but a moral and strategic imperative. It requires collaboration among policymakers, financial institutions, NGOs, educators, and communities. To address the challenges that persist, we recommend the following actions:

1. **Tailored and Inclusive Programs:** Develop financial literacy programs that are tailored to the specific needs and constraints of women, considering their diverse backgrounds, languages, and literacy levels. Ensure inclusivity for women from marginalized communities.
2. **Strengthening Access:** Enhance women's access to financial services and promote financial inclusion by simplifying documentation requirements, improving banking infrastructure in rural areas, and expanding digital financial services.
3. **Promoting Female Role Models:** Encourage female representation in financial education programs, financial institutions, and leadership positions to inspire women and girls to pursue financial independence.
4. **Collaboration and Partnerships:** Foster collaborations between government agencies, financial institutions, NGOs, and community organizations to create a cohesive ecosystem for women's financial empowerment.
5. **Monitoring and Evaluation:** Establish robust monitoring and evaluation mechanisms to measure the impact of financial literacy programs, ensuring that they lead to tangible improvements in women's economic independence and well-being.
6. **Long-Term Sustainability:** Ensure the sustainability of financial literacy initiatives by integrating financial education into school curricula and promoting a culture of lifelong learning.

REFERENCES

1. "Financial Inclusion, Poverty Alleviation, and the Empowerment of Women in India" by Marjorie L. Baldwin
2. "Women's Empowerment in India: Issues, Challenges, and Strategies" edited by Seema Sharma and Rashmi Sharma
3. "Financial Inclusion and Women Empowerment: Issues and Challenges" edited by N. Sathya and R. Venkata Ravi
4. "Financial Literacy: Empowerment of Women" by K. Kalaiselvi
5. "Gender and Green Governance: The Political Economy of Women's Presence Within and Beyond Community Forestry" by Bina Agarwal

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DIGITAL EMPOWERMENT: A CRITICAL REVIEW OF ONLINE SERVICES AND GOVERNMENT INITIATIVE WITH SPECIAL REFERENCE TO INDIAN ECONOMY

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ABSTRACT

Government of India has launched a campaign called Digital India. The main objective of the campaign is to reach the people through the medium of government schemes and social facilities. In India, post-globalization, there has been a large-scale development in various sectors. India also seems to have made significant progress in the field of technology. As an important part of it, the Government of India has made all the government facilities available to the beneficiaries online. The public is using that facility.

As per the Group Special Mobile Association (GSMA), there were 692.0 million internet users in India at the start of 2023, whereas it was 626 million in January 2022 that means almost 10% hike is recorded within one year. When internet penetration stood at 48.7 percent. India was home to 467.0 million social media users in January 2023, equating to 32.8 percent of the total population. Kerala is the highest internet user state in India followed by Punjab and Haryana. In Maharashtra state there are 61.5% men internet users and 38% female internet users. As far as Social Media concerns there were 467.0 million users are in India in January 2023 which is 32.8 % of the total population.

Digital infrastructure of India plays vital role in the development of Indian economy. Government of India have been developed different type of infrastructural structure of digital growth in India such as National Optical Fibre Network (NOFN) project and the Digital India program which are considerable efforts to expand internet access and communications infrastructure. The National Broadband Mission and the National Data Centre Policy were also introduced by the government to support the expansion of data centres in India and the creation of a strong telecommunications infrastructure. There have been dedicated digital drives across rural areas through ambitious government schemes, like the flagship Bharat Net Project Scheme, Telecom Development Plan, Aspirational District Scheme, initiatives in North-Eastern Region through Comprehensive Telecom Development Plan (CTDP) and initiatives towards areas affected by Left Wing Extremism (LWE), etc. This research paper wants to throughout the light on current status and expected future progress of the digital empowerment in India which will help to sort out different issues of digital infrastructure in India.

Keywords: Digital Empowerment, Digital India, Indian Economy Etc.

OBJECTIVE OF THE PAPER:

This research paper is highlighting on different issues and challenges before digital empowerment in India. Following are the important objectives framed to write this paper.

To take an overview and status of the Digital Empowerment in India.

To make awareness about various Government Initiatives and challenges before Digital empowerment in Indian economy.

To know the government future plans to create awareness about forthcoming Digital Empowerment and technological changes in India.

RESEARCH METHODOLOGY

For the preparation of this research paper secondary data are used which are collected from various sources includes different articles, Journals, Magazines, Periodicals, Research Works, News Papers, web sites of government of India for online government websites and reports as well as all the research related Web sites.

INTRODUCTION

To promote and strengthen internet facility government of India have been taken various project. Government of India established required infrastructure of digital services in India. At the global level United States has largest digital infrastructure followed by Japan, United Kingdom, France and India.

Status of Investment in Digital Infrastructure in India:

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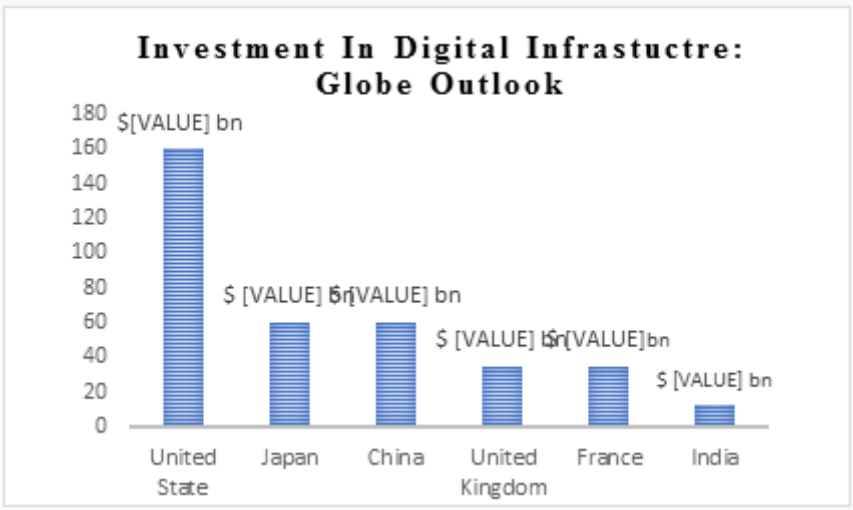

Source: https://economictimes.indiatimes.com/industry/telecom/telecom-news

Initiatives taken by Government of India

- Government Schemes like Production Linked Incentives (PLI) for telecom and networking products will promote domestic mobile manufacturing as well as network installation.
- Continuous proliferation of measures such as the Bharat Net Project shall continue to improve accessibility, affordability, connectivity, and inclusivity pan-India.
- The government has made significant investments in enhancing the nation's logistics infrastructure to facilitate a quicker and more effective flow of commodities.
- Real-time monitoring, GPS tracking, and Radio Frequency Identification (RFID) have improved the transparency of logistical operations.
- A digital platform called the PM Gati Shakti Master Plan uses a geographic information system (GIS) map to show the locations of all the nation's logistical and infrastructural facilities.
- The National Single Window System (NSWS) is a government initiative that uses digital infrastructure to speed up the approval process for businesses by enabling traders to electronically submit all necessary documents and information through a single portal, doing away with the need to visit multiple agencies and cutting down on the time and expense of getting clearances and approvals.
- The Government e-Marketplace (GeM), an online procurement platform created to create an inclusive, effective, and transparent platform for buyers and sellers to carry out procurement activities fairly and competitively, is another illustration of the government's efforts to streamline procurement procedures.
- A landmark achievement in telecommunications in India was the launch of 5G services.
- As a major reform measure, the Indian Telegraph Right of Way (Amendment) Rules, 2022, will facilitate faster and easier deployment of telegraph infrastructure to enable a speedy 5G rollout.
- The government has brought in procedural reforms in Wireless Licensing, including delicensing of various frequency bands to promote innovation, manufacturing, and export.
- The National Frequency Allocation Plan 2022 (NFAP) will give guidance to the users of the spectrum to plan their networks by the relevant frequency and parameters provided therein.

Challenges before digital empowerment:

India is known as a progressive country in the world. India seems to have progressed well in the digital sector in the last 10 years but till date many problems are seen in digital empowerment at various levels. Through this research article we would like to raise some of the following problems and challenges before digital empowerment in India.

Heavy Budgetary Provision for Digital Infrastructure:

The budget has specific provisions for supporting Digital. It has allocated INR 16,549 crore to the Ministry of Electronics and Information Technology, which is a 40% higher allocation than that of last year. This allocation includes INR 3,000 crore for the Indian Semiconductor Mission. To augment the digital payment capacities, the

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budget has allocated INR 1,500 crore for promotion of digital payments. To promote more of electronics manufacturing in India, with more indigenisation of components, the budget has also allocated INR 4,499 crore for the production-linked incentive (PLI) scheme for large-scale electronics manufacturing

Continues updating in Technology:
There is continues changing demand of the user of digital infrastructure due to that there is a need of digital transformation and revolution. Digital facilities has continues paly an essential role in delivering government facilities to the stakeholders. There are primary requirement of maintenance of updated technology to avail digital empowerment of the nation.

Skilled Workforce:
Digital professionals are mainly required to service and distribute technology. They include, for instance, technical support, team management, marketing, team leadership, and project management. By comparison, most rapidly growing digital skills globally are related to product and service development which is the basic requirement to provide skilled workforce to strengthen digital empowerment.

Indian Work Culture:
The prevalence of toxic work cultures in India is leading to a range of disturbing issues in the workplace. From being made to skip weekends four times in a row and work 24x7 for 30 days straight to facing office favouritism, dejection, workplace remarks, and even sexual harassment, employees are being subjected to a range of disturbing behaviours. This is causing even the most talented professionals to quit their dream jobs, as the toll of working in a toxic environment becomes too great to bear.

Mind-set of Indian Employee:
The mindset of Indian employees is influenced by digital enablement, digital operations require 24 hours customer service but government employees are not ready to work for more than 8 hours. Such a mindset affects the success of digital empowerment. Employees work medium is important to work completion but in online medium no current workforce ready to work more.

Unreliable:
In digital era, there is challenge to hundred percent reliability on technology because in the digital work culture technology is the medium of work but if there is any technological problem like hacking, fraud, misuse etc. it will effect on customer service.

Delay in Services:
In online services, it is often observed that if the services are provided through private organizations, they are provided promptly and properly. If they are given through a government agency, they become very troublesome. Many a times the customer is deprived of getting the services or he gives up on getting that service. Sometimes the customer has to go to court. Although it is written that the government facilities will be completed within a certain time as per the rules of the government, it does not seem to be implemented. People seem to suffer more than comfort from government facilities.

Corruption:
Corruption in the government sector is everywhere in India. No government job is seen to be pleasing to the wealthy by paying financial rewards. Even in online system, the work is not completed without the customer going to the place and paying some bribe. Or his work is hidden for some reason and if a customer comes, he works by taking a bribe. That is, corruption is a major obstacle in digital empowerment.

Poor Customer Service:
Poor Customer Service includes slow response time, delay in services, fails to meet customer satisfaction, incorrect services, unpleasant and inadequate services etc. all these challenges are found in Indian customer services.

Maintenance Charge:
This is technological era, every day the world has found reveals new technology in every sector and it need to update to avail advance service. If any sector use old technology it will get behind the other competitors. Continuous updating the technology is a very expensive task, it's also treated challenge before the digital empowerment India.

Political Instability:
India is known as one of the most populous countries in the world. Also the political condition of India is always changing. As a result, the changing political environment in the country is considered a hindrance to online empowerment progress. Proper political support is necessary to strengthen the digital empowerment.

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Lengthy Judicial Procedure:
Problems always arise in online facilities, for which the customer registers his complaint at various places. But there seems to be a lot of delay and delays in the grievance redressed process. Children who always appear to be troubled by the customer. Due to which he is annoyed with this arrangement and he is recording his reaction.

CONCLUSION

The budget has given a significant push to greater digitalisation of the Indian economy and has also built in sufficient signalling of the path that the nation will take. A great budget will have considerable positive impact on India's journey towards accelerated digitalisation. So, while the government has made stunning progress in steering India towards a path of rapid digitalisation, with initiatives that are path-breaking and first of its kind globally, there is more to be done, given the size and complexity of India. For digital empowerment in India, proper measures are expected to be taken keeping in mind the points studied above.

REFERENCES

https://datareportal.com/reports/digital-2023-india

https://economictimes.indiatimes.com/industry/telecom/telecom-news

https://datareportal.com/reports/digital-2023-india

https://www.clearias.com/digital-infrastructure-india/

Jaijit Bhattacharya, March 1, 2023, India Foundation / Posts Page / Articles and Commentaries / Empowering the Digital Economy through Budgetary Provisions and Policy Signalling, Empowering the Digital Economy through Budgetary Provisions and Policy Signalling,

https://www.strategyand.pwc.com/m1/en/reports/empowering-the-gcc-digital-workforce-full-report.pdf

https://legalbots.in/blog/toxic-workplace-culture-in-india

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ROLE OF INDIAN CONSTITUTION IN PROTECTION OF HUMAN RIGHTS

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INTRODUCTION

Human rights are as old as Human inception on earth. Human Being is also an animal but he is social animal, because he lives in human society. According to Ginsberg Object of social science is to study human interactions interrelations, their conditions and consequences[1]. Right plays pivotal role in the progress and development of Human Being as rightly stated by the proof. Razz "Right is a condition or a situation which is requiring living human life in Human society". Thus it's necessary to provide appropriate rights to all citizens so that they can live a dignified life in the society. Arnold W. Green stated in his book, Cooperation is the continuous and common endeavor to perform a task or reach a goal that is commonly cherished[2] thus it is the duty of constitution of the country protect the rights of individual. Law creates rights and Nations Executive and Judicial Implement the rights and interprets respectively.

Concept Human Right

Practically speaking Human rights means the rights, which are given to the Humanity by the nature. Human rights are also called as Natural Rights, when nature does the justice it is equal with all creatures on the Globe. The Virginia Declaration Of Human Rights in 1976 proclaims that "all men are by nature equally free and independent and have certain inherent rights of which, when they enter a state of society[3]. This concept was officially adopted at the international level by United Nations Organization In the year of 1948 by Universal Decelaration of Human Rights 1948.[4]

Role of Indian Constitution in the protection of Human Rights :

Indian Constitution is the supreme law of land and the principal object of Indian constitution is to create the organs of the state and conferred various rights on citizens of India. As Indian constitution is the largest constitution of the world it contents of the world it contents various Human Rights. The Indian constitution devoted to the various Human rights6. No doubt that Part III is enforceable by the citizens in the court of Law, where as Part or High Court for its enforcement, but directions issued under part IV plays very important role in the progress and development of country.

Human rights enshrined under Indian Constitution :

Indian Constitution is the biggest constitution among the written constitutions of the world. It guarantees various human rights under part III and part IV of Indian constitution. This part of Indian constitution Is treated as the most sacrosanct and valuable for Humanity. We will discuss the Human rights under Indian constitution as under.

A) Equality before Law and equal Protection of laws : Article 14 :

"The state shall not deny to any person equality before law or equal protection of laws within the territory of India"[7] among peoples and whatever the laws are there, it should equally Applicable to all citizens this duty is caste upon state. In the landmark judgment supreme court of India held that, Equality is the rule and inequality should be exception. In fancies cortile V. Union Territory of Delhi[8] Supreme Court while interpreting Article 14 of Indian constitution held that all citizens of India have a equal right to basic Human rights. As all Human beings are equal before law of land, rather solus populi suprema lex, it means welfare of public is the supreme law of land.

Prohibition of Discrimination on ground of religion, race, caste, sex, place of birth : Article 15 [9]

This is the second Human rights inshirned under Indian constitution. It is the duty of state not discriminates among peoples, on various grounds mentioned above. Clause 2 and sub clause (a), (b) of the present Article applicable only in Indian conditions because circumstances described under it shows that, some section of society were prohibited from using shops, public restaurants, hotels and wells, tanks, bathing ghats, roads etc. while governing the country government should not discriminate among people,

B) Equality of opportunity in matters of public employment Article 16[10]:

This is another facet of equality enshrined under Article 14 of Indian constitution, where equality of opportunity is granted to citizens. This opportunity is available in case of public employment, whenever there will be chance in public service then very citizen is eligible for the same, state shall not to discriminate among the citizens of India on grounds only of religion, race, caste, sex, descent, place of birth, residence, or any of them be ineligible for employment or office under the state. As Supreme Court of India held in Mohan Bir Singh

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Chawala. V. Punjab University", that university wise preference is valid if it is reasonable and college wise preference is bad.

C) Abolition of Untouchability Article 17[12] :
This is special Human Right exclusively available in Indian conditions; the concept of untouchability was present in India, under this custom, certain class or section of the society were declared as untouchables which cannot be touched I this way they were deprived from mingling in Humans though they were human.

D) Protection of Certain Regarding Freedom of Speech, etc Article 19[13].
Under this article six golde freedoms are given to the Indian citizens. They are as follows

a) Freedom of speech and expression AIR 1966 sc 424,

b) To assemble peaceably and without arms

c) To form association or unions or Co-operative societies

d) To move freely throughout the territory India

e) To reside and settle in any part of the territory India

f) To practice any profession or to carry on any occupation trade or business

This freedoms are fundamental in nature that's why they are called as Six Golden Freedoms.

E) Protection in Respect of conviction for offences article 20[14] :
Protection Against Ex post facto laws which means, no person shall be convicted for any offence except for the violation of a law in force at the time of commission of the act charged as an offence nor be subject to a penalty greater than that which might have been inflicted under the law in force at the time of the commission of the offence.

Protection against double jeopardy: no person be prosecuted and punished for the same offence more than once.

Protection against self incrimination: No person accused of any offence shall be compelled to be a witness against himself.

This main object of these provisions is to protract the persons as Supreme Court of India held in Makbool V.State of Bombay[15], as reiterated in Charoria V.State o Maharashtra[16] these rights are invaluable in nature.

F) Protection of life and personal liberty Article 21[17]:
Human Life is incredible, Right to life is another facet of Human Right enshrined under Indian constitution, under well fare concept of state, No person shall be deprived of his life and personal liberty except according to procedure established by law. In landamark judgment supreme Court of India held that Right life includes Right to go abroad. In francis V. Union Territory of Delhi[18] apex court of Indian held that, mere animal existence is not sufficient but it should be a dignified life. Compulsory death sentence for murder committed by a life convict – undergoing sentence of imprisonment of life. S. 303 of Indian penal Code 1860 was declared unconstitutional and volatile to Article 21 of Indian constitution. In shere singh V. State of Punjab[19], Supreme Court held that Unjustifiable delay in execution of death sentence is violation of Article 21. Right to shelter is also considered as a facet of Human Right under Olga tellis V. Bombay Municipal Corporation [20]

G) Prohibition of traffic in human beings and forced labour Article22[21]:
This Article of Indian constitution provides very important Human right to all Indian Citizens which protect the citizens from forced labour particularly beggar and similar forms of forced labour any one who will force to do such work without wages it is punishable offence under various laws. In Vishal Jeet V. Union of India[22] and Gaurav Jain V.Union of India[23] Apex court of India issued directions for the rehabilitation of Prostitute and their children, the custom of Devadasi were held as inhuman treatment and declare it as unconstitutional

H) Prohibition of employment of children in factories Article 24[24] :
Children's are treated as most vulnerable group it Is very easy to commit atrocities against children's It is said that children's are the future of Nation. Indian constitution provides Under Article 24 there is a prohibition of employment of children below the age of fourteen years in the hazardous employments.

I) Enfrorcement of Fundamental Rights Nshrined Under Indian Constitution Article 32[25] :
All the fundamental rights are available against state and whenever there is violation of any fundamental right then person can approach before supreme Court and High court for the inforcement of rights granted by Part III of Indian Constitution.

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Directive Principles of State Policy:
Part VI of Indian constitution is devoted to certain Direction to State, these directions are not mandatory over state still it plays very important role in the progress and development of Nation.

1. State to secure a social order for the promotion of welfare of the people
2. Distribution of Natural recourses of country in equal manner
3. There is equality in case pf Equal Pay for Equal work
4. To strengthen the health and strength of workers, women, children's.
5. Provisions for the just and humane condition of work and for maternity relief.
6. The state shall endeavor to provide Living wages of workers.

CONCLUSION
Indian constitution is blend of several of Human Rights. Constitution of India guaranteed plethora of Human rights, which demonstrates path of achieve dignity of for Human beings. Fundamental rights, which are very necessary for live a satistied life in the society. Directive principles of state policies enshrined under part IV of constitution, there rights are also Human rights, which are declared at National and International Level through various conventions and covenants. Our constitution is rich constitution in the sense of plethora of human rights are enshrined under Indian constitution.

SUGGESTIONS
1. It is necessary to create awareness regarding Human Rights.
2. Human Rights Literacy camps must organized for masses.
3. Directive principles of State policy under Indian constitution should be enforceable as it like part III of constitution.
4. It necessary to establish Human Rights courts at District Level.

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ABSURD ELEMENTS IN HAROLD PINTER'S THE BIRTHDAY PARTY

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The full-length play, The Birthday Party was written by Harold Pinter. We are in the living room of a house in the seaside. Meg and Petey, a husband and his wife in their sixties discuss over breakfast, their lodger Stanley, who soon appears in his pajamas, unshaven. Stanley was shocked to hear that the two gentlemen lodgers coming. The two men, Goldberg and Mccann ask Meg about her lodger, and Meg tells them about Stanley's birthday. She jumps at Goldberg's idea of a celebration party. Stanley denies it is his birthday. Nevertheless, he accepts Meg's present which is a boy's drum and beating, first gently, then savagely. Goldberg and Mccann confront Stanley; they ask different questions. They accuse him of sin, betrayal, and murder. The Birthday Party begins and at Meg's suggestion, they play the blind man's bluff. In the third act, we learn from Goldberg that Stanley has had a nervous breakdown and they will look after him. Stanley comes down to breakfast dressed like a city gentleman and sits silent and blank as Mccann and Goldberg enumerate all the things they are going to do for him to reintegrate his personality. Petey tries hard to enable Stanley to stay with them but Stanley by now can only make gurgling noises. Stanley leaves with Goldberg and Mccann Petey does not tell Meg that Stanley is no longer asleep upstairs.

The Birthday Party (1958) by Harold Pinter is a true epitome of Theater of the Absurd. Like the other absurd plays, it is the product of existentialism. It highlights the absurdist elements of human life, its meaninglessness, nonsense, and so on. In The Birthday Party we come across the theme of menace, the lack of a coherent plot, the breakdown of communication, the theme of loneliness, the uncertainty about the motivations of characters, reflections of dreams and nightmares, and the unsatisfactory beginning and end.

Like other absurd plays, The Birthday Party lacks a coherent plot. There is an atmosphere of mystery in the play. Certain questions are unanswered till the end. Goldberg and Mccann torture Stanley with different questions. We are unaware of the organization that sent them in pursuit of Stanley. Why Stanley is away from society. Harold Pinter leaves these for the audiences and the readers to answer these questions themselves. Is it really Stanley's birthday or has Meg invented the birthday just to please him:

Meg. It's your birthday, Stan. I was going to keep it a secret until tonight.

Stanley.No.[1]

Here, Stanley himself gives us no clue about this. He denies that it is his birthday. It is uncertain whether Stanley really got an offer of a new job or it is merely a story about it. The relationship between Stanley and Meg is a mystery for the audience or the readers. As in many absurdist works, The Birthday Party is full of disjoined information that defies efforts to distinguish between reality and illusion. For example, despite the presentation of personal information about Stanley and his two persecutors, who or what they really are remains a mystery. Mystery, doubt, and ambiguity in this play are typical of Pinter.

The Birthday Party is the true epitome of comedy of menace. The term comedy a menace first used by David Compton and it applied to the Plays of Harold Pinter. In this play, the laughter of the audience is accompanied by a feeling of impending disaster. Menace may proceed from actual violence or a feeling of uncertainty and insecurity. Breakdown of communication is also responsible for the menace.

The opening conversation between the Boles, Meg in the Kitchen, here in this conversation, we come across no real exchange of information. The lack of communication between husband and wife implies unsettling conditions. They live in the ashes of their marriage.

Another deviation from the usual realistically constructed play lies in the element of uncertainty about the motivation of characters, their background, and their very identity. For Ibsen, the past histories of the characters were the soil in which the whole plot has its roots. For Pinter, the past histories of the characters, and their social background, are not so important. This does not mean that the characters in Pinter's play do not have any past histories.

In The Birthday Party, almost every character gives us some account of his or her past life. But in this, we are never sure whether what the character tells us about his past is true or false. For some critics, he withholds information from the audience. His reply to the letter from one audience is very interesting. When he received a letter which read:

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Dear Sir, I would be obliged if you would kindly explain to me the meaning of your play The Birthday Party. These are the points which I do not understand: 1) Who are the two men? 2) Where did Stanley come from? 3) Were they all supposed to be normal? You will appreciate that without the answers to my questions I cannot fully understand your play. Pinter is said to have replied as follows: 'Dear madam, I would be obliged if you would kindly explain to me the meaning of your letter. These are the points which I don't understand: 1) Who are you? 2) Where do you come from? 3) Are you supposed to be normal? You will appreciate that without the answers to your questions I cannot fully understand your letter.[2]

In The Birthday Party, there are six characters the three inmates of the boarding house (Meg, Petey, and Stanley), their neighbour (Lulu), and the two intruders are realistically portrayed. Among these characters, Goldberg, Mccann and Stanley are mysterious characters. The motivation of these characters is not clear. All the characters in the play lack motivation background, or origin. They lack heroic qualities; they are almost mechanical puppets. The theme of loneliness is another absurd element of the play. Stanley has isolated himself from society. Meg, and Lulu, were lonely.

A concern of absurd dramatists is their belief that language may prevent genuine human communication. In party, words are used in non-communicative ways. They use empty and routine phrases that confirm only insignificant facts. Maccan calmly tears a newspaper into five equal strips while Stanley nervously paces.

Apart from these elements, the dreams and nightmares are reflected in this play. In this play Staley dreams of big cities. He has been offered a job, for him it is a good job at a nightclub in Berlin on a very high salary. Now Stanley talks about his nightmarish past. It was a good concert, he tells Meg. They were all present in the auditorium that night when he gave the concert. Each one of them was present, his concert was a great success, he says. All of them had come up to shake hands with him and congratulate him after the concert was over. However, things had gone wrong after this successful performance because those people, who had expressed their admiration for him, subsequently formed a plan to wreck and ruin him. Apart from this, the seduction of Lulu by Goldberg is an unpleasant experience for her. She complains that he had used her for a night. Goldberg replies that it was not he who had used her but that it was she who had used him.

A good play has to have a folly-explained theme, which is neatly exposed and finally solved, absurd plays often have neither a beginning nor an end. Likewise, The Birthday Party has neither a satisfactory beginning nor a satisfactory ending. The principal deficiency in these respects is the lack of adequate information which we would normally expect from the author. After the brief opening dialogue between Meg and her husband Petey, the central character of the play, Stanley introduced. We are unaware of his background and the circumstances which have brought him to this boarding house. When we learn that he used to be a pianist but that now he has been out of work. Similarly, the ending of the play is inconclusive because we are unable to understand why the two terrorists taking Stanley away.

By and large, the lack of a coherent plot, the breakdown of communication, the uncertainty about the motivations of characters, the theme of loneliness, the theme of menace, the reflections of dreams and nightmares, the unsatisfactory beginning and ending are the absurdist elements revealed in the play.

REFERENCES

1) Harold Pinter, the Birthday Party, (London: Methuen, 1971), p. 35.

2) Martin Esslin, The Peopled Wound, (London: Methuen and Co. Ltd, 1970), pp 37-38

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SURFACE SOIL MOISTURE RETRIEVAL USING PHYSICS-BASED SCATTERING MODELS

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ABSTRACT:
Surface soil moisture is a key parameter that influences a wide range of environmental processes. Microwave band on soil moisture retrieval. Synthetic aperture radar (SAR) is a promising remote sensing technique for retrieving surface soil moisture. It provides a comprehensive overview of the use of physics-based scattering models for retrieving surface soil moisture from SAR observations at different microwave bands and t discusses the basic principles of SAR backscattering from soil surfaces.

Keywords: Remote sensing, Soil Moisture, Synthetic Aperture Radar, Microwave bands. Scattering Models,

INTRODUCTION

Surface soil moisture is a key parameter that influences a wide range of environmental processes, including land-atmosphere interactions, hydrological cycle, and vegetation growth [1]. Accurate and timely information on surface soil moisture is essential for a variety of applications, such as agricultural management, water resources management, and climate change monitoring [2].Synthetic aperture radar (SAR) is a promising remote sensing technique for retrieving surface soil moisture. SAR systems transmit microwave pulses towards the Earth's surface and record the backscattered signals. The backscattered signals are sensitive to the dielectric properties of the surface, which are in turn influenced by the soil moisture content[3] A number of physics-based scattering models have been developed to simulate the backscattering of microwave signals from soil surfaces. These models are based on the physical principles of electromagnetic wave scattering. The most commonly used physics-based scattering models for soil moisture retrieval include the Integral Equation Model (IEM), the Oh-Yoh model, and the Dubois model[4].The choice of microwave band can have a significant impact on the accuracy of soil moisture retrieval from SAR observations. Different microwave bands have different sensitivities to surface soil moisture. For example, L-band SAR (1-2 GHz) is less sensitive to surface roughness than C-band SAR (4-8 GHz), making it more suitable for retrieving soil moisture in areas with rough surfaces [5-6].

Influence of microwave band on soil moisture retrieval: The choice of microwave band can have a significant impact on the accuracy of soil moisture retrieval from SAR observations. Different microwave bands have different sensitivities to surface soil moisture.

L-band SAR: L-band SAR is less sensitive to surface roughness than C-band SAR. This makes L-band SAR more suitable for retrieving soil moisture in areas with rough surfaces. L-band SAR is also less sensitive to vegetation than C-band SAR. This makes L-band SAR more suitable for retrieving soil moisture in vegetated areas.

C-band SAR: C-band SAR is more sensitive to surface roughness than L-band SAR. This makes C-band SAR less suitable for retrieving soil moisture in areas with rough surfaces. C-band SAR is also more sensitive to vegetation than L-band SAR. This makes C-band SAR less suitable for retrieving soil moisture in vegetated areas.

X-band SAR:X-band SAR is more sensitive to surface roughness and vegetation than C-band SAR. This makes X-band SAR less suitable for retrieving soil moisture in areas with rough surfaces or vegetated areas. However, X-band SAR can be used to retrieve soil moisture in areas with smooth surfaces and low vegetation cover.

Ka-band SAR: Ka-band SAR is the most sensitive to surface roughness and vegetation of all the microwave bands. This makes Ka-band SAR the least suitable for retrieving soil moisture. However, Ka-band SAR can be used to retrieve soil moisture in areas with very smooth surfaces and very low vegetation cover.

Method

Physics-Based Scattering Models for Soil Moisture Retrieval

Integral Equation Model (IEM): The IEM is a rigorous electromagnetic model that can be used to simulate the backscattering of microwave signals from rough surfaces. The IEM is based on the solution of the integral equation for the electric field scattered by a rough surface [7]. The IEM can be used to simulate backscattering from a wide range of surface types, including bare soil, vegetated surfaces, and urban areas.

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RESULT AND DISCUSSION

Soil moisture (m3/m3)	RMS height (cm)	Vegetation water content (%)	HH-polarized backscattering coefficient (dB)	VV-polarized backscattering coefficient (dB)
0	0.5	0	-10	-12
0.1	1	10	-8	-10
0.2	2	20	-6	-8
0.3	3	30	-4	-6
0.4	4	40	-2	-4
0.5	5	50	0	-2

Table 1: The empirical relationships a least squares regression analysis.

The IEM and WCM were able to accurately simulate the backscattering coefficient from bare soil surfaces. The simulated backscattering coefficients were in good agreement with experimental data. The empirical relationships developed from the simulations were also able to accurately retrieve soil moisture from L-band SAR data as shown in Table 1.

CONCLUSION

Physics-based scattering models used to develop accurate empirical relationships between the backscattering coefficient and soil moisture. .

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REFERENCES

1. Mansion, A., et al. (2014). Soil moisture retrieval from TerraSAR-X images using a backscattering model based on surface roughness. Remote Sensing of Environment, 152, 263-274.
2. Vereecken, H., et al. (2012). On the value of soil moisture measurements in vadose zone hydrology: A review. Water Resources Research, 48(4).
3. Ulaby, F. T., Moore, R. K., & Fung, A. K. (1982). Microwave remote sensing: Active and passive. Vol. III: From theory to applications. Artech House.
4. Dubois, P. C., van Zyl, J. J., & Engman, T. (1995). Measuring soil moisture with imaging radars. IEEE Transactions on Geoscience and Remote Sensing, 33(4), 915-926.
5. Baghdadi, N., Aubert, M., & Zribi, M. (2006). Evaluation of radar backscatter models IEM, Oh, and Dubois for SAR data interpretation. IEEE Transactions on Geoscience and Remote Sensing, 44(9), 2738-2752.
6. Fung, A. K. (1994). Microwave scattering and emission models and their applications. Artech House.
7. Oh, Y., Sarabandi, K., & Ulaby, F. T. (1992). An empirical model and an inversion technique for radar scattering from bare soil surfaces. IEEE Transactions on Geoscience and Remote Sensing, 30(2), 370-381.

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"स्वच्छ भारत अभियान एक सामाजिक चळवळ"

डॉ. रेवणनाथ काळे
समाजशास्त्र विभाग प्रमुख

प्रस्तावना:
महात्मा गांधी म्हणाले होते की, स्वातंत्र्यापेक्षा स्वच्छता महत्त्वाची आहे. गांधीजींनी सर्व रचनात्मक कार्यात स्वच्छतेला महत्त्वाचे स्थान दिले. खरे तर स्वच्छता हा निसर्गाचा मूलभूत गुणधर्म आहे. "शिक्षणाच्या व्याख्येत असे म्हटले आहे की हवा, पाणी आणि मातीचा योग्य वापर कसा करायचा हे जाणणे म्हणजे शिक्षण. म्हणजेच त्यांचा बिघडवता न वापरता कसा वापरायचा आणि बिघडला तर कसा दुरुस्त करायचा हे शिक्षण होय". स्वच्छ भारत अभियान हे राष्ट्रीय स्तरावरील अभियान असून ते भारत सरकारद्वारे चालवले जात आहे जे शहरी आणि गावांच्या स्वच्छतेसाठी सुरू करण्यात आले आहे. या मोहिमेमध्ये स्वच्छतागृहे बांधणे, ग्रामीण भागात स्वच्छता कार्यक्रमांना चालना देणे, गल्ल्या आणि रस्त्यांची स्वच्छता करणे, देशातील मूलभूत सुविधांमध्ये बदल करणे इत्यादींचा समावेश आहे.

असे म्हणतात की सुसंस्कृत समाजातून विकासाच्या अमर्याद शक्यता साध्य करता येतात. सभ्यता किंवा विकास हे आपल्या घरांच्या भव्यतेमध्ये किंवा प्रशस्ततेमध्ये दिसून येत नाही तर आपल्या घराच्या आसपासच्या वातावरणाच्या स्वच्छतेमध्ये देखील दिसून येते. वातावरण स्वच्छ असले की मनात चांगले विचार जन्म घेतात. विचार हा विकासाचा पाया आहे. बदलत्या सामाजिक वातावरणाबरोबर विचारही बदलले आहेत. भविष्याचा नेता असलेली आजची तरुण पिढी अधिक जागरूक झाली आहे. स्वार्थाऐवजी ती समाज आणि राष्ट्राच्या हिताकडे अधिक लक्ष देते. सध्याची तरुण पिढी राहणीमान उंचावण्यासाठी अधिक जागरूक झाली आहे. याचाच परिणाम असा आहे की, शासनामार्फत राबविल्या जाणाऱ्या स्वच्छता मोहिमेला यश मिळत आहे, तेव्हाच कोणतेही काम यशस्वी होते. जेव्हा लोकांचा त्याच्यावर पूर्ण विश्वास असतो, तेव्हा लोकांमध्ये परस्पर सहकार्याची भावना असणे अत्यंत आवश्यक असते. केवळ सहकार्यातूनच समाजाची आणि संपूर्ण जगाची उद्दिष्टे साध्य होऊ शकतात. कोणत्याही व्यक्तीला कोणत्याही परिस्थितीत स्वत:चा,त्याचा सर्वोत्तम स्वरूपाचा शोध घ्यावा लागतो.कोणत्याही संस्थेला,समाजाला आणि राष्ट्राला अनन्यसाधारण यश मिळवून देण्यात अशा व्यक्ती महत्त्वाची भूमिका बजावतात.भारत शासनामार्फत राबविण्यात येत असलेली स्वच्छता मोहीम देखील अशाच जबाबदार व्यक्तींच्या महत्त्वपूर्ण योगदानातून राबविण्यात येत आहे.भारत हा लोकशाहीप्रधान, संस्कृतीप्रधान देश आहे. शिक्षणाबाबतची जागरुकता आणि वाढती शैक्षणिक पातळी यामुळे सध्या ते अधिक मजबूत आणि विकसित झाले आहे. सरकारी, निमसरकारी संस्था आणि समाजातील विविध समाजातील जागरूक लोकांच्या प्रभावामुळेच आज आपण स्वच्छ देशाची कल्पना करत आहोत.

उद्देश:
1. स्वच्छ भारत अभियानाचे उद्दिष्ट समजून घेणे.

2. स्वच्छतेचे महत्त्व अभ्यासणे.

3. स्वच्छ भारत अभियानास एक सामाजिक चळवळ बनवणे.

तथ्य संकलन:
प्रस्तुत अभ्यासासाठी दुय्यम तथ्य संकलन पद्धतीचा वापर करण्यात आला आहे. त्यामध्ये संदर्भ ग्रंथ, मासिके, इंटरनेट इत्यादी साधनांचा वापर केला आहे.

स्वच्छ भारत अभियानाचे उद्दिष्ट:
स्वच्छ भारत अभियानाचा मुख्य उद्देश स्वच्छता आणि त्याचे महत्त्व याबद्दल जनजागृती करणे हा आहे.

स्वच्छ भारत अभियानाची संकल्पना प्रत्येक व्यक्तीला शौचालय, घन आणि द्रव कचरा विल्हेवाट प्रणाली, ग्राम स्वच्छता आणि सुरक्षित आणि पुरेसा पिण्याच्या पाण्याचा पुरवठा यासारख्या मूलभूत स्वच्छता सुविधा प्रदान करणे आहे.

भारतात उघड्यावर शौचास जाण्याचे निर्मूलन.

अस्वच्छ शौचालयांचे फ्लश टॉयलेटमध्ये रूपांतर करणे.

हाताने विष्ठा साफ करण्याची प्रणाली काढून टाकणे.

लोकांच्या वर्तनात बदल करून चांगल्या आरोग्याबाबत जागरूकता निर्माण करणे.

जनजागृती करण्यासाठी लोकांना सार्वजनिक आरोग्य आणि स्वच्छता कार्यक्रमांशी जोडणे.

स्वच्छतेशी संबंधित सर्व यंत्रणा नियंत्रित, डिझाइन आणि ऑपरेट करण्यासाठी शहरी स्थानिक संस्थांना बळकट करणे.

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पूर्णपणे वैज्ञानिक प्रक्रियेद्वारे विल्हेवाटीचा पुनर्वापर आणि महापालिका घनकचऱ्याचा पुनर्वापर.

पर्यावरण आणि स्वच्छताविषयक खर्चासाठी आवश्यकतेनुसार सर्व कामकाजासाठी भांडवली खर्चात खाजगी क्षेत्राला सहभागी होण्यासाठी तरतूद करणे.

स्वच्छतेचे महत्त्व:

स्वच्छता ही मानवी जीवनाची मूलभूत गरज आहे. स्वच्छता दोन प्रकारात मिळू शकते: अंतर्गत आणि बाह्य. दृश्य, मन आणि मेंदूचे शुद्ध आणि सात्विक विचार, धर्म आणि अध्यात्माच्या सर्व विचारधारा, वाणी आणि वर्तनाची शुद्धता हे आंतरिक स्वच्छतेचे परिमाण आहेत. बाह्य स्वच्छतेअंतर्गत सामूहिक आरोग्य, शिक्षण-पर्यावरण, चांगली सामाजिक आणि आर्थिक स्थिती इत्यादी गोष्टींचा समावेश होतो. बाह्य स्वच्छतेचा पाया अंतर्गत स्वच्छता आहे. अंतर्गत स्वच्छता हा बाह्य स्वच्छतेचा एक घटक आहे. स्वच्छतेचा अंगीकार हीच समाजाची आणि समृद्धीची एक दिशा आहे. असे म्हटले जाते की- "स्वच्छतेने समृद्धी निर्माण होते, स्वच्छता आनंद निर्माण करते.स्वच्छ भारत अभियानाचा उद्देश केवळ परिसर स्वच्छ करणे नाही तर नागरिकांच्या सहभागाने जास्तीत जास्त झाडे लावून स्वच्छ भारत निर्माण करणे, कचरामुक्त वातावरण निर्माण करणे, शौचालयाची सुविधा उपलब्ध करून देणे हे आहे. अस्वच्छ भारताचे चित्र अनेकदा भारतीयांसाठी लाजिरवाणे ठरते, त्यामुळे स्वच्छ भारत निर्माण करण्यासाठी आणि देशाची प्रतिमा सुधारण्यासाठी हीच योग्य वेळ आणि संधी आहे.

स्वच्छता व आरोग्य:

कोणत्याही देशाचा विकास जाणून घेण्यासाठी त्या देशाची एकूण लोकसंख्या, आर्थिक विकासाची साधने, आरोग्य स्थिती इत्यादींकडे लक्ष दिले गेले की नाही हे जाणून घेणे आवश्यक आहे. त्या देशाच्या विकासाच्या दिशेचा अंदाज लोक रोगमुक्त जीवन जगतात, लोकांना पौष्टिक आहार मिळतात इत्यादीवरून लावता येतो. देशातील नागरिकांची निरोगी स्थिती हे देशाच्या विकासाचे वैशिष्ट्य आहे.

कर्करोग, चिकनगुनिया, मधुमेह, रक्त कमी होणे, डेंग्यू आदी आजार भारतातील दुर्गम खेड्यांमध्ये पसरले आहेत. स्वच्छतेअभावी डेंग्यू, मलेरिया, स्वाइन फ्लूचा मोठ्या प्रमाणात फैलाव झाला आहे. भारत सरकारने जटिल आजार दूर करण्यासाठी विविध योजना तयार केल्या आहेत. पावसाळ्यात औषध फवारणी करून मलेरियावर नियंत्रण मिळवण्याचे प्रयत्न सुरू आहेत. डेंग्यूचे वाईट परिणाम दिसून आले असून, त्यावर नियंत्रण मिळवण्याचे प्रयत्न सुरू आहेत.

चिकुनगुनिया रोगप्रतिकारक शक्ती नष्ट करतो. हात,पाय,मेंदू कमकुवत होतो, कधी कधी मृत्यूही होऊ शकतो. डासांपासून चिकुनगुनिया होऊ शकतो, अस्वच्छता हेही एक कारण आहे. भारतात बालमृत्यूचे प्रमाण विशेष आहे. बालमृत्यू आटोक्यात आणण्यासाठी शासनाकडूनही विविध योजना राबविण्यात येत आहेत. गर्भधारणेपासून तिला अयोग्य वातावरण मिळाल्यावर धोका वाढतो आणि जन्माबरोबरच अस्वच्छता येते.माता आणि बालकांचा मृत्यू ही देखील गंभीर समस्या बनत चालली आहे. गर्भधारणा करू इच्छिणाऱ्या महिलांमध्ये कुपोषण आणि स्वच्छतेचा अभाव यामुळे हे घडते. Covid - १९ विषाणूचा प्रसार कमी करण्यासाठी साबणाने हात धुण्याचे महत्त्व जास्त दिले आहेत. ताप, कॉलरा, सामान्य सर्दी, कोरोना अशा आणि इतर संसर्गजन्य रोगांचा प्रसार रोखण्यासाठी नव्हे तर सर्वांगीण आरोग्यासाठी एक निश्चित मार्ग म्हणून स्वच्छता महत्वाची आहे.

स्वच्छ भारत अभियान सामाजिक चळवळ

सर्वोच्च न्यायालय बार असोसिएशनने महात्मा गांधी आणि माजी पंतप्रधान लालबहादूर शास्त्री यांच्या जयंतीनिमित्त सर्वोच्च न्यायालयाच्या संकुलात आयोजित कार्यक्रमात न्या. खन्ना उपस्थित होते. ते म्हणाले की, महात्मा गांधी यांच्या जयंतीनिमित्त 'स्वच्छ भारत अभियान' सुरू करण्यात आले आहे. त्याकडे एक सामाजिक चळवळ म्हणून बघावे. जोपर्यंत ती सामाजिक चळवळ होत नाही, तोपर्यंत ती आपली उद्दिष्टे साध्य करू शकणार नाही.स्वच्छतेसाठीच्या या जनचळवळीमध्ये समाजातील सर्व स्तरातील लोकांचा सहभाग होता. सरकारी कर्मचारी, लष्करी जवान, सिने कलाकार, खेळाडू, उद्योजक, अध्यात्मिक गुरू सर्वजण या कार्यासाठी पुढे सरसावले. स्वच्छता अभियासानासाठी देशभरात विभिन्न सरकारी विभाग, अशासकीय संस्था व स्थानिक समाज केंद्रांनी आयोजित केलेल्या उपक्रमात लाखो लोकांनी सहभाग घेतला. संगीत, नाट्य, पथनाट्याच्या माध्यमातून देशभरात स्वच्छेतीविषयी मार्गदर्शन करण्यात आले.

स्वच्छ भारत अभियानासारख्या मेगा मोहिमेचे उद्दिष्ट तेव्हाच साध्य होईल, जेव्हा आपण भारतीय या समस्येचे निराकरण करण्यासाठी मन, तन आणि धनाने काम करू, तेव्हाच ही मेगा मोहीम यशस्वी होईल. आता अस्वच्छता दूर करण्यासाठी अर्थपूर्ण पावले उचलण्याची गरज आहे. कारण स्वच्छता ही आपल्या जीवनाचा अविभाज्य भाग आहे. वैयक्तिक स्वच्छता असो वा सार्वजनिक स्वच्छता प्रत्येकाने स्वच्छतेबाबत जबाबदारीने वर्तन केल्यास स्वच्छते विषयक व त्यातून निर्माण होणाऱ्या आरोग्याच्या समस्या निश्चित कमी होऊन देशाच्या विकासास या मोहिमेच्या माध्यमातून हातभार लागेल.

संदर्भ:

1. वाघेला, अनिल, स्वच्छता का समाजशास्त्र, कल्पाज पब्लिकेशन, दिल्ली, 2015.

2. योजना, जानेवारी 2015. 2016.

ISSN 2394 - 7780

3. शुक्ल, अरविंद स्वच्छ भारत अभियान बुक पब्लिकेशन, लखनऊ

4. कुरुक्षेत्र, ऑक्टोंबर 2017.

5. mr.wikipedia.org.

6. www,tarunbharat.net.

7. www.pmindia.gov.in

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महाराष्ट्र शासनाच्या ग्रामीण विकास योजनांचा अभ्यास

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भारत हा ग्रामीण व्यवस्था असणारा देश आहे. भारतीय खेड्यातील लोकांचे जीवन हे अतिशय साधे व वैशिष्ट्यपूर्ण आहे. कृषी हा येथील लोकांचा प्रमुख व्यवसाय आहे. देशाची वाढती लोकसंख्या हि ग्रामीण विकासातील मोठी अडचण ठरत आहे. त्यामुळे भारतात ग्रामीण विकास हा महत्वाचा मानला जातो. नियोजनाच्या कालावधीत ग्रामीण विकासासाठी अनेक उपाय शासन स्तरावर राबविले गेले त्या अनुषंगाने ग्रामीण भागाचा विकासही काही अंशी घडून आलेला दिसतो. परंतु भारतासारख्या देशात अतिरीक्त लोकसंख्या, अल्प कृषी उत्पादकता, नवीन विचार आत्मसात न करणे, शिक्षणाचा निम्न दर्जा, रूढी व परंपरांचा पगडा, अकार्यक्षम नेतृत्व, जमीनीचे तुकडीकरण, आर्थिक विषमता, औद्योगिकीकरणाचा मंद वेग, बेरोजगारी यामुळे ग्रामीण भारताचा म्हणावा तसा विकास झालेला दिसत नाही यासाठी शासन स्तरावर प्रयत्न होणे गरजेचे आहेत.

भारतासारख्या देशाची प्रगती हि ग्रामीण भागाच्या सर्वांगिण विकासावर अवलंबून आहे. म्हणूनच केंद्र सरकारने २००८-०९ पासून नवीन राष्ट्रीय कृषी धोरण स्विकारले आहे. कृषी सुधारणेबरोबरच ग्रामीण भागातील रस्ते, आरोग्य, शिक्षण, पाणीपुरवठा, विजपुरवठा, वाहतुक, दळणवळण यासारख्या मुलभूत सुविधा वाढविण्यावर भर दिलेला आहे. ग्रामीण भारताच्या विकासासाठी केंद्र व राज्य सरकारे विविध विकास योजना राबवितात. या योजनांची प्रत्यक्ष कार्यवाही करण्याची जबाबदारी संबंधीत राज्याच्या ग्रामविकास मंत्रालयामार्फत पार पाडली जाते. प्रस्तुत लेखात महाराष्ट्र राज्यातील केंद्र व राज्य पुरस्कृत विविध योजनांचा अभ्यास करण्याचा प्रयत्न केला आहे.

संशोधन पध्दती :- सदर अभ्यास हा पुर्णतः दुय्यम साधनसामग्रीवर आधारीत असून यासाठी संदर्भ ग्रंथ. पुस्तके, महाराष्ट्र शासनाच्या विविध विभागाचे अहवाल, विविध लेख, वृतपत्रे, नियतकालीके, लोकराज्य, योजना यातील प्रकाशित लेख यांचा संदर्भ साहित्य म्हणून वापर केलेला आहे.

ग्रामीण विकासाच्या महाराष्ट्र शासनाच्या विविध योजना : स्वातंत्र्यप्राप्तीनंतर ग्रामीण भागतील लोकांचे जीवनमान उंचावण्यासाठी शासनाने अनेक कार्यक्रम राबविले. परंतु यात सरकारला म्हणावे तसे यश आले नाही म्हणून केंद्र शासनाने १९५७ साली बलवंतराय मेहता समिती नेमली. या समितीने सुचविलेल्या लोकशाही विकेंद्रीकरणाच्या शिफारशी भारत सरकारने सन १९५८ ला स्विकारल्या सर्व प्रथम राजस्थान राज्याने लोकशाही विकेंद्रकरणाची संकल्पना प्रत्यक्ष अमलात आणली. पंतप्रधान पंडीत जवाहरलाल नेहरू यानी २ ऑक्टोबर १९५९ रोजी याचे उद्घाटन करून त्याचे पंचायतराज असे नामकरण केले. सन १९६० रोजी मा. यशवंतराव चव्हाण हे महाराष्ट्र राज्याचे पहिले मुख्यमंत्री झाले. लोकांचा सामाजिक व आर्थिक विकास व्हावयाचा असेत तर लोकाना सत्ता मिळाली पाहिजे. त्यानी राज्य सरकारच्या हाती एकवटलेल्या सत्तेचे लोकशाही पध्दतीने विकेंद्रीकरण करण्याचा निर्णय घेतला. तेव्हापासून ते आजतागायत ग्रामीण विकासासाठी महाराष्ट्र शासनामार्फत विविध योजना राबविल्या जात आहेत.

यशवंत ग्राम समृध्द योजना :- ग्रामीण भागातील गावांचा विकास करण्यासाठी ग्रामसभेच्या मान्यतेने आवश्यक कामाची निवड करून गावांमध्ये लोकसहभागातून पायाभूत सुविधा निर्माण करून गावांची समृध्दी करण्याच्या उद्देशाने शासनाने सन २००२ पासून यशवंत ग्राम समृध्द योजना राज्यात सुरू केली. या योजनेतंर्गत सद्यस्थितीत दलित / आदिवासी वस्तीसाठी १०% आणि सर्वसाधारण वस्तीसाठी १५% लोकवर्गणी निश्चित केली आहे. ग्रामपंचायतीला दरवर्षी दहा लाख रूपये विकास कामासाठी खर्च करता येतात.

एकात्मिक ग्रामीण विकास योजना:- बेरोजगारी दूर करण्यासाठी सन १९७८ ला हि योजना सुरू करण्यात आली. या योजनेतंर्गत ग्रामीण भागातील लोकांना दुग्धोत्पादन, मच्छिमारी तसेच कारागीर व लघुद्योग करणाच्या रोजगार संधी उपलब्ध करून दिल्या जातात.

महाराष्ट्र रोजगार हमी योजना :- सन १९७२ महाराष्ट्र रोजगार हमी योजना लागू केली गेली. मागेल त्याला काम हे तत्व या योजनेच्या मुळाशी आहे. हि योजना क वर्गीय नगरपालीका व ग्रामीण भागासाठी लागू करण्यात आली.

महात्मा गांधी राष्ट्रीय ग्रामीण हमी योजना : या योजनेला नरेगा किंवा मनरेगा असेही म्हटले जाते. या योजनेतंर्गत प्रत्येक ग्रामीण कूटूंबातील किमान एका सदस्याला वर्षातून किमान १००दिवस काम पुरविले. जाईल. अंग मेहनतीच्या या कामासाठी त्याला किमान वेतन कायद्यानुसार साप्ताहिक मोबदला दिला जाईल.

ग्रामपंचायतीना जनसुविधांसाठी विशेष अनुदान :- दहन, दफनभूमी आणि इतर कार्यक्रमासाठी हि योजना महाराष्ट्र शासनाकडून जिल्हास्तरावर राबविली जाते. या योजनेतंर्गत ग्रामीण भागातील ज्या गावात दहन दफन भूमीसाठी

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ग्रामपंचायत किंवा शासनाच्या मालकिची जमीन नसेल तर अशा गावांच्या बाबतीत खाजगी जमीन संपादीत करण्यासाठी केवळ भू-षंपादनाचा खर्च भागविण्यासाठी अनुदान मंजुर करण्यात येते. सन २०१०-११ पासून या योजनेचा विस्तार करण्यात आला आहे. या योजनेतंर्गत ग्रामीण भागात दहन दफन . भूमीसाठी भूसंपादन, चबुतऱ्याचे बांधकाम, शेडचे बांधकाम, पोहोच रस्ता, कुंपण, संरक्षक भिंत, ग्रामपंचायत कार्यालय, वृक्षारोपण, परिसर सुधार इत्यादी कामे केली जातात. सदर योजनेसाठी जिल्हा नियोजन समिती कार्यरत असते.

पर्यावरण संतुलित समृध्द ग्राम विकास योजना :- महाराष्ट्र राज्याच्या स्थापनेच्या सुवर्ण महोत्सवी वर्षाच्या निमित्ताने राज्यातील गावांचा शाश्वत विकास घडवून आणण्याकरिता ग्रामोत्थान अभियान सुरू करण्यात आलेले आहे. यासाठी पर्यावरण संतुलित समृध्द ग्राम विकास योजना सुरू करण्यात आलेली आहे. ग्रामीण भागात भौतीक, सामाजिक व उत्पन्न मिळविण्याची साधने या तीन क्षेत्रात शासनाच्या आर्थिक, तांत्रीक व प्रशासकिय सहकार्याने, लोकांच्या पुढाकाराने हा विकास अपेक्षित होणार आहे.

रस्त्यावरिल विजेच्या दिव्याची वीज बिलांची रक्कम देण्यासाठी ग्रामपंचायतीना १००% अनुदान :- महाराष्ट्रातील अनेक ग्रामपंचायतींची आर्थिक स्थिती समाधानकारक नसल्याने ग्रामपंचायत हतिील रस्त्यावरील दिवाबत्तीची वीज देयक भागविण्यासाठी ग्रामपंचायतीना १००% अनुदान देण्याचा निर्णय शासनाने १९९० साली घेतला आहे.

तीर्थक्षेत्र विकास कार्यक्रम :- ग्रामीण भागातील तीर्थक्षेत्राच्या ठिकाणी दिवसेंदिवस देवदर्शनासाठी भाविकांची संख्या सातत्याने वाढत आहे. अशा ठिकाणी ग्रामपंचायतीना त्यांच्या तुटपुंज्या उत्पन्नामुळे विविध सोयीसुविधा. पुरविणे शक्य होत नाही. म्हणं शासनाने ग्रामीण भागातील तिर्थक्षेत्रांचा विकास करण्यासाठी स्थानिक स्वराज्य संस्थाना अनुदान देण्याची योजना सुरू केली आहे. ग्रामीण भागातील तिथक्षेत्रांची तीन प्रकारात वर्गवारी करून त्याना अनुदान मंजुर करण्यातय येते. या योजनेतंर्गत गावातील तिर्थक्षेत्राच्या ठिकाणी मंदीरापर्यंत पोहोच रस्ते, पाणीपुरवठ्याची व्यवस्था करणे, स्वच्छतागृह, वाहनतळ, भक्तनिवास, पोहोच रस्त्यावरील दिव आणि संरक्षक मित इत्यादी सुविधा निर्माण केल्या जातात.

स्वर्णजयंती ग्राम स्वरोजगार योजना :- स्वर्णजयंती ग्राम स्वरोजगार योजना हि ग्रामीण भागातील दारिद्य रेषेखालील कुटूंबाना साहाय करण्यासाठी राबविण्यात येणारी एक प्रमुख योजना आहे. त्यासाठी ग्रामीण भागातील कुटूंबांना सामाजिक कार्यप्रणवता, प्रशिक्षण व क्षमता वृध्दी करणे या प्रक्रियेचा अवलंब करून स्वंयसहाय गटांमध्ये संघटीत करण्यात येते.

ग्रामपंचायतीच्या रस्त्यांवर सौरपथ दिवे उभारणे : राज्यातील विजेची मागणी व पुरवठा यातील तफावत पाहता ग्रामीण भागात पर्यावरण संतुलन प्रणित मुलभूत सुविधा उपलब्ध करून देण्यासाठी अपारंपारिक स्त्रोतातून निर्मित विजेचा पुरवठा व्हावा या उद्देशाने ग्रामीण भागातील रस्त्यांवर सौर पथदिवे खांब उभारण्याची योजना सन २०१०-११ पासून कार्यान्वित केली आहे. हि योजना राज्य शासन, केंद्र शासन व ग्रामपंचायतीच्या सहभागातून राबवावयाची आहे.

इंदिरा आवास योजना: इंदिरा आवास योजना १९८९ पासून डिसेंबर १९९५ अखेरपर्यंत जवाहर रोजगार योजनेची उपयोजना म्हणून कार्यान्वित होती. त्यानंतर दिनांक 01 जानेवारी १९९५ पासून हि योजना स्वतंत्रपणे केंद्र पुरस्कृत योजना म्हणून स्वतंत्रपणे राबविण्यात येत आहे. या योजनेची निधी उपलब्धततेची पध्दत ७५:२५ प्रमाणे आहे. म्हणजेच ७५% केंद्रसरकार व २५% राज्य सरकार. या योजनेतंर्गत ग्रामीण भागातील दारि रेषेखालील बेघर किंवा कच्चे घर असलेल्या कुटुंबासाठी घरकूल बांधण्यासाठी अनुदान देण्यात येते.

रमाई आवास :- लाभार्थी अनुसूचित जाती व नवबौध्द घटकातील असावा. इंदिरा आवास योजनेमध्ये अनुसूचित जातीतील आरक्षणान्वये लाभ न मिळालेल्या पात्र लाभार्थ्याना या घरकुलाचा लाभ देण्यात येतो. या घरकुलासाठी देण्यात आलेल्या अनुदानातून किमान २६९ चौ. फुट क्षेत्रफळाचे बांधकाम लाभार्थ्याने करणे बंधनकारक आहे. या योजनेच सर्व प्रकारच कामकाज प्रकल्प संचालक, जिल्हा ग्रामीण विकास यंत्रणा यांचेमार्फत होते. यात लाभार्थी स्वतःच्या जागेवर किंवा ग्रामपंचायतीच. या जागेवर घरकुल स्वतः बांधून घेतात.

मागास क्षेत्र अनुदान निधी :- मागास क्षेत्र निधी अनुदान योजना हि १००% केंद्र पुरस्कृत योजना आहे. हि योजना सन २००७-०८ पासून सुरू करण्यात आलेली आहे. हि योजना महाराष्ट्रातील बारा मागासलेल्या जिल्ह्यामध्ये राबविली जाते. यात गडचिरोली, भंडारा, चंद्रपूर, गोर्दिया, नादे, हिंगोली, धुळे, नंदुरबार, अहमदनगर, यवतमाळ, औरंगाबाद व अमरावती या जिल्ह्यांचा समावेश होतो. या योजनेचा मुख्य उद्देश प्रादेशिक असमतोल दुर करणे हा असलेला दिसून येतो.

प्रधानमंत्री ग्रामसडक योजना : प्रधानमंत्री ग्रामसडक योजना हि १००% केंद्र शासन पुरस्कृत असून ती महाराष्ट्रात सन २००२ पासून राबविण्यात येत आहे. या योजनेचा बिगर आदिवासी भागातील 1000 पेक्षा जास्त व आदिवासी भागातील ५०० पेक्षा जास्त लोकवस्तीची न जोडलली गावे बारमाही रस्त्यांद्वारे जोडणे हा आहे.

मा. लोकप्रतिनिधीनी सुचविलेल्या ग्रामीण भागातील गावांतर्गत मुलभूत सुविधांचा विशेष कार्यक्रम: राज्यातील ग्रामीण भागातील गावांतर्गत मुलभूत सुविधांच्या कामाना पुरेसा निधी उपलब्ध होत नसल्याने ग्रामस्थाना अनेक अडचणींना

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तोंड द्यावे लागते. यासाठी मा. लोकप्रतिनिधीनी सुचविलेल्या ग्रामीण भागातील गावांतर्गत रस्ते, गटारे व अन्य मुलभूत सुविधांच्या कामासाठी विशेष कार्यक्रम हि योजना महाराष्ट्र शासनाने सन २००८-०९ या वर्षापासून सुरू केली आहे.

राष्ट्रीय बायोगॅस विकास कार्यक्रम :- पारंपारिक ऊर्जा साधने जसे पेट्रोल, केरोसिन, कोळसा, नेसर्गिक वायू व लाकडी इंधन हि काळाच्या ओघात संपणारी ऊर्जा साधने आहेत. यावरील भार सुधारण्यासाठी व पर्यावरण संतुलन राखण्यासाठी सन १९८२-८३ पासून शासनाने राष्ट्रीय बायोगॅस विकास कार्यक्रम हि १००% केंद्र पुरस्कृत योजना कार्यान्वित केली.

ई-पंचायत / संग्राम : भारत निर्माण कार्यक्रमायतील नॅशनल ई-गव्हर्नमेंट कार्यक्रमातंर्गत सर्व पंचायत राज संस्थांचे संगणकीकरण करून त्यांच्या कारभारात एकसूत्रता व पारदर्शकता आणण्यासाठी EPRIZE पंचायत हा मिशनमोड प्रोग्राम हाती घेण्यात आला. महाराष्ट्रात हा प्रकल्प संग्राम प्रकल्प (संगणकिय ग्रामीण महाराष्ट्र) या नावाने सन २०११ पासून राबविण्यात येत असून, या प्रकल्पातंर्गत सर्व जिल्हा परिषदा, पंचायत समित्या व ग्रामपंचायती यांचे संगणकीकरण करण्यात आलेले असून त्यांचा कारभार ऑनलाईन करण्यात आलेला आहे.

स्वंयरोजगार प्रशिक्षण संस्था (R-SETI) :- केंद्र सरकारने बेरोजगारीवर मात करण्यासाठी म्हणून श्री धर्मस्थ मंजूनाथेश्वर एजुकेशनल ट्रस्ट, सिंडीकेट बँक व कॅनरा बँक यांच्या संयुक्त विद्यमाने ग्रामीण विकास व स्वंयरोजगार प्रशिक्षण संस्था (R-SETI)सन १९८२ पासून स्थापन करण्यात आली.

कायमस्वरूपी विक्री केंद्र बांधणे :- ग्राम विकास विभागामार्फत सन १९९९ पासून दारिद्य रेषेखालील कुटूंबातील लोकांचे जीवनमान उंचावून त्याना रोजगार प्राप्ती व्हावी यासाठी स्वर्णजयंती ग्राम स्वरोजगार योजना राबविण्यात येत आहे. त्यानुसार ग्रामीण भागातील कुटूंबांना सामाजिक कार्यप्रणवता प्रशिक्षण व क्षमता वृध्दी करणे या प्रक्रियेचा अवलंब करून स्वंयसहाय गटांमध्ये संघटीत करण्यात येते. तसेच त्याना अनुदान व कर्जाचे वाटप करण्यात येते. या स्वंयरोजगारीतुन निर्माण केलेल्या वस्तूना हक्काची बाजारपेठ मिळावी म्हणून राज्य शासनाने प्रत्येक विभागीय व जिल्हा पातळीवर विक्री प्रदर्शने आयोजित करण्याचा व तालुका आणि जिल्ह्याच्या ठिकाणी कायमस्वरूपी विक्री केंद्र बांधण्याचा निर्णय घेतला.

निष्कर्ष :- ग्रामीण भारताची अर्थव्यवस्था हि आजही शेतीवर आधारीत आहे. महाराष्ट्र राज्यातील ग्रामीण भागातील लकोही प्रामुख्याने शेतीवर उदरनिर्वाह करताना दिसतात. व शेती पावसाच्या लहरीपणामुळे बेभरवशाची झालेला आहे. ग्रामीण भागात रोजगार संधी कमी असल्यामुळे शेतीवरील ताण वाढतो आहे. हा ताण कमी करून ग्रामीण भागातील लोकांचे जीवनमान उंचावण्यासाठी महाराष्ट्र शासनाच्या ग्रामीण विकास योजनांची चांगलीच मदत होताना दिसत आहे. ग्रामीण भागात शिक्षणाचा प्रसार, बचत गटाना प्रोत्साहान देणे त्याना कर्जपुरवठा करून त्यांच्या मालाला बाजारपेठा मिळवून देणे, रोजगार हमी योजनेचा विस्तार करून मनरेगाची स्थापना करणे, ग्रामीण भागातील लोकाना कौशल्य प्राप्तीसाठी प्रशिक्षण देणे, दारिद्य रेषेखालील लोकाना निवास व्यवस्थेसाठी मदत करणे इत्यादी विविध योजनांची अमलबजावणी केल्यामुळे ग्रामीण भागात शेतीवरील भार कमी होण्यास मदत झालेली दिसते. तसेच लोकांच्या जीवनमानात वाढ होऊन लोकांचा सरासरी उपभोग खर्च वाढलेला दिसतो. परंतु बुध्दी आणि श्रम यांच्यात फारकत झाल्यामुळे शेती आणि ग्रामीण भारत विकलांग झाला आहे हि महात्मा गांधीनी व्यक्त केलेली खंत अजुनही ग्रामीण भागासाठी लागू होताना दिसून येते.

संदर्भ :-

१. अर्थसंवाद विविध अंक

२. लोकराज्य विविध अंक.

३. Kurukshetra the monthly journal ministry of rural development chief editor neeta prasad vol. 58 no. 3 pages 5 january 2010

४. https://rural.nic.in/en

५. https://rdd.maharashtra.gov.in/en

६. भारताचे आर्थिक प्रश्न, डॉ. श्री. आ. देशपांडे, विद्या प्रकाशन नागपूर, 1972.

७. ग्रामीण विकासाचा एकात्मि दृष्टीकोन, गंगाधर कराळे, अनुवाद डॉ. विजय कविमंडन, श्रीमंगेश प्रकाशन नागपूर. 2006.

८. कृषी व ग्रामीण अर्थशास्त्र, डॉ. विजय कविमंडन, श्रीमंगेश प्रकाशन नागपूर 2012

९. योजना विविध अंक.

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इतिहासातील आंतरविद्याशाखीय दृष्टीकोन

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प्रस्तावना :
भारतात प्राचीन काळापासून इतिहासलेखनाची परंपरा प्रचलित असलेली दिसून येते. धार्मिक साहित्य, व्यक्तीचरित्र, प्रवासवर्णने, बखरी, राजकीय कागदपत्रे, आज्ञापत्रे, शकावल्या अशा विविध प्रकारे इतिहासलेखन केले जाते. इतिहासलेखन हे मुख्यत्वे धार्मिक जीवन राजाचे शोर्य, राजकरण, ललित साहित्य या विषयांपुरतेच मर्यादित होते. अगदी एकोणिसाव्या शतकापर्यंत पारंपरिक इतिहासलेखन पध्दती अनुसरली जात होती. एकोणिसाव्या शतकात ऐतिहासिक संशोधन आणि विश्लेषण पध्दतींचा प्रारंभ झाला. भारतीय आणि जागतिक पातळीवर व्यक्ती, स्थळ, काळपरत्वे इतिहासलेखन होवू लागले. विसाव्या शतकामध्ये अगदीच शास्त्रीय पध्दतीची मांडणी इतिहासलेखनात करण्यात आली. इतिहासलेखन आणि संशोधनाच्या बाबतीत अनुलाग्र बदल या काळात झाले. एका वेगळ्या विषयाने उपयोजन इतिहासलेखन आणि ऐतिहासिक संशोधनात करण्यात आले, यातून इतिहासाचा आंतरविद्याशाखीय दृष्टिकोन निर्माण झाला.

उद्दिष्ट्ये :
- इतिहास आणि आंतरविद्याशाखीय दृष्टिकोनाचा अभ्यास करणे.
- इतिहास आणि आंतरविद्याशाखीय शास्त्र यांच्यातील संबधाचा अभ्यास करणे.

संशोधन पद्धती :
सदरील संशोधन पेपरसाठी वर्णनात्मक संशोधन पद्धतीचा अवलंब करण्यात आला असून त्यासाठी दुय्यम साधनाचा आधार घेण्यात आला आहे.

इतिहास विषयातील संशोधन करीत असतांना इतर शास्त्रांत म्हणजे मानवविद्या, विज्ञान, वाणिज्य, यांचेही उपयोजन केले जाउ लागले. यातूनच आंतरविद्याशाखीय दृष्टिकोन विकसित झाला. इतिहास लेखन आणि ऐतिहासिक संशोधनातील इतिहास आणि आंतरविद्याशाखीय दृष्टिकोनाचा आढावा पुढीलप्रमाणे घेता येईल.

इतिहासलेखन आणि ऐतिहासिक संशोधनातील प्रचलित दृष्टिकोन
ऐकोणीसाव्या शतकात इतिहासलेखन आणि ऐतिहासिक संशोधामध्ये मार्क्सवादी दृष्टिकोन, स्त्रीवादी दृष्टिकोन, सबार्ल्टन दृष्टिकोन, आंबेडकरवादी विचारप्रवाह, आधुनिकतावादी दृष्टिकोन, स्थानिक इतिहास, मौखिक दृष्टिकोन, प्रादेशिक इतिहास, स्थानिक इतिहास, असे आधुनिक दृष्टिकोन आणि प्रवाह इतिहास लेखनशास्त्र आणि ऐतिहासिक संशोधनामध्ये प्रचलित झाले.

या प्रचलित दृष्टिकोनांमुळे ऐतिहासिक संशोधनातील सहाय्यकारी शास्त्रांचे महत्व वाढले. क्षेत्रीय पातळीवर इतिहास

संशोधन होवू लागले. मौखिक आणि स्थानिक इतिहासाच्या माध्यमतून ऐतिहासिक तथ्ये मोठया प्रमाणवर समारे येत आहेत.

साहित्य, मानवविद्या, आणि सामाजिक शास्त्रे
इतिहासा लेखनशास्त्रांमध्ये मानव्यविद्या, भाषा शास्त्रे, विविध कला यांचा आविष्कार होणे अपरिहार्य आहे. साहित्य आणि इतिहास हे परस्परपूरक अशी क्षेत्रे आहेत. प्राचीन काळापासून ते आधुनिक काळापर्यंत आणि आजतागायत साहित्यिक कलाकृती मधून ऐतिहासिक चित्रण झालेले दिसते. साहित्य क्षेत्रातील भाषांतर पध्दती, पारिभाषिक शब्दावली, चरित्रलेखन, ललितलेखन या सर्व घटकांमधून ऐतिहासिक लेखन आणि संशोधन हे सतत केलेले दिसते. धार्मिक साहित्यातून संत साहित्यातून धार्मिक इतिहास प्रगट झालेला आहे.. साहित्यशास्त्रास इतिहासलेखन आणि ऐतिहासिक संशोधन प्रक्रियेतील महत्वपूर्ण साधन आणि क्षेत्र मानले जाते.

विविध कलाक्षेत्रे
मानवी भावनांचा सर्जनशिलतेचा अविष्कार म्हणजे कला होय. मानवी जीवनातील विविध कला मानवांचा सांस्कृतिक इतिहास स्पष्ट करतात. गायन, वादन, नृत्य, लोककला, समूहनृत्य, चित्रकला, शिल्पकला, मूर्तिकला, मंदिस्थापनशैली, हयाच्या माध्यमातून मानवी इतिहासाचा मागोवा घेता येतो. सामाजिक जीवन जगत असताना मानवाने सांस्कृतिक जीवनात समृध्दी प्राप्त केली. विविध कलांच्या माध्यमातून आपल्या सुप्तगुणांना सर्जनशिलतेला प्रत्यक्षरूप दिले. विविध कलांचा इतिहास अभ्यासत असताना आपल्याला ऐतिहासिक तथ्यांची ओळख होते. कला क्षेत्रे ही इतिहासलेखन आणि ऐतिहासिक संशोधनासाठी अत्यंत सहाय्यकारी क्षेत्रे आहेत.

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पर्यटन शास्त्र आणि भूगोल

इतिहासलेखनशास्त्रामध्ये आणि ऐतिहासिक संशोधनामध्ये पर्यटनशास्त्र आणि भूगोलाचे अत्यंत महत्व आहे. ऐतिहासिक स्थळे पर्यटनशास्त्रामध्ये महत्त्वपूर्ण मानली जातात. ऐतिहासिक

स्मारके, स्थळे, उत्खनने, ऐतिहासिक भूमी यांचे महत्व आपल्याला- पर्यटनशास्त्रामध्ये दिसून येते. भौगोलिक घटकांचा प्रभाव नेहमीच ऐतिहासिक घटनांवर पडत असतो. पर्यटनाचा विकास, रोजगारनिर्मीती यामध्ये आपल्याला ऐतिहासिक स्थळांचे, घटनांचे महत्व असलेले दिसून येते.

आधुनिक विज्ञान, संगणकशास्त्र, व इतर तंत्रे

इतिहासलेखन आणि ऐतिहासिक संशोधनामध्ये आधुनिक विज्ञानाचा उपयोग होतो. **X-Ray, Carbon-14, Labo- ratory Techniques, Preservation** या घटकांचा आणि पध्दतींचा उपयोग इतिहासलेखन आणि ऐतिहासिक संशोधनात केला जातो. संगणक शास्त्रामूळे माहिती आणि संशोधनाची तथ्ये संकलन करणे, साठवून ठेवणे सोपे झाले आहे. इंटरनेटमुळे संशोधनास चालना मिळाली आहे. फोटोग्राफीमुळे ऐतिहासिक संशोधनामध्ये छायाचित्रण, फोटोप्रिंट या बाबी संशोधनास दृष्य स्वरूप देणाऱ्या आहेत. हवाई सर्वेक्षण, उपग्रहीय सर्वेक्षण, यामुळे ऐतिहासिक स्थळांच्या बाबतीतली भौगोलिक माहिती मिळते. Global Positioning System (GPS) चा वापर करून ऐतिहासिक दृष्टया महत्वपूर्ण असलेली ठिकाणे निश्चित केली जातात. राजकीय भौगोलिक सिमारेषांचे जतन केले जाते.

प्रसारमाध्यमे आणि इतिहास

प्रसार माध्यमांचा सहाय्याने इतिहास लेखन आणि ऐतिहासिक संशोधनामध्ये व्यापकता निर्माण होते. वृत्तपत्रांचा इतिहास हा भारतीय धार्मिक, सामाजिक, आर्थिक, राजकीय, आणि सांस्कृतिक जीवनाचे दर्शन घडवतो. दूरदर्शनच्या माध्यमातून, वृत्तचित्रांच्या माध्यमातून ऐतिहासिक घटना, चरित्रे यांचे चित्रण केले जाते. प्रसारमाध्यमांमुळे कमी वेळेत कमी खर्चात जास्तीत

जास्त माहिती लोकापर्यंत पोहोचवली जाते.

निष्कर्ष

अशाप्रकारे इतिहासलेखन आणि ऐतिहासिक संशोधनामध्ये इतिहास आणि आंतरविद्याशाखीय दृष्टिकोन अत्यंत महत्वपूर्ण आहे. सामाजिक शास्त्रे, मानवविद्या भाषाशास्त्रे, विज्ञान, संगणकशास्त्र, आधुनिक तंत्रे प्रसारमाध्यमे अशा वेगवेगळ्या विषयांचे आणि शास्त्रांचे उपयोग इतिहासलेखनशास्त्र आणि ऐतिहासिक संशोधनामध्ये केले जाते. वर्तमान काळामध्ये इतिहास हा विषय आंतरविद्याशास्त्रीय महत्व असलेला विषय म्हणून पुढे आला आहे.

संदर्भ सूची :

१) कार ई. एच., 'इतिहास म्हणजे काय?', कॉन्टिनेन्टल प्रकाशन, पुणे १९९४. अनु. लेले वि.गो.,-

२) कोठेकर शांता, 'इतिहास तंत्र आणि तत्वज्ञान', श्री साईनाथ प्रकाशन, नागपूर..

३) डॉ. सरदेसाई बी.एन., 'इतिहास लेखनशास्त्र', फडके प्रकाशन, कोल्हापूर.

४) अत्रे शुभांगना, रायरीकर कल्पना, केंजळे सौमित्र महाराष्ट्र - संस्कृती १८४८ पर्यंत

५) इंटरनेट

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समकालीन हिंदी कविता में व्यंग्य

- संतोष नागरे
हिंदी विभाग, र.भ. अट्टल महाविद्यालय, गेवराई जिला - बीड (महाराष्ट्र)

व्यंग्य एक गंभीर और चुनौती भरा कार्य है । व्यंग्य का मूलाधार है - विसंगति और उसका उद्देश्य है – सुधार। सुभाषचंद्र गुप्त कहते हैं - " व्यंग्य का बीजतत्व है विसंगति बोध और यह उपजता है गहरे निरीक्षण से ।"[1] भारतीय साहित्य में ध्वनि, अन्योक्ति, वक्रोक्ति, विसंगति आदि के रूप में व्यंग्य के तत्व आरम्भ से ही विद्यमान रहे हैं । सत्य, संवेदना, स्पष्टवादिता, करूणा, विडंबना, विसंगति, विद्ग्धता, विक्षोभ, प्रहार और सुधार की भावना व्यंग्य के प्रमुख तत्व हैं । डॉ. सुरेश सिंह यादव व्यंग्य के संदर्भ में कहते हैं - " व्यंग्य यथार्थ का सूक्ष्म निरीक्षक, दर्पण और स्पष्ट व्याख्याता होने के साथ ही समाज का सुपथ प्रदर्शक होता है । निंदा, उपहास, तीक्ष्णता व्यंग्य के अस्त्र हैं । कटु होते हुए भी व्यंग्य संवेदनशील होता है । जिस प्रकार काँटो के बीच खिलकर गुलाब सुगंध फैलाता है, कीचड़ में खिलकर कमल तालाब की शोभा बढ़ाता है उसी प्रकार बुराइयों से उत्पन्न होकर 'व्यंग्य' भलाई में रत होता है । वह मनुष्य के अस्तित्व की लड़ाई लड़ते हुए विकृतियों को दूर करने के लिए सदा तत्पर रहता है । व्यंग्य वह औषधि है जो रोगी (बुरे लोग) को रोग मुक्त करने के उद्देश्य से दी जाती है । वह व्यक्ति और समाज के यथार्थ का दस्तावेज होता है । व्यंग्य साहित्य सागर का वह सीप है जिसमें मोती होता है ।"[2]

हिंदी के प्राचीन एवं मध्ययुगीन कवियों में संत कबीर,सूरदास तो समकालीन हिंदी कवियों में 'निराला', नागार्जुन, सर्वेश्वरदयाल सक्सेना, धूमिल, गोरख पांडे, मदन डागा, मुक्तिबोध, केदारनाथ अग्रवाल, दुष्यन्तकुमार, मंगलेश डबराल, राजेश जोशी आदि की रचनाओं में धारदार व्यंग्य देखने को मिलता है । स्वतंत्रता के बाद का मोहभंग और उससे उपजा आक्रोश समकालीन हिंदी कविता में व्यंग्य के माध्यम से फूट पड़ता है । वर्तमान समय में राजनीति से नीति, प्रजातंत्र से प्रजा, जनसंचार माध्यम से जन, धर्म से मनुष्यता, अर्थ से मूल्य, संस्कृति से संस्कार, भाषा से संवाद, संगीत से लय, सौंदर्य से सादगी विलुप्त हो जाने से उभर रही वीभत्सता को समकालीन हिंदी कवियों ने अपनी सपाट बयानी के माध्यम से पाठकों के मन- मानस को झकझोरा है ।

15 अगस्त 1947 को हमारा देश स्वतंत्र हुआ । आज हम आजादी का अमृत - महोत्सव मना रहे हैं । आजादी के बाद सिद्धान्त की राजनीति अवसर की राजनीति में तब्दील हो गयी । राजनीति में पनपते अवसरवाद के कारण 'मूल्य' की जगह 'छल' ने ली । सत्ता को ही अंतिम सत्य माननेवाले राजनेताओं की कथनी और करनी में जमीन - आसमान का अंतर आ गया । एक ओर विश्वबंधुत्व एवं भाईचारे की बात करनेवाले राजनेता दूसरी ओर धर्म, सम्प्रदाय, भाषा, जाति, क्षेत्रीयता के आधार पर समाज में फूट ड़ालकर सत्ता के लिए पैंतरे बदलते रहते हैं । सर्वेश्वरदयाल सक्सेना इन तथाकथित सत्ताधों की पोल खोलते हुए कहते हैं -

" सत्ता चतुर बनाती है और पाशविक भी

सभ्यता बहुत चालाकी से

आदिम गुफाओं में बंद कर देती है

इनसे कहीं अच्छे थे वे

जो नरमुंड की मालाएँ पहनकर

अपने शौर्य पर इतराते थे

कम -से-कम बंधुत्व और करूणा के

गीत तो नहीं गाते थे ।"[3]

आजादी के बाद बढ़ता भाई -भतीजावाद,राजनेताओं की चरित्रहीनता, भ्रष्टाचार, मूल्य और विचारधारा को त्याग कर सत्ता के लिए किये जा रहे मनमाने समझौते, चुनावी जुमले और विकास के नाम पर भोली - भाली जनता को गुमराह किया जाना आदि बातें राजनीति के स्याह चेहरे को अधोरेखित करती हैं । 1975 में घोषित आपातकाल की तरह ही वर्तमान समय में हम अघोषित आपातकाल के दौर से गुजर रहे हैं । व्यवस्था के विरूद्ध मुँह खोलना आज भी जोखिम भरा काम है । व्यवस्था के विरूद्ध सच बोलनेवाले, जिनकी कमीज़ पर दाग नहीं, जो चारणकर नहीं, जो धर्म की ध्वजा उठाए नहीं जाएंगे जुलूस में और जो शामिल नहीं होंगे इस पागलपन में वे सब मारे जाएंगे । इस समय निहत्थे और निरपराध होना सबसे बड़ा अपराध है । अपने समय की बहुविध विसंगतियों को बड़ी बेबाकी के साथ बयान करते हुए राजेश जोशी 'मारे जाएंगे' कविता में कहते हैं -

"सबसे बड़ा अपराध है इस समय

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निहत्थे और निरपराध होना

जो अपराधी नहीं होंगे

मारे जाएंगे ।"[4]

आजादी के बाद जनतंत्र चुप्पीतंत्र बनकर रह गया । अपनी भलाई की मलाई के लिए चुप्पी साधनेवाले स्वार्थियों के कारण ही इस देश में बलात्कारी आजाद घूम रहे हैं तो दलित - आदिवासियों के हत्यारे, किसानों के अपराधी शासन कर रहे हैं । कृषि कानून के विरूद्ध दिल्ली की सीमा पर आंदोलन कर रहे किसान इस कृषि - प्रधान देश की व्यथा - कथा को बयान करते हैं । 'बेटी बचाओ - बेटी पढ़ाओ' का ढोल पीटनेवालों को संसद के सामने न्याय के लिए आंदोलन कर रही देश की बेटियाँ दिखाई नहीं देती । देश को शर्मसार करनेवाली मणिपुर की घटना के विरोध में आवाज उठाने की अपेक्षा अपनी निजता और नीचता को बचाने में लगे स्वार्थियों की पोल खोलते हुए जितेंद्र श्रीवास्तव 'चुप्पी का समाजशास्त्र' कविता में कहते हैं -

" हमारे समय में निजता इतना बड़ा मूल्य है

कि कोई बाहर ही नहीं निकलना चाहता उसके दायरे से

वरना क्यों होता

कि आजाद घूमते बलात्कारी

दलित -आदिवासियों के हत्यारे

शासन करते

किसानों के अपराधी

सब चुप है

अपनी -अपनी चुप्पी में अपना भला ढूँढते

सबने आशय ढूँढ लिया है

जनतंत्र

अपनी -अपनी चुप्पी में ।"[5]

वर्तमान समय में हर राज्य में आये दिन राजनीतिक भूकंप हो रहा है और उसका केंद्र है - दिल्ली । सत्ताधारी वर्ग कभी सी.बी.आय., ई.डी., इनकम टैक्स जैसी सरकारी यंत्रणाओं का तो कभी सहायता कोष का लालच दिखाकर विपक्ष को अपने पक्ष में करने पर तुला हुआ है । यही कारण है कि जिसके हाथ में सहायता कोष है और जिसके हाथ में बंदूक है वह सर्वेश्वरदयाल सक्सेना को एक जैसे दिखाई देते हैं । डर की राजनीति ने विपक्ष को कमजोर और लोकतंत्र को खोखला कर दिया है । सर्वेश्वरदयाल सक्सेना सत्ता के इस क्रूर चेहरे को बेनकाब करते हुए कहते हैं -

" लेकिन कभी-कभी

जिसके हाथ में बंदुक है वह

और जिसके हाथ में सहायता कोष है वह

एक जैसे दिखते हैं ।"[6]

हमारे यहाँ चुनाव एक पंचवार्षिक महोत्सव होता है । जहाँ मतदाताओं को आकर्षित करने के लिए पानी की तरह पैसा बहाया जाता है । यह पैसा खादी और मलमल की साँठ - गाँठ का द्योतक है । यही कारण है कि चुनावी जीत के बाद यह सभी लोग खर्च किया गया पैसा वसूल करने में जी जाने से लगे हुए दिखाई देते हैं । खाने और खिलाने की इस नवीन पद्धति का नाम है - 'न खाऊँगा न खाने दूँगा' । ईमानदारी का डंका पीटनेवाले चौकीदार के इस देश में बैंकों का पैसा, दफ़्तरों की फाइलें, आदमी की जान और स्त्रियों की इज्जत कुछ भी सुरक्षित नहीं है । इस असुरक्षितता को लेकर फटकारते हुए जयप्रकाश कर्दम 'चौकीदार' कविता में कहते हैं -

" ये भी चौकीदार

वो भी चौकीदार

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जिसको देखो वह चौकीदार

चारों ओर चौकीदार ही चौकीदार है

अपनी - अपनी निष्ठा और

ईमानदारी का डंका पीटते हुए

लेकिन इसके उपरांत

बैंकों का पैसा असुरक्षित है

दफ़्तरों की फाइलें असुरक्षित है

आदमी की जान

स्त्रियों की इज्जत

कुछ भी सुरक्षित नहीं है ।"[7]

मीड़िया को प्रजातंत्र का चौथा आधारस्तम्भ कहा जाता है । दुर्भाग्य से आज जनसंचार माध्यम धनसंचय माध्यम बनते जा रहे हैं । मीड़िया आम आदमी की उपेक्षा कर धन्नासेठों की जीवनशैली और समस्याओं को राष्ट्रीय समस्या के रूप में प्रकाशित, प्रसारित एवं प्रचारित कर अपना टीआरपी बढ़ाने में लगा हुआ है । यही कारण आम आदमी के जीवन संघर्ष की ओर अनदेखा कर पूँजीपतियों के हाथों की कठपुतली बने मीड़िया की पोल खोलनेवाले एक ड्रायव्हर की आवाज कवि को 'ईश्वर से अधिक विराट' और शक्तिशाली लगती है । जितेंद्र श्रीवास्तव कहते हैं-

" क्षमा करना

मैं कोई माओवादी नहीं एक ड्रायव्हर हूँ

लेकिन मुझे ऐतराज है

किसी धन्नासेठ की निजी समस्या को

राष्ट्रीय समस्या में बदलने की कोशिशों पर ।"[8]

आजादी के बाद अमीर और गरीब के बीच की दूरी दिनों - दिन बढ़ती ही जा रही है । यही कारण है कि आज देश की 40 प्रतिशत जनता गरीबी रेखा के नीचे जीवन जी रही है । आज अमीर और गरीब के जीवन के मुहावरे में जमीन - आसमान का अंतर आ गया है । अमीरों की सुविधा सम्पन्नता और गरीबों की अभावग्रस्तता को 'द्विरूक्ति' कविता के माध्यम से अधोरेखित करते हुए लीलाधर जगूड़ी कहते हैं -

" अमीरों का मुहावरा?

- जरा इधर जा रहा हूँ

जरा उधर जा रहा हूँ

थोड़ा - सा काम है

गरीबों का मुहावरा ?

- आराम हराम है?"[9]

भारत धर्मनिरपेक्ष राष्ट्र है । धर्म मनुष्य के लिए है और मनुष्यता सर्वश्रेष्ठ धर्म । दुर्भाग्य से 2002 के बाद हमारे घरों के पास उग आयी मंदिर संस्कृति और उसमें फले - फूले धर्म के पाखंड और आडंबर के कारण ही घट - घट में निवास करनेवाला ईश्वर अब हमें केवल मंदिर में ही दिखाई देने लगा है । धर्म की भूलभुलैया में भटक रहे मनुष्य को इसीकारण अपने घर के भीतर की चीख़ और बाहर की कोई पुकार अब सुनाई नहीं दे रही है । जो मनुष्य के आत्मकेंद्रित होने के साथ - साथ अधर्मी होने का द्योतक है । मनुष्यता के अभाव में धर्म - अधर्म बनकर रह जाता है । धर्म का बढ़ना और मनुष्य का अधर्मी होना आज का कटु यथार्थ है । इस यथार्थ को बड़ी बेबाकी के साथ बयान करते हुए भगवत रावत 'सुनहू पवनसुत रहनि हमारी' कविता में कहते हैं -

" पिछले एक साल में

धरम मेरे चारों ओर इतना - इतना बढ़ा कि मैं

अपने ही घर में अधरमी हो गया

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सुनाई नहीं देती अब मुझे

घर के भीतर की कोई चीख़

घर के बाहर की कोई पुकार ।"[10]

आजादी के बाद औद्योगिकरण के साथ - साथ शहरीकरण बढ़ने लगा । आज गाँव को रौंदकर महानगर फल - फूल रहे हैं । आपसी स्वार्थ के कारण ही अज्ञेय को महानगरीय संस्कृति 'साँप' से अधिक विषैली प्रतीत होती है । महानगरीय सभ्यता एवं संस्कृति एक प्रकार का चक्रव्यूह है । जहाँ आदमी अपनी इच्छा से प्रवेश तो कर सकता है पर बाहर नहीं निकल पाता । महानगरों के चक्रव्यूह में फँसा आज का हर मनुष्य अभिमन्यु की त्रासदी झेलने के लिए विवश है । मंगलेश डबराल 'शहर' कविता में कहते हैं -

" मैंने शहर को देखा और मैं मुस्कराया

वहाँ कोई कैसे रह सकता है

यह जानने मैं गया

और वापस न आया ।"[11]

औद्योगिक विकास के कारण जहाँ एक ओर शहरों की आबादी दिनों - दिन बढ़ती जा रही है वहीं दूसरी ओर धरती पर कम होते जा रहे मनुष्य आज चिंता का विषय है । बाजार से गुजरते हुए निरपराध पशुओं में इस बात का भय है कि आदमी का विष, हिंसा और विनाश की हवस उन्हें मार न दे । दिनों - दिन क्षीण होती जा रही मनुष्य की मनुष्यता और संवेदनशीलता के कारण पशुओं का भयभीत होना स्वाभाविक है । समय की बह रही इस उल्टी धारा को 'समय के घाव' कविता में अधोरेखित करते हुए ऋतुराज कहते हैं -

"आबादी बढ़ रही है बेशुमार पर मनुष्य कम होते जा रहे हैं

बाजार से गुजरते हुए पशुओं में भय है

कि आदमी का विष, हिंसा और विनाश की हवस

उन्हें मार सकती है निरपराध ।"[12]

दुनिया को अहिंसा और शान्ति का पाठ पढ़ाने वाले इस देश में बढ़ती हिंसा और अपराध जगत का विस्तार चिंता का विषय है । भूमंडलीकरण के इस दौर में बहुविध समस्याओं की दलदल में फँसा आदमी बाहर आने के लिए छटपटा रहा है । आज आदमी बनने की अनिवार्य शर्त है - समस्याओं से घिरा हुआ होना । जो आदमी समस्या 'विमुक्त' मरता है उसे पंकज राग आदमी ही नहीं मानते ।

" आदमी समस्या विहीन नहीं मरता

जो विमुक्त मरते हैं

शायद वे आदमी नहीं होते ।"[13]

समाज जीवन में व्याप्त समस्या रूपी गंदगी को साफ करने का दायित्व बुद्धिजीवियों एवं साहित्यकारों का है । आ. हजारीप्रसाद द्विवेदी इस संदर्भ में ठीक ही कहते हैं - "सारे मानव समाज को सुंदर बनाने की साधना का ही नाम साहित्य है ।"[14] दुर्भाग्य से यहाँ का बुद्धिजीवी अपनी चंद टुच्ची सुविधाओं के लिए व्यवस्था के सामने दुम हिलाने में ही अपने जीवन की सार्थकता समझ रहा है । इसीकारण जहाँ एक ओर बुद्धिजीवियों का रूतबा बढ़ रहा है वहीं दूसरी ओर देश मिट्टी में मिल रहा है । बुद्धिजीवियों ने समाज से बहुत - बहुत ज्यादा लिया पर उसके बदले में समाज को क्या दिया ? बुद्धिजीवियों के सामाजिक दायित्व को लेकर सवाल उठाते हुए मुक्तिबोध कहते हैं -

" अब तक क्या किया

जीवन क्या जिया !!

बताओ तो किस-किसके लिए, तुम दौड़ गए

करूणा के दृश्यों से हाय ! मुँह मोड़ गए,

बन गए पत्थर ;

बहुत-बहुत ज्यादा लिया,

दिया बहुत-बहुत कम;

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मर गया देश,अरे,जीवित रह गए तुम !!"[15]

समाज जीवन में व्याप्त गंदगी को साफ कर उसे रहने लायक बनाने का महत्वपूर्ण दायित्व साहित्यकारों पर है । समकालीन हिंदी कविता व्यंग्य रूपी झाड़ू के माध्यम से समाज जीवन में व्याप्त गंदगी को साफ कर समाज के उत्थान और बेहतरी के लिए निरंतर संघर्षशील है । राजेश जोशी 'झाड़ू की नीति कथा' में सामाजिक स्वास्थ की दृष्टि से सफाई कामगार और कवि कर्म की महत्वपूर्ण भूमिका को अधोरेखित करते हुए कहते हैं -

"झाड़ू बहुत सुबह जाग जाती है
और शुरू कर देती है अपना काम
बुहारते हुए अपनी अटपटी भाषा में
वह लगातार बड़बड़ाती है
'कचरा बुहारने की चीज है, घबराने की नहीं
कि अब भी बनाई जा सकती है जगहें
रहने के लायक ।"[16]

सारांश

समकालीन हिंदी कविता व्यंग्य के रंग में रंगी हुई कविता है । समकालीन हिंदी कवियों ने स्वतंत्रता के बाद के समसामयिक परिवेश की बहुविध विसंगतियों, विडंबनाओं और विकृतियों की व्यंग्य के माध्यम से शल्यचिकित्सा करते हुए सामाजिक स्वास्थ को बचाए रखने के अपने सामाजिक दायित्व का सफलतापूर्वक निर्वहन किया है । कुल मिलाकर यह कहा जा सकता है कि समकालीन हिंदी कविता में व्यंग्य अपने चरम रूप में देखने को मिलता है ।

संदर्भ

1. मुक्तांचल, वर्ष :08, अंक 30-31, अप्रैल -सितंबर 2021, सम्पा. डॉ. मीरा सिन्हा, पृ.क्र. 33
2. हिंदी कथा साहित्य में व्यंग्य के रंग, डॉ. सुरेश सिंह यादव, पृ.क्र. 32
3. गर्म हवाएँ , सर्वेश्वरदयाल सक्सेना, पृ. क्र. 21
4.कवि ने कहा : चुनी हुई कविताएँ, राजेश जोशी, पृ.क्र. 63
5.कवि ने कहा : चुनी हुई कविताएँ, जितेंद्र श्रीवास्तव, पृ. क्र. 116
6. कुआनो नदी, सर्वेश्वरदयाल सक्सेना, पृ. क्र.71
7. दुनिया के बाजार में, जयप्रकाश कर्दम, पृ.क्र.142
8. कवि ने कहा : चुनी हुई क कविताएँ, जितेंद्र श्रीवास्तव,पृ. क्र. 125
9. कवि ने कहा : चुनी हुई कविताएँ, लीलाधर जगूड़ी, पृ. क्र. 71
10. कवि ने कहा : चुनी हुई कविताएँ, भगवत रावत, पृ. क्र .92
11.कवि ने कहा : चुनी हुई कविताएँ, मंगलेश डबराल, पृ. क्र. 26
12. कवि ने कहा : चुनी हुई कविताएँ, ऋतुराज,पृ. क्र. 116
13. यह भूमंडल की रात है, पंकज राग, पृ. क्र. 60
14. गद्य विभा,सम्पा. हिंदी अध्ययन मंडल, डॉ. बा. आं. म.विश्वविद्यालय, औरंगाबाद, पृ. क्र. 47
15. गजानन मा. मुक्तिबोध : प्रतिनिधि कविताएँ, सम्पा.अशोक वाजपेयी, पृ. क्र.141
16. कवि ने कहा : चुनी हुई कविताएँ, राजेश जोशी, पृ. क्र. 66

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स्वातंत्र्योत्तर हिंदी ग़ज़लों में प्रेमाभिव्यक्ति

- प्रो. रजनी शिखरे
प्राचार्य, र. भ. अट्टल महाविद्यालय, गेवराई जिला - बीड़ (महाराष्ट्र)

ग़ज़ल मूलतः काव्य की एक विधा है। यह विधा अरबी - फारसी से हिंदी में आयी है। ईरान में जन्मी यह विधा हिंदुस्तान में आकर पोषित हुई यह बात सर्वस्वीकृत है। ग़ज़ल के अपने अलग अंदाज़ ने भारतीय जन मानस को अपनी ओर आकर्षित किया। हिंदी कविताओं की विषयवस्तु को ग़ज़ल में व्यक्त करने का प्रयास अनेक ग़ज़लकारों ने किया है लेकिन सफलता कुछ लोगों को ही मिली। डॉ. उर्मिलेश इस संदर्भ में लिखते हैं - " हिंदी ग़ज़ल से मेरा अभिप्राय उर्दू कविता से आयातित उस काव्य विधा से है, जो उर्दू - ग़ज़ल की शैल्पिक काया में हिंदी की आत्मा को प्रतिष्ठित करती हुई, अपनी गेयता को सुरक्षा देती हुई आधुनिक जीवन और परिवेश की संगतियों और विसंगतियों को नूतन भाव बोध के साथ स्थापित करती हुई आगे बढ़ रही है।"[1]

ग़ज़ल में मूलतः शारीरिक सौंदर्य की अभिव्यक्ति हुआ करती थी। बादशाहों के दरबार में लिखे जानेवाले कसीदों से बाहर निकलने के लिए ग़ज़ल को बहुत समय लगा है। "उर्दू ग़ज़ल में श्रृंगार रस की प्रधानता रही है। जबकि हिंदी ग़ज़ल में श्रृंगार के साथ - साथ सामाजिक बोध भी प्रमुख रहा है। फिर भी हिंदी ग़ज़लों में प्रेम के लौकिक एवं अलौकिक दोनों ही रूपों का निरूपण व्यापक भावभूमियों और आयामों के साथ हुआ है। साथ ही उसमें आम आदमी के दुःख - दर्द, परिवेश संबधी विसंगतियों, नैतिक और आध्यात्मिक मूल्यों और यथार्थवादी दृष्टिकोण को भी अभिव्यक्ति प्रदान की गई है।"[2] इस तरह उर्दू ग़ज़ल राजदरबारों से सूफी संतों की दरगाहों में पहुँचकर इश्क़ मजाजी से इश्क़ हकीकी तक पहुँच गयी। हिंदी भाषा के माध्यम से स्त्री से गुफ्तगू करनेवाली यही ग़ज़ल स्त्री के दुःख -दर्द, आँसू और उसकी अनंत समस्याओं को भी अभिव्यक्त करने लगी। आम आदमी के दुःख के साथ - साथ सामाजिक कुरीतियाँ, राजनीतिक भ्रष्टाचार, आर्थिक समस्या एवं धार्मिक बाह्याडम्बर पर प्रहार करनेवली हिंदी ग़ज़ल लौकिक एवं अलौकिक प्रेम के विभिन्न पहलुओं पर प्रकाश डालती है। स्वातंत्र्योत्तर हिंदी ग़ज़लकारों में दुष्यन्तकुमार, गोपालदास नीरज, जहीर क़ुरैशी, गिरिराजशरण अग्रवाल, चन्द्रसेन विराट, कुँअर बेचैन आदि ने अपनी ग़ज़लों के माध्यम से प्रेम भावों को सहजता के साथ अभिव्यक्त किया है।

समकालीन ग़ज़लकार आत्मप्रकाश शुक्ल अलौकिक प्रेम के लिए अहंभाव के विसर्जन पर बल देते हैं। आत्मा और परमात्मा के मध्य शरीर के द्वैत को तोड़ने के लिए अद्वैत की ओर जाने का एकमेव माध्यम है - प्रेम। प्रेम एक यज्ञ है और उसकी पूर्णता के लिए प्रेम यज्ञ में अपने अंहकार का हवन करना अत्यावश्यक है । अहं के हवन से मन शुद्ध होकर उसमें परमात्मा के प्रति प्रेम भाव का उदय होता है । त्याग और समर्पण के पथ पर चलकर ही हम अद्वैत तक पहुँच सकते हैं । अलौकिक प्रेमाभिव्यक्ति को वाणी देते हुए आत्मप्रकाश शुक्ल कहते हैं -

"प्यार दृग -धार है आचमन तो करो,
अग्नि की शायिका है शयन तो करो ।
देह के द्वैत को तोड़ने के लिए ,
मीत अद्वैत का अध्ययन तो करो ।
प्यार के यज्ञ की पूर्णता के लिए
धीरे - धीरे अहं का हवन तो करो ।"[3]

गोपालदास नीरज कहते हैं परमात्मा तक पहुँचना आसान काम नहीं है। उसके लिए इस संसार की मोह, माया को त्यागकर अपने अहंकार को समाप्त करना पड़ता है। हम स्वयं को ध्यानी, ज्ञानी, बिरहमन या शेख कहते हैं तो वह भी अपना 'स्व' है। इस 'स्व' को त्यागना ही ईश्वर प्राप्ति की प्रथम सीढ़ी है। "पूजा - पाठ, कर्मकांड, और तीर्थाटन आदि साधनों से प्रभु तक पहुँचना बहुत मुश्किल है। छल - कपट रहित हृदय से प्रभु - नाम का स्मरण करते हुए उसमें ही खो जाने पर तो ईश्वर तक पहुँचा जा सकता है।"[4] नीरज की ग़ज़लों में अलौकिक प्रेम की अभिव्यक्ति इस तरह हुई है -

"न वो ज्ञानी, न ध्यानी, न बिरहमन न वो शेख,
वो कोई और थे जो तेरे मकाँ तक पहुँचे।
सदियाँ-सदियाँ न वहाँ पहुँचेगी दुनिया सारी,
एक ही घूँट में मस्ताने वहाँ पहुँचे ।"[5]

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प्रेम रस का पान करनेवाले मस्ताने ही ईश्वर के मकाँ तक आसानी के साथ पहुँचते हैं। ग़ज़लकार जहीर क़ुरैशी परमात्मा मिलन में शरीर से जुड़े रिश्तों को बाधा समझते हैं। अतः द्वैत मिटाने के लिए वे शरीर से मुक्ति चाहते हैं। जहीर कुरैशी कहते हैं -

" हम आत्मा से मिलने को व्याकुल रहे मगर

बाधा बने हुए है ये रिश्ते शरीर के ।"[6]

स्वातंत्र्योत्तर ग़ज़लकार अपनी ग़ज़लों में ईश्वरीय शक्ति की महानता को शब्दबद्ध करते हुए अलौकिक प्रेम की अभिव्यक्ति करते हैं। सरस्वतिकुमार को नभ के दीप दमकाना, तम को चमकाना, किरणों के करों की घात से लहरियों के तार झनकाना इन सब क्रियाओं में अदृश्य ईश्वर की अलौकिक शक्ति के दर्शन होते हैं। उन्हीं के शब्दों में देखिए -

"कौन नभ के दीप दमकाकर गया,

कौन तम का रूप चमकाकर गया।

कौन किरणों के करों की घात से ,

लहरियों के तार झनकाकर गया।"[7]

गिरिराजशरण अग्रवाल की ग़ज़लों में प्रेम को सहजता के साथ अभिव्यक्ति मिली है। वे अपनी प्रेयसी के साथ अभिन्न रूप से जुड़े हुए है। अतः वे अपनी प्रिया को पानी की तलब बनके प्यास में, ख़ुशबू की तरह अहसास में, तनहाई में चिंतन की तरह और अभ्यास में लेखन की तरह अभिन्न रूप से जुड़े रहने की सलाह देते हैं। नायक और नायिका दोनों एक - दुसरे की जरूरत ही नहीं अनिवार्यता है। गिरिराजशरण अग्रवाल हृदय मिलन की अनुभूति को ही प्रेम मानते है। जहीर क़ुरैशी की तरह ही गिरिराजशरण अग्रवाल शरीर से अधिक आत्मानुभूति को महत्व देते हुए नजर आते हैं -

"आभास हो मुझको की जरूरत हो तुम,

पानी की तलब बनके मेरी प्यास में रहना।

चिंता नहीं आखों में रहो या न रहो ,पर

ख़ुशबू की तरह तुम मेरे अहसाह में रहना।

रहना मेरी तनहाई में चिंतन की तरह तुम,

लेखन की तरह तुम मेरे अभ्यास में रहना ।"[8]

गिरिराजशरण अग्रवाल की ग़ज़लों में प्रेम का व्यापक रूप उभरकर आया है। "उनकी प्रेमाभिव्यक्ति की सबसे बड़ी विशेषता यह है कि उन्होंने प्रेम को संकीर्ण सीमाओं में न बाँधकर व्यापक धरातल प्रदान किया है और सम्पूर्ण मानव - जगत के लिए प्रेम को विशिष्ट उपहार के रूप में प्रस्तुत किया है। साठोत्तरी ग़ज़लकारों में डॉ. गिरिराजशरण अग्रवाल अपनी प्रेमाभिव्यक्ति की सहजता, गरिमा और प्रभावविष्णुता के कारण अग्रणी ग़ज़लकार के रूप में प्रतिष्ठित हो चुके है ।"[9]

ग़ज़ल सम्राट दुष्यन्तकुमार की ग़ज़लों में भी हमें प्रेम की सहज अभिव्यक्ति देखने को मिलती है। नायिका का चाँदनी की तरह छत पर अकेले टहलना, नायक का ज़िक्र आने पर बरफ - सा पिघलना और बंद कमरे में शमआ - सा जलना आदि के माध्यम से नायिका के प्रेम भावों को अभिव्यक्ति मिली है। अपनी प्रेमिका की मन स्थिति को उजागर करते हुए दुष्यन्त - कुमार कहते हैं -

"चाँदनी छत पे चल रही होगी,

अब अकेली टहल रही होगी ।

फिर मेरा ज़िक्र आ गया होगा,

वह बरफ- सी पिघल रही होगी ।

सोचता हूँ कि बंद कमरे में,

एक शमआ -सी जल रही होगी ।"[10]

नरेंद्र पांडे ने अपनी ग़ज़लों में संयोग और वियोग इन दोनों स्थितियों का यथार्थ वर्णन किया है। कवि की प्रेमाभिव्यक्ति में प्रकृति भी सहयात्री रही है। संयोग में जहाँ कवि को ख़ुशनुमा भोर, कस्तुरी - सी सुगंध की अनुभूति होती है वहीं वियोग में

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सिंधु बादल, रात पागल, गेह जंगल, वायु बेरहम, गंध घायल, मन चंचल, प्रतीक्षारत सावन, निर्जल नेत्र और उदास मन आदि बातें कवि की विरहानुभुति की तीव्रता को अधोरेखित करती है। नरेंद्र पांडे कहते हैं-

"सिंधु हो जाए बादल तुम्हारे बिना,

रात हो जाए पागल तुम्हारे बिना।

ख़ुशनुमा भोर जैसा तुम्हारा मिलन,

गेह लगता है जंगल तुम्हारे बिना।

पाँखुरी तोड़ दी बेरहम वायु ने,

गंध लगती है घायल तुम्हारे बिना।

मुझको कस्तुरी -सा है तुम्हारा प्रणय,

मन हिरन -सा है चंचल तुम्हारे बिना।

बीत सावन गया है प्रतीक्षा लिए,

हो गए नेत्र निर्जल तुम्हारे बिना।

किस तरह जी सकें स्वप्न में उम्र भर,

मन न लगता किसी पल तुम्हारे बिना ।"[11]

प्रेम की कसौटी विरह है। डॉ. अजेय जनमेजय की ग़ज़लों में विरहनुभूति अपने चरम रूप में पायी जाती है। प्रेयसी की यादें कवि के मन को बेचैन कर देती है। प्रेयसी के ध्यान में निरंतर लीन रहना और उसके बिना मन को पल - भर के लिए चैन न पड़ना विरह की चरम अवस्था है। डॉ. जनमेजय कहते हैं -

"तुम थे तुम्हारे प्यार की बारिश थी और मैं,

आँखों के सामने से वो मंजर नहीं गया।

कुछ और सोच पाने की फ़ुर्सत कहाँ मिली,

दिल से तुम्हारा ध्यान कि पल - भर नहीं गया।"[12]

वैश्विकरण से उपजी उपभोक्तावादी संस्कृति में हो रहे मूल्यों के अवमूल्यन ने प्रेम जैसे शाश्वत मानवीय मूल्य को प्रभावित किया।आज बाज़ारवाद के इस दौर में प्रेम फैशन के साथ -साथ व्यापार बनकर रह गया है। ग़ज़लकार निश्तर ख़नकाही कहते हैं -

"लाख समझाया समय ने हमें मगर समझे नहीं,

प्यार फैशन ही नहीं, व्यापार भी है आज का ।"[13]

बाज़ारवाद की इस उपभोक्तावादी संस्कृति ने प्रेम की पवित्रता और सात्विकता को नष्ट कर उसे व्यापार का रूप दिया। धन को महत्वपूर्ण माननेवाली इस उपभोक्तावादी संस्कृति में प्रेम मन की नहीं तन की विषय वस्तु बनकर रह गया है। चन्द्रसेन विराट इस संदर्भ में कहते हैं -

"हृदय मिल जाए बहुत संभव है,

हृदय में स्थान कहाँ मिलता है।

ओढ़ लेते हैं वासना तन पर,

प्रेम - परिधान कहाँ मिलता है ।"[14]

विविधता में एकता भारतीय सभ्यता एवं संस्कृति की रीढ़ है। अनेकता में एकता स्थापित करनेवाला जो तत्व है वह है - प्रेम। प्रेम ही वह तत्व है जो व्यक्ति, समाज, देश और दुनिया को आपसी स्नेह के धागे से बांधकर रखता है। कुँअर बेचैन प्रेम के महत्व को अधोरेखित करते हुए कहते हैं -

'ये माना आदमी में फूल जैसे रंग है ,लेकिन

'कुँअर' तहज़ीब की खुशबू मुहब्बत से ही आती है ।"[15]

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सारांश
स्वातंत्र्योत्तर हिंदी ग़ज़ल में प्रेमाभिव्यक्ति के विविध रूप देखने को मिलते हैं। अलौकिक प्रेम की तुलना में लौकिक प्रेम की सरस अभिव्यक्ति सहजता के साथ हिंदी ग़ज़लों में देखने को मिलती हैं। प्राकृतिक उपादानों के माध्यम से प्रेम के दोनों रूप - संयोग और वियोग की हृदयस्पर्शी अभिव्यक्ति हिंदी ग़ज़ल देखने को मिलती है। वैश्वीकरण से उपजी बाजारवादी संस्कृति में प्रेम जैसे शाश्वत मानवीय मूल्य से आ रही स्वार्थ और वासना की बू को समकालीन हिंदी ग़ज़ल बड़ी बेबाकी के साथ अधोरेखित करती है। कुल मिलाकर यह कहा जा सकता है कि समकालीन हिंदी ग़ज़ल में प्रेम के सर्वांगीण रूप की सहज, सरस एवं सशक्त अभिव्यक्ति मिली है।

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A STUDY OF SYSTEMS OF NUMERATION IN ANCIENT ERA

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ABSTRACT
The aim of this article is to provide an overview of the systems of numeration or numerical systems , that is writing system for expressing numbers in an antiquity. Mathematical symbols to represent the numbers of the given set using digits or other symbols in a consistent manner. ***Numerals and numeration systems,*** *symbols and collections of the symbols used to represent small numbers, along with systems of rules for representing larger numbers. The earliest known writing for the record keeping evolved from a system of counting to use small clay tokens. The earliest established tokens are those from the two sites in the zagros region of Iran. It is generally accepted that the origin of mathematics in the practical problems arises form counting and writing numbers. The origin of the idea of number is so hidden behind a veil of countless ages that it is exciting to speculate about the remaining evidences of early humans perceived this number. The Counting was kept by making the scratches on stones, carving notches into wooden sticks or pieces of bone, or by tying knots in strings of different colours or lengths. We should notice the numerical values represented by the tied knots in strings.*

INTRODUCTION:

Our **prehistoric ancestors** would have had a general sensibility regarding amounts. They would have instinctively known the difference between, say, one and two items, but the intellectual leap from the concrete idea of two things to invention of a symbol or exact word for the **abstract idea of "two"** took many ages to come about. The first method of counting has been argued to be counting on the fingers. From this developed a sign language for communicating numbers hand to eye to elbow, which, although not written, gave way to written numbers. Plates made by carving notches into wood, bone and stone have been used for at least forty thousand years. The tally marks may have been used for counting the elapsed time, such as number of days, lunar cycles or to keep recording of quantities, such as animals, tools and grains.

In early days to keep the record that represented "two sheep", they selected two rounded clay tokens each having a+ sign baked into it. Each token is representing one sheep. Representing one hundred sheep with one hundred token would be impractical, so they invented different clay token to represent different numbers of each particular commodity, and by 4000BC the token were strung on a string like beads. There was a specific token for one sheep, another different token for ten sheep, a different token for group of ten goats etc. Thirty two sheep would be represented by the three ten-sheep token followed on the string by two one-sheep token. Beginning about 3500 BC the tokens and envelopes were replaced by numbers impressed with a round stylus at different angles in flat clay tablets which were then baked. The sharp stylus was used to curve pictograms to represent the different token. Each sign representing both the commodity being counted and the quantity or volume of that commodity. Thing being counted in the form of abstract numerals, were invented about 3100 BC. The items being counted were indicated by the pictograph carved with a sharp stylus next to round-stylus numbers. The Sumerians had a complex assortment of incompatible numerals and each region has its own local way of writing number system.

For instance, at about 3100 BC in the Uruk region, there were more than a dozen different numerical systems. In these areas there were separate numerical system for counting individual objects such as animals, tools and vessels, cheese and grain products, grain volumes (including fractions), weight, land areas, and time and calendar units. Additionally, these systems have changed over time; for example, the numbers of counting grains volumes changed as the size of the bins changed.

It appears that the primitive numbers were |, ||, |||, and so on, as found in the Egypt and the Grecian countries, or —, ⁼, ≡, and so on, as found in early records in East Asia, each going as far as the simple needs of people required for counting the things. The life became more complicated, the need for group numbers became apparent, and it was only a one step from the simple system with names only for one and ten to the further naming of other special numerals. Sometimes it happened very systematically, for example, the Yukaghir of Siberia counted: "one, two, three and one, five, two threes, two threes and one, two threes and twos, ten with one missing, and ten." Usually, a more regular number systems resulted, and most of these number systems can be classified, at least roughly, according to the logical principles underlying them.

THE HINDU-ARABIC NUMBER SYSTEM:

The development of numerical notations in India seems to have before early Vedic period. Inscriptions from the earliest period at Mohenjo Daro show at first simple vertical strokes, arranged into groups. However, as far as is

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known, India is the first country that used the largest number of the numeral forms. The *Kharosthi* script was gradually gave way to another notation, known as the Brahmi numerals, from the Brahmi ciphered numerals to our present-day notation for integers, two short steps are needed. First recognized by the positional principle, ciphers for the first nine units can also serve as ciphers for the corresponding multiples of ten, or equally well as ciphers for the respective multiples of powers of ten.

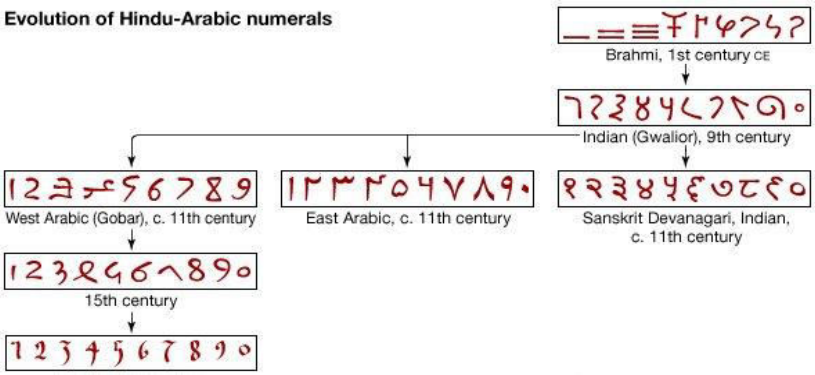
This recognition would make superfluous all of the Brahmi ciphers beyond the first nine symbols. It is know when the reduction to nine ciphers took place, and it is likely that the transitional to a more economical notation was only gradual. It appears from extant evidence that the change took place in the India, but the source of the inspiration for the change is uncertain. It is Possible that, the so-called Hindu numerals were the result of internal development alone, perhaps they developed first along the western interface between India and Persia, Numerals 191 where remembrance of the Babylonian positional notation may have led to modification of the Brahmi numeral system. The 1,4 and 6 are found in Ashoka inscription of three century BCE; 2, 4, 6, 7 and 9 appear in the Nana Ghat inscriptions a century later; and Nos. 2, 3, 4, 5, 6, 7, and 9 on the Nasik cave in the 1st or 2nd century AD. All forms that have considerable resemblance to today's, two and three being well-recognized cursive derivations from the ancient '=' and '≡'. None of these early Indian inscriptions give evidence of a place-value system or a zero that would possibly make a modern place-value. Hindu literature proves that zero may have be known earlier, but there is no inscription with such a symbol before the ninth century. As early as 1200 BC, mathematical knowledge was written down in ancient India as part of a large body of knowledge known as the 'Vedas'. In these texts, numbers were commonly expressed as combination of powers of ten. For example, 456 might be expressed as four hundreds ($4x10^2$), five tens ($5x10^1$) and six units ($6x10^0$), though each power of ten was represented with a name rather than a sets of symbol. It is possible that the representation using powers of 10 played the important role in the development of the decimal place value system in ancient India.

The earliest European manuscript known to contain the Hindu Arabic numerals was written in Spain around 976 BC. The advantages enjoyed by the modern positional system are so numerous and so manifest that the Hindu-Arabic number system and the ten based method have been adopted almost everywhere in Europe. This might be said to be the nearest approach to the universal human language yet devised; they are found in Chinese, Japanese and Russian scientific journals and also in almost all Western languages. From the third century BC, we also have written evidence of the Brahmi number system, the precursors to the modern numerals, Indian or Hindu-Arabic number system that the most countries of the world uses today.

1	2	3	4	5	6	7	8	9
—	=	≡	+	h	𑁦	𑁧	𑁨	𑁩

Brahmi Numerals

Once zero i. e. '0' was introduced in the number system, almost all of the mathematical methods would be in place to enable ancient Indian peoples to study the higher mathematics. The first definite external reference to the Hindu number system is a note by Severus Sebokht, a bishop who lived in Mesopotamia about 650 BC. Since he writes about only "nine signs" the zero seems to have been unknown to him. At the end of the eighth century, however, some astronomically formed tables of India are said to have been translated in to Arabic language at Bagdad city, and in any case the numerals became known to Arabian scholars about this time. About 825 the grate mathematician Al-Khawarizmi wrote a small book on the mathematics, and this was translated into Latin language by Adelard of Bath (*c.* 1120) having the title of '*Liber algorismi de numero Indorum'*. Then the Italian mathematician Fibonacci popularized the use of the Hindu-Arabic number system in Europe in the early 13th century.



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The Roman Number System:

Roman numerals are also well known today and were the dominant number system for commerce and administration in most of Europe for most of the millennium. It was the decimal system, but not directly positional, and did not contain a zero, making its clumsy and inefficient number system for arithmetic and mathematical purposes. It was based on latter of the roman alphabet such as I, V, X, L, C, D and M – a combination indicating the sum of their value. (e. g. VIII = V + I +I+ I = 8). Later, the subtractive notation was also adopted, where IIII, for example, was replaced by IV (5 – 1 = 4), which simplified the writing of these numbers a little, but calculation of the numbers made even more difficult, requiring conversion of this subtractive notations at the beginning of a sum and then its re-application at end. Due to the difficulty in writing arithmetic calculation using roman numeral notation, these calculations were easily performed using an abacus, based on earlier Babylonian and Greek abacus. The direct influence of the Romans for such a long period, the superiority of their numerical system over any other simple system known in Europe before about tenth century, and the impressive force of traditional accounting for the strong position which the numerical system maintained through out nearly two thousand years in commercial, scientific and theological literature.

As in all such matter, the origin of these numerals in unclear, although changes in their forms form the third century BC onwards are well known. The theory writing by German historian Theodor Mommsen (1850) had wide acceptance. He argued that the V for five represents the open hand. Two of these gave the 'X' for ten and the notations L, C, and M were modifications of the Greek letters. However, a study of inscriptions left by the Etruscans who ruled Italy before the Romans shows that the Romans adopted the Etruscan number system in the fifth century BC, but numbers from left to right. L and D stands for 50 and 500 respectively, emerged in the Late Roman Republic but M did not come to mean 1,000 until the Middle ages. The oldest noteworthy inscriptions containing the numeral representing very large numbers is from the Columna Rostrata, a monument erected in the Rome forum to commemorate a victory in 260 BCE over Carthages during the First Punic War. In this column the symbol for 1,00,000 which was an early form of (((I))), was repeated twenty three times for making 23,00,000. This illustrates not only the early Roman peoples use of repeated symbols but also a custom that they extended to modern times that of using symbol (I) for 1,000; ((I)) for 10,000; (((I))) for 1,00,000 and ((((I)))) for 10,00,000. The symbol (I) for 1,000 frequently appears in the various other forms in the literature, including the cursive ∞. In the later period of the Roman Empire, the bar was known as the *vinculum* or *virgula and* was placed over a number to multiply it by 1,000. This bar notation also used to represent ordinal numbers. In the early Roman Empire, bars enclosing a numerals around the top and sides came to mean multiplication by 100,000. The use of the single bar on top lasted into the Middle age, but the three bars did not appear anywhere. The Romans had tightened their grip on the old Greek and Hellenistic empire in the middle of the first century BCE and the mathematical revolution of the Greek empire ground to halt. Despite all their advances in other respects, no mathematical innovations occurred under the Roman Empire and Roman Republic, and there were no mathematicians to be notable. The Romans had not used the pure mathematics, they only use its practical applications and also Christian administration followed it.

The Egyptian Number system:

The Egyptians are thought to have been the first to introduce a fully developed base-decimal number system at least as early as 2700BC. To write numbers, they the stroke for units, the heel bone symbol for tens, the rope spiral symbol for hundreds, and the lotus plant symbol for thousands, as well as other hieroglyphic symbols were used for higher powers from ten to a million. However, there was no concept of a place value system, so larger numbers were somewhat impractical (although only one character was needed to represent one million, fifty-four characters were required to represent one million one). The Egyptians used symbolic written numeration that was changed into hieroglyphic writing of numerals, which enabled them to note whole numbers to 1,000,000. They had a decimal base and allowed for the additive principle. In this notation there was a special symbol for every power of ten. They used a symbol like – vertical line for I; an inverted U-shaped sign for 10; spiral rope for 100; lotus flower for 1000; a raised slightly bent finger for 10,000; a tadpole for 100,000; and a kneeling genie with upraised arms for 1,000,000.

Egyptian Decimal Number Symbols		
1		stroke
10		heel bone

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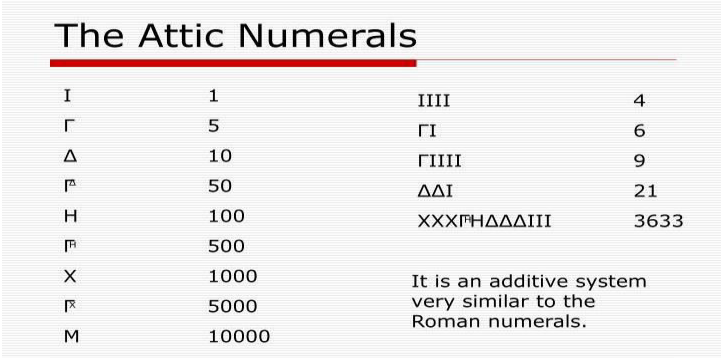
100		coil of rope
1,000		lotus flower
10,000		pointing finger
1,00,000		tadpole
1,000,000		astonished man

This hieroglyphic numbering was a writing version of a particular system of counting using material objects. To represent a big number, the symbol for each decimal order was repeated as many times as it requires. To make the number easier to read the repeated signs were placed in group of two, three or four symbols and arranged these vertically. As the Greek Empire began to expand its sphere of influence into Asia Minor, Mesopotamia and beyond, the Greeks were smart enough to adopt and adapt useful numerical symbols from the societies they conquered. This was as true of their developments in the mathematics. They adopted elements of mathematics from both the Babylonian and the Egyptian societies. They started to make important contributions in their own Mathematics and we can also acknowledge contributions by individuals . In the Hellenistic period, the Greeks had presided over one of the most dramatic and important **revolutions in mathematical thoughts.**

The Greek Numeral System :

The **ancient Greek numeral system is also** known as **Attic or Herodianic number system**. This number system was fully developed by about **450 BCE**, and in regular use possibly as early as the 7th Century BCE. The Herodianic or Attic Number system was the first numeral system used in ancient Greece. "Attica" refers to the Greek territory of Attica, while "Herodian" refers to Aelius Herodian, a second-century AD grammarian, who described the number system in his literature. Around 500 B.C. this numerical system arose which used only six symbols. It was a base ten number system similar to the earlier Egyptians and even more similar to the later Roman number system, with symbols for the numbers 1, 5, 10, 50, 100, 500 and 1,000 repeated as many times needed to represent the desired big number. Addition was done by totaling separately the symbols for1's, 10's, 100's, etc. The numbers to be added and multiplication was a laborious process based on successive doublings while division was based on the inverse of these process. The Greek numerical system was uniquely based on their alphabet. The Greek alphabets came from the Phoenicians around 900 B.C. when the Phoenicians invented the alphabet. This system contains about six hundred symbols. These symbols took up too much space, so they eventually narrowed it down to only twenty-two symbols. The Greeks borrowed some symbols from others and invented some of their own. But the Greeks were the first people to have separate symbols or letters to represent vowels. The word 'alphabet' is taken from the first two letters of the Greek alphabets - 'alpha' and 'beta'. Using the letters of their alphabet allowed them to use these symbols in a more condensed version of their old number system, called Attic numerals. The Attic number system was similar to other forms of number systems of the time. It was based on symbols arranged in rows and took up a lot of writing space. This might not be a bad thing, except that they were still carving into stone tablets and the alphabet symbols allowed them to stamp values on coins in a smaller and more condensed version.



The Greeks had two important systems of numerals, in addition to the primitive plan of repeating single strokes as in ||| ||| for six and one of them was again a simple grouping system. Their predecessors in culture - the

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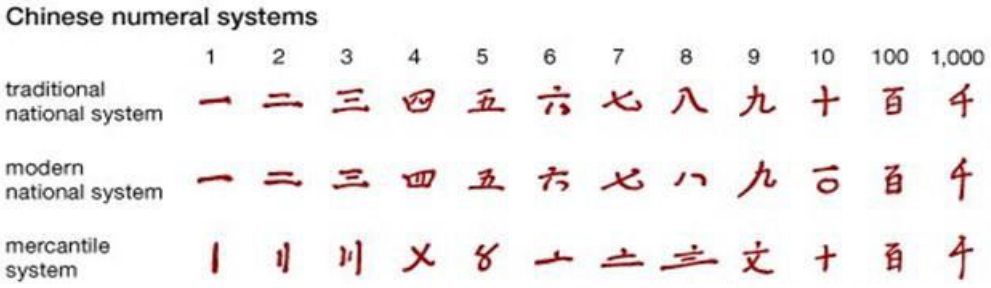
Babylonians, Egyptians and Phoenicians - generally repeated units up to 9, with a special symbol for ten and so on. The early Greeks also repeated units up to 9 and probably had different symbols for 10. In Crete, where the early civilization was so influenced by that of Phoenicia and Egypt, the symbol for 10 was —, a circle was used for 100, and a diamond for 1000. Cyprus also used a horizontal line for ten, but the exact shapes are less important than the fact that grouping by tens with special symbols for certain powers of ten was characteristic of early Near Eastern numeral systems. The Greeks, who entered this field much later and were influenced in their alphabet by the Phoenicians, based their first elaborate number system mainly on the initial letters of numerical names. This was a natural thing for all early civilizations, since the habit of writing names for large numbers was quite general at first, and the use of an initial as an abbreviation of a word is universal. The Greek system of abbreviations, now known as Attic numerals, appears in a record from the fifth century BCE, but was probably in use much earlier.

The Chinese Number System:

The Suzhou number system is a diversification of the southern song rod number system. In the same way that the Roman number system is the standard in ancient and medieval Europe for calculations in mathematics and commerce, the Chinese formerly used the rod numerals, which are a positional system. Most Chinese numerals of later periods were descendants of the Shang dynasty's oracle numerals of the 14th century BC. Oracle bone script numbers have been found on turtle shells as well as animal bones. In early civilizations, the shang were able to express any number, however large, with only nine symbols and a counting board, but it was still not a positional number system. Some of the bronze script numerals such as 1, 2, 3, 4, 10, 11, 12 and 13 became the part of the number system of rod numerals. In this number system, horizontal rod numbers are used for the tens, thousands, hundred, thousands etc. It's written in *Sunzi Suanjing* that "one is vertical and ten is horizontal". The counting rod number system has place value and decimal numerals for computation. This number system was widely use by Chinese merchants, mathematicians and astronomers from the Han dynasty to the sixteenth century. In the 690 AD, Empress Wu promulgated the Zetian characters, one of which was '〇'. The word is now using this symbol as a synonym for the number zero. During the Ming and Qing dynasties, some Chinese mathematicians used Chinese numeral characters as positional system digits. After the Qing period, both the Chinese number characters and the Suzhou numerals were replaced by the Hindu-Arabic number system in the mathematical writings. Traditional Chinese numeral characters were also used in Japan and Korea. These characters were also used in Vietnam before the 20th century. In the vertical text which was read top to bottom, using characters for numbers is the norm, while in horizontal text, Hindu-Arabic numerals were most common. Chinese numeric characters are also used in much the same formal or decorative fashion as that of Roman numerals are in Western cultures. Chinese numerals may appears together with Hindu-Arabic numerals on the same character or document.

In 1899, a major discovery was made at an archaeological site in Xiao dun Village, An-yang County, Henan Territory. The significance of these finds in terms of learning about the ancient Chinese number system was that many of the inscriptions contained numerical information about men lost or killed in battle, prisoners taken in battle, the number of sacrifices made there, the number of animals killed on hunts, the number of days or months required for the task, etc. The number system that was used to express such numerical information was based on the decimal system and was both additive and multiplicative in nature. Here is a selection of the symbols used in the number system.



This number system has multiplicative properties, meaning that 200 is represented by a symbol for 2 and a symbol for 100, similarly 2000 can be represented by a symbol for 2 and a symbol for 1000, etc. there was also a symbol for 10000 which we have not included in the image above, but it is a form of scorpion. However, a larger number was not found, the largest number discovered on Shang bones and tortoise shells was 30,000. The additive nature of the system was that symbols were juxtaposed to indicate the addition operation, so that 4359 was represented by the symbol for 4000, followed by the symbol for 300, followed by the symbol for 50, followed by the symbol for 9.

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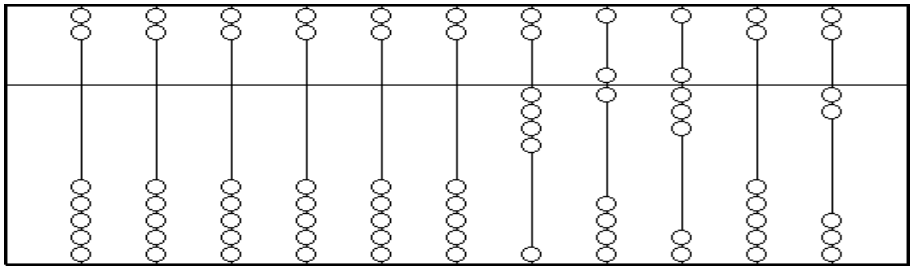
Here is the way 4359 would appear in this system:

This symbol we have illustrated has evolved somewhat over time, but has been surprisingly stable in form. However, a second form of Chinese numerals began to be use after the fourth century BC when counting boards came into operation. The counting board consisted of a checkerboard with a system of rows and columns. The figures represented sticks made of bamboo or ivory. In a row, a number was formed with the ones placed in the rightmost column, the tens in the next column to the left, the hundreds in the farthest column to the left, etc. The most significant property of representing these numerals this way on the counting board was that it was like natural place value system. A number in the right column represented 1, while one in the adjacent column on the left represented 10, etc. Xiahou Yang's book '*Xiaou yang suanjing'* written in the fifth century AD explained that to multiply a number by 10, 100, 1000, or 10000 all that needs to be done is that the rods on the counting board are moved to the left side by 1, 2, 3 or 4 squares. Although he also stated that for division of 10, 100, 1000 or 10000 the bars move to the right by 1, 2, 3 or 4 squares. What is significant here is that Xiahou Yang seems to understand not only positive powers of ten but also the negative powers of ten. This illustrates the importance of using numerals on the counting board at that time.

In the fourteenth century AD, the abacus began to be used by the Chinese. Certainly this method of using counting board, seems to have been a Chinese invention. In many ways it was similar to a counting board, expert that instead of using rods to represent the numbers , beads were shown sliding along a wire. Arithmetic rules for the abacus were analogous to those of the abacus. This counting board even able calculate square roots and cube roots of numbers. The abacus seems to have been used almost exclusively by traders who require the use of addition and subtraction operations.



Here is an illustration of an abacus system showing the number 46802.

To represent the numbers up to 4, take the required number of beads in the lower part up to the middle bar. For example, the most wire two is shown on the right. For numbers five and above, move one bead above the middle bar down to represent 5 and 1, 2, 3, or 4 beads up to the middle bar for numbers 6, 7, 8, or 9 respectively. For example, the number 8 is shown on wire three from the right i.e. one bead from the above to represent 5 and three beads slide from below.

The Mayan Number System:

The Mayan number system uses a combination of two symbols for numbers. A dot (.) was used to represent the units (one through four numbers) and the dash (-) was used to represent number five. It is though that the Mayans may have used an abacus because of theirs use of symbols, and therefore they may be a connection between the Japanese and some American tribes (Ortenzi, 1964). The Mayan peoples wrote their numerals vertically as opposed to horizontally with the lowest denomination at the bottom side. There number system was set up so that the values in the first five places were based on multiples of powers of twenty. They were 1 (20^0), 20 (20^1), 400 (20^2), 8,000 (20^3), and 160,000 (20^4) etc. In the Arabic number system they used the place values of 1, 10, 100, 1,000, and 10,000 etc.

The Mayans were also the first to symbolize the concept of nothing or zero. The most common symbol was the shell symbol ( ), but there were several other symbols (e.g. head) It is interesting to learn that all of the great mathematicians and scientists, who were around in ancient Greece and Rome states that it was the Mayans or Indians who independently came up with this symbol which usually meant completion as opposed to zero or nothingness. Below is a visual of different numbers in the Mayan numerals and how they would have been written:

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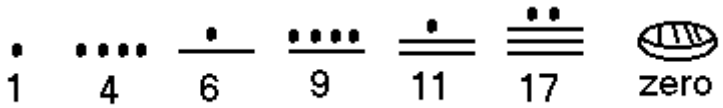


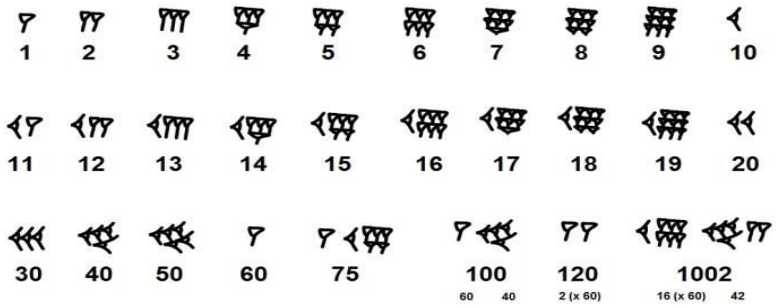
Some Mayan numbers were represented in the table below. The left column lists the decimal equivalent for each position of the Mayan number system. The numbers are read from bottom to top in this number system. Each Mayan number is its decimal equivalent in the table:

8,000						
400						
20						
units						
	20	40	445	508	953	30,414

It has been suggested that counters such as grain or pebbles can be used to represent units and a short stick or bean pod to represent the number five. Through this system, commas and dots can easily be added unlike such number systems as the Romans, but unfortunately nothing of this form of notation remains except for the number system that relates to the Mayan calendar.

The Babylonian Number System:

The Babylonians lived in Mesopotamia, which is in between the rivers, Tigris and Euphrates. They began to use numbering system about five thousand years ago. The Babylonian number system is one of the oldest numbering systems. The first mathematical calculations can be traced to the ancient history of Babylon, during the third millennium B.C. Tables were the Babylonians most outstanding accomplishment which helped them in calculating problems. The Babylonian number system began with tally marks just as most of the ancient mathematical systems did. The Babylonians developed a form of writing based on the cuneiform inscription. Cuneiform means 'wedge shape' in Latin language. Babylonians wrote these symbols on wet clay tablets which were later on baked in the hot sun for preservation. Many thousands of these baked tablets are still around today. The Babylonians used a stylist script to imprint the symbols on the clay since curved lines could not be drawn. The following table shows the numerical symbols they used:



Nabu-rimanni and Kidinu were two famous mathematicians from ancient Babylonia. However, there are not many writings about their work on the development of the number system. Historians believe that the mathematicians Nabu-rimanni lived around 490 BC and Kidinu around 480 BC. The Babylonians had a very advanced number system even by today's standards. This number system was a 60 number system rather than a 10 number system. The base 10 number system is what we use today as the decimal number system. The Babylonians divided one day into twenty-four hours, then each hour into sixty minutes, and each minute into sixty seconds. This form of timekeeping has lasted for four thousand years to this day.

The round stylus was gradually replaced by the reed pen, which was used to press wedge-shaped cuneiform characters into clay between 2700 BC and 2000 BC. To represent the numerals that had previously been written with a round pen, these cuneiform numerals were pressed in a circular pattern and retained the additive sign-value notation that came from tokens on a string. Cuneiform and archaic numerals were ambiguous because they represented different number systems that differed depending on what was being counted. Around 2100

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BC, in Sumer, these proto-sexagesimal sign-value systems gradually morphed into the common hexadecimal number system. This number system was a place value system consisting of only two impressed marks, a vertical wedge and an arrow, which are also capable of representing fractions. The sexagesimal number system was fully developed at the beginning of the Old Babylonian period, i.e. around 1950 BC, and became popular with the Babylonians.

CONCLUSION:

Many different claims, each with some amount of justification, have been made regarding the origin of the modern Western numeral system, which is commonly referred to as the Arabic, but best known as the Hindu-Arabic numeral system. The history of mathematics is almost as old as humanity itself. The East held the baton, especially China, India and the Arabian countries, before the focus of mathematical innovation shifted to Europe in the Middle Ages and the Renaissance. A new series of revolutionary developments took place in Europe in the seventeenth and eighteenth centuries, setting the stage for the rapidly increasing complexity and abstraction of nineteenth-century mathematics. During the centuries in which Indian, Chinese, and Arab mathematicians predominated, Europe descended into the Dark Ages, in which science, mathematics, and almost all intellectual endeavor stagnated. These include claims that the origins of today's number system can be traced to the Hindus, Arabs, Persians and Egyptians. It is likely that trade between traders served to carry such numerical symbols from country to country, so modern Western numerals may be a conglomeration from various sources. Once numbers are represented by symbols, the next logical step seems to be to introduce symbols for arithmetic operations or for combining number symbols in various ways.

REFERENCES:

1. Gurjar, L. V. (1947). Ancient Indian Mathematics and Vedha. Poona.
2. Esther C. Ortenzi, J. Weston Walsh, Numbers in Ancient Times. 1964.
3. Bibhuti bhusan Datta & Avadesh Narayan Singh, *History of Hindu Mathematics a source book, Parts 1 and 2, (single volume)* Bombay: Asia Publishing House.
4. David E. Smith and Jekuthiel Ginsburg, Numbers and Numerals. 1937
5. Vijay P Sangale and Govardhan K Sanap, A Study of Decimal Place Value System in Ancient Indian Mathematics, IJARSCT, Volume 2, Issue 6, June 2022.
6. Burton, The History of Mathematics: An Introduction, Sixth Edition, McGraw-Hill primis
7. Roger Cooke, The History of Mathematics- A Brief Course, Second Edition, Wiley-Inter science.

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A STUDY OF NABARD'S FINANCIAL INITIATIVES TO STRENGTHEN THE RURAL ECONOMY

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ABSTRACT:
The primary function of the National Bank for Agriculture and Rural Development (NABARD) is to influence all facets of the rural economy. In addition to providing financial assistance to the underprivileged population of the nation, the institution oversees the operation and supervision of banks. As a result, NABARD has benefited millions of rural families nationwide. This paper seeks to comprehend NABARD's financial initiatives in rural areas.

Keywords: NABARD, financial initiatives, operation, and assistance.

INTRODUCTION

The National Bank for Agriculture and Rural Development is India's leading regulatory organization for rural and cooperative banks. The Government of India's Ministry of Finance is in charge of NABARD. The bank has been entrusted with "matters relating to credit policy, planning, and operations for agricultural and other rural economic events in India." Financial inclusion is actively developed and implemented by NABARD.

NABARD was founded on 12 July 1982 to implement the National Bank for Agriculture and Rural Development Act 1981 after the recommendations of the B.Sivaramman Committee (Act 61, 1981 of Parliament). It superseded the Reserve Bank of India's Agricultural Credit Department (ACD) and Rural Planning and Credit Cell (RPCC), as well as the Agricultural Re-finance and Development Corporation (ARDC). It is one of the leading providers of dRs.14080 crores (100 per cent share). The authorized share capital is 30 trillion rupees.

NABARD's international partners include organizations linked with the World Bank and global agricultural and rural development agencies. These organizations serve NABARD by providing advice and financial assistance to uplift rural residents and optimize the farm process.

NABARD has played an important role in establishing rural social innovations and social enterprises in the rural hinterland. As of May 2020, NABARD runs 32 regional offices throughout the nation. In doing so, it has partnered with approximately 4000 partner organizations to ground several interventions, including the SHG-Bank Linkage Programme, the tree-based tribal communities' livelihoods initiative, the watershed approach in soil and water conservation, the increasing crop productivity initiatives through the lead crop initiative, and the dissemination of information flow to agrarian societies through Farmer clubs. Despite this, it constantly ranks among the top 50 taxpayers and pays enormous amounts of money to the exchequer. In their never-ending pursuit of ideas and answers, NABARD practically reinvests all revenues in development spending. In its three decades of service to rural communities, the organization built substantial trust capital.

1. NABARD is the country's most critical institution, which looks after the development of the cottage industry, small-scale industry and, village industry, and other rural sectors.
2. NABARD also reaches out to associated economies and supports and promotes integrated development.

NABARD is responsible for the following responsibilities:

- Serves as the top finance agency for institutions that provide investment and production loans to advance the various rural development initiatives.
- This includes monitoring, creating rehabilitation schemes, restructuring credit institutions, training people, etc., and other institution-building steps to improve the credit delivery system's absorption capability.
- Maintains contact with the Government of India, state governments, the Reserve Bank of India (RBI), and other national-level institutions involved in policy preparation.
- Coordinates the rural financing activities of all institutions engaged in the developmental activity at the field level.
- Performs monitoring and evaluation of projects it re-finances.
- NABARD re-finances the entities that fund the rural economy.

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- NABARD contributes to the growth of institutions that benefit the rural economy.
- NABARD also monitors its customer institutions.
- It regulates the entities that aid the rural economy financially.
- It offers training facilities to institutions involved in rural development.
- It governs and supervises cooperative banks and regional rural banks across India.

NABARD delivers financial, supervisory, and development programmes to empower India's rural areas and advance financial inclusion. In addition, qualified borrowers receive financial options, direct financing products, and re-financing programmes. Developmental activities of NABARD include the regulation and supervision of Regional Rural Banks and Cooperative Banks and the periodic inspection of state-level cooperative units, such as Apex Weavers Societies, Marketing Federations, Rural Development Banks, and State Cooperative Agriculture. NABARD is also the Government's channel partner for programmes such as the Dairy Entrepreneurship Development Scheme, National Livestock Mission, and Interest Subvention Scheme.

ROLE INNOVATION

Unbelievable importance of NABARD in India's rural development. The Government of India established the National Bank For Agricultural & Rural Development (NABARD) as an apex Development Bank to facilitate the flow of loans to promote and develop agriculture, cottage, and village industries. NABARD authorized a loan flow of Rs 1,574,80 crore for agriculture-related operations in 2005–2006. The global GDP is anticipated to expand by 8.4%. The Indian economy is predicted to rise at a greater rate. NABARD is essential to India's growth, especially in rural and agricultural areas.

NABARD developed the Rural Innovation Fund with the Swiss Agency for Development and Cooperation. The Rural Infrastructure Development Fund (RIDF) is another well-known rural development programme administered by the bank. Fifty-one thousand two hundred eighty-three crore rupees have been granted for 2,44,651 projects under the RIDF scheme, including irrigation, rural roads and bridges, health and education, soil conservation, and water efforts. Rural Innovation Fund is intended to support innovative, risk-tolerant, and unconventional efforts in these areas with the potential to expand rural employment and livelihood opportunities. Individuals, NGOs, cooperatives, self-help groups, and Panchayati Raj institutions with the skills and motivation to implement innovative ideas to improve the quality of life in rural areas are qualified for assistance. Six hundred thousand cooperatives with a membership base of 25 billion exist at the grassroots level in virtually every economic sector in India. In addition, there are relationships between SHGs and other institutions and cooperatives.

RIDF aims to promote innovation in the rural and agricultural sectors using economically viable techniques. The performance of the programme depends on many factors. However, the type of organization that receives support is crucial for the most efficient commercial production and execution of ideas. Cooperatives are formal, member-driven, socioeconomically motivated organizations, whereas SHGs are informal. NGOs have a more social tint, whilst PRI has a political shade. Does the legal standing of an institution affect the efficiency of the programme? How and in what measure? In terms of financial efficiency and efficacy, cooperative organizations are superior to NGOs, SHGs, and PRIs in terms of their function skills (in the agriculture and rural sector).

In 2007–08, NABARD introduced a new direct lending facility under its "Umbrella Programme for Natural Resource Management" (UPNRM). Under this programme, low-interest loans may be made available to fund natural resource management efforts. As a result, loans for thirty-five projects worth over one trillion rupees have been approved. Among the accepted projects are honey collection by tribals in Maharashtra, the tussar value chain of a women's producer enterprise, and ecotourism in Karnataka.

Financial Initiatives of NABARD The financial initiatives from the National Bank for Agriculture and Rural Development are

1. Designated Food Parks (DFP)

The Government offers special funds like the provision of term loans at affordable interest rates to Designated Food Parks (DFP) and food processing elements at food parks. An amount of Rs.2,000 crores was set aside through NABARD. The purpose is to develop the food processing sector, reduce the wastage of agricultural goods, and create employment opportunities in rural India. The qualified entities for the loan are State Governments, Institutions promoted by the Government, Joint ventures, Cooperatives, Federations of Cooperatives, Special Purpose Vehicles, Farmers' Producers, Organizations, Companies, Corporations and Entrepreneurs.

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2. Warehouses, cold chain infrastructure and cold storage
This initiative cares about creating infrastructure that can help store agricultural produce. Loans are provided for funding projects that make storage infrastructure (with a minimum aggregate capacity of 5,000 metric tonnes) of farming goods storage. This includes activities like the construction of silos, warehouses, cold storage, bulk coolers, controlled atmosphere stores, reefer vans, quick freezing units, etc. and the up-gradation of Marketing Infrastructure Facilities of the APMC (Agricultural Produce Marketing Committee). The development of existing storage infrastructure facilities will be considered based on the case's merits. The qualified entities for the loan are State Governments, Government-owned/aided institutions, Cooperatives, Federation of Cooperatives, Farmers' Producers' Organizations (FPOs), Federation of Farmers' Collectives, SPVs that are shaped under PPP mode, Primary Agricultural Credit Societies (PACS), Cooperative Marketing Societies (CMS), Companies, corporates, or individual entrepreneurs and Agricultural Produce Marketing Committees (APMCs).

3. Marketing Federations
NABARD also provides marketing federations with short-term loans to assist their everyday activities. In addition, a credit facility of less than one year is available to address the working capital needs of marketing federations. Marketing and procurement of agricultural commodities, marketing and distribution of agricultural produce, processing and marketing of milk, and supplying farming inputs such as animal feed meet the requirements for this breakthrough. State or Central Government Agricultural Marketing Federations and Corporations, Dairy Federations and Cooperatives, Agriculture Federations and Registered Companies are qualified entities.

Rural Infrastructure Development Fund (RIDF)
Agriculture, associated businesses, social sectors, and rural connectivity are qualified for RIDF funding. State governments or union territories, State-owned corporations, government-supported organizations, Panchayat Raj institutions, non-governmental organizations, and self-help groups are the qualifying entities. The projects should be submitted for government support through the coordinating department. The interest rates are tied to the Bank Rate in effect at the time of loan disbursement. All loans are due in equal annual payments within seven years after receipt. This encompasses a two-year grace period. After that, interest is paid quarterly after each quarter. Loans are secured by orders registered with the Reserve Bank of India or a Scheduled Commercial Bank, TPN, available assurance from state governments, and acceptance of terms and conditions in the permission letter.

Direct re-finance assistance to cooperative banks
In this scheme, financial assistance is offered to cooperative banks to help in the expansion of their lendable resources. The loans under this group can be classified into two types:

(a) Short Term Multipurpose Credit Product includes fulfilling working capital requirements and repairing and maintaining farm equipment. In addition, activities like storage, packaging, and grading of goods and associated marketing are covered under this product.

(b)Assistance to Cooperative Banks to Lend to Sugar Factories Re-finance assistance is offered to cooperative banks so that farmers can utilize the funds to procure sugarcane. The fund is used to meet other agricultural expenses. Interest is paid quarterly and rests on the outstanding balance. The security will be strongminded based on the risk rating of the bank. These are usually unencumbered fixed deposit receipts issued by Scheduled Banks and for State Cooperative Banks, government guarantees or promissory notes can act as security

Support of producer organizations
Under this programme, NABARD implements initiatives through the Producers Organization Development Fund. Credit support is provided, such as loans and funding for capacity building, market access, and credit support for equity capital. PODF's primary purpose is to address the ongoing needs of Producers Organisations (PO) and ensure their complete sustainability. Organizations of Registered Producers are awarded loans. In addition, grant components are awarded to government non-organizations, registered Community-Based Organizations (CBOs), reported implementing agencies, or both. Other NABARD-approved institutions may also receive grants. The maximum loan amount is 90 per cent of the total project expenses.

NABARD Infrastructure Development Assistance (NIDA)
This credit support is to finance rural infrastructure projects. It also offers additional products, such as annuity-based offerings, PPP, mezzanine capital, etc., based on the borrower's needs. The interest rate for the loan is adjustable as it depends on the borrower's risk profile and the project's specifics. A moratorium period of 2-4

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years is available based on project details. The repayment tenure and schedule of the loan vary based on the borrower's risk profile and the nature of the project.

Financing and development of PACS
Primary Agricultural Credit Societies (PACS) offer members credit and other services. Assistance is available for upgrading agro-storage centres, agro-service centres, agro-processing centres, Agri marketing and transportation facilities, and agri-information centres. The interest rate is fixed by the Asset Liability Committee (ALCO).

Umbrella Programme for Natural Resource Management (UPNRM)
NABARD launches this programme to fund community-managed, maintainable rural livelihood creativities that are NRM-based. These schemes will have to pass an assessment at the Guiding Principles level. The interest rates will be based on the type of project, target groups, and channel partners.

Alternative Investment Funds (AIFs)
NABARD contributes to the achievement of complementing the current re-finance and co-finance products of NABARD and other developmental activities such as hopeful entrepreneurship in agricultural and rural development activities, enabling the development of model units so that the rural poor can rival it, inspiring investment in advanced actions in the agricultural and rural development sectors, and assisting teams that are unable to scale up their operations due to lack of capital.

Long-Term Irrigation Fund (LTIF)
This NABARD initiative aims to fund and fast-track the completion of major and medium irrigation projects that have pending work. The qualified entities are state governments that can borrow funds from NABARD under LTIF and the National Water Development Agency (NWDA) whose roles under the Ministry of Water Resources can be derived from the Long Term Irrigation Fund LTIF.

Pradhan MantriAawasYojana Grameen (PMAY-G)
The PMAY-G initiative intends to construct pucca dwellings for all families now residing in kutcha houses by 2022. This falls under the authority of the Ministry of Rural Development (MoRD). All funds necessary for constructing these homes are anticipated to come from budgeted funds. NABARD will contribute the remaining funds..

Conclusion
As the importance of rural development grows, NABARD touches all facets of the rural economy. NABARD generates new employment possibilities, provides financial assistance to underserved people, and oversees the institution's operations and bank regulation. NABARD has benefited millions of rural households across the country. NABARD supports the current and future expansion of the rural economy. NABARD's rural financial initiatives are projected to play a crucial part in the emergence of the Indian economy. NABARD invests in all areas of the agriculture, manufacturing, and services sectors since each of these industries will continue to play a significant role in the overall expansion of the economy and the creation of jobs. At a bare minimum, all obstacles and impediments to rural development must be eliminated and utilized optimally.

References
1. B. Renuka, B. Sivaranjani, A. Maha Lakshmi,Dr. N. Muthukumaran, 'Automatic Enemy Detecting Defense Robot by using Face Detection Technique', Asian Journal of Applied Science and Technology, Vol. 2, No. 2, pp. 495-501, April 2018.
2.. N. Muthukumaran, 'Analyzing Throughput of MANET with Reduced Packet Loss', Wireless Personal Communications, Vol. 97, No. 1, pp. 565-578, November 2017.
3. R. Sudhashree, N. Muthukumaran, 'Analysis of Low Complexity Memory Footprint Reduction for Delay and Area Efficient Realization of 2D FIR Filters', International Journal of Applied Engineering Research, Vol. 10, No. 20, pp. 16101-16105, 2015.
4. F.M.AiyshaFarzana, HameedhulArshadh. A, Ganesan. J, Dr. N. Muthukumaran, 'High Performance VLSI Architecture for Advanced QPSK Modems', Asian Journal of Applied Science and Technology, Vol. 3, No. 1, pp. 45-49, January 2019.
5. A.Srinithi, E.Sumathi, K.Sushmithawathi, M.Vaishnavi, Dr. N. Muthukumaran, 'An Embedded Based Integrated Flood Forecasting through HAM Communication', Asian Journal of Applied Science and Technology, Vol. 3, No. 1, pp. 63-67, January 2019.

ISSN 2394 - 7780

6 N. Muthukumaran and R. Ravi, 'Hardware Implementation of Architecture Techniques for Fast Efficient loss less Image Compression System', Wireless Personal Communications, Volume. 90, No. 3, pp. 1291-1315, October 2016.

7. Mrs. S. Murine Sharmili, Dr. N. Muthukumaran, 'Performance Analysis of Elevation & Building Contours Image using K-Mean Clustering with Mathematical Morphology and SVM', Asian Journal of Applied Science and Technology, Vol. 2, No. 2, pp. 80-85, April 2018.

8. www.nabard.org

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- **Article in newspaper:**

Yunus, M. (2005, March 23). Micro Credit and Poverty Alleviation in Bangladesh. *The Bangladesh Observer*, p. 9.

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Holloway, M. (2005, August 6). When extinct isn't. *Scientific American, 293*, 22-23.

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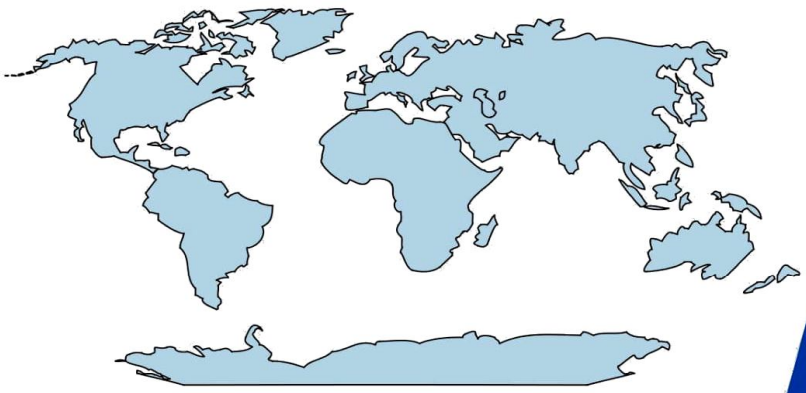

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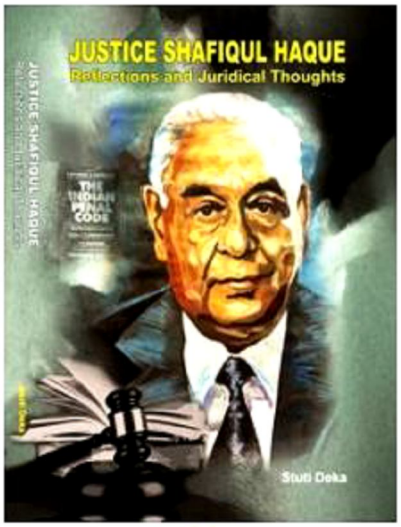

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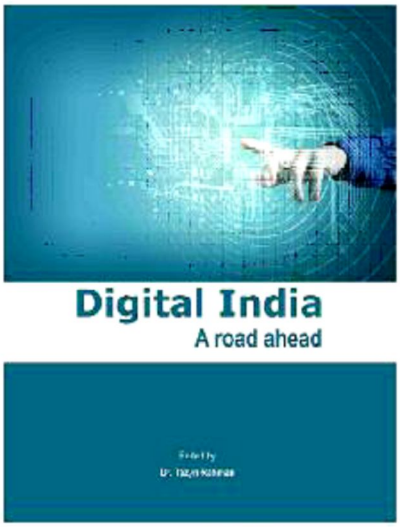

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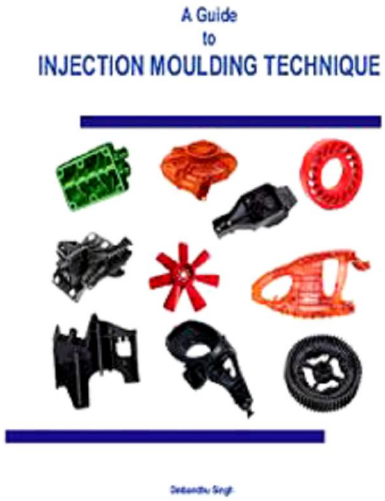

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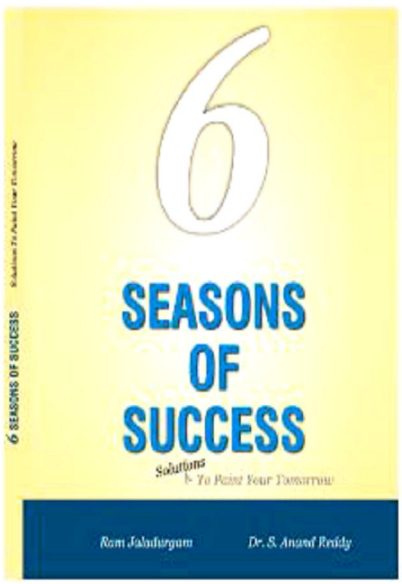

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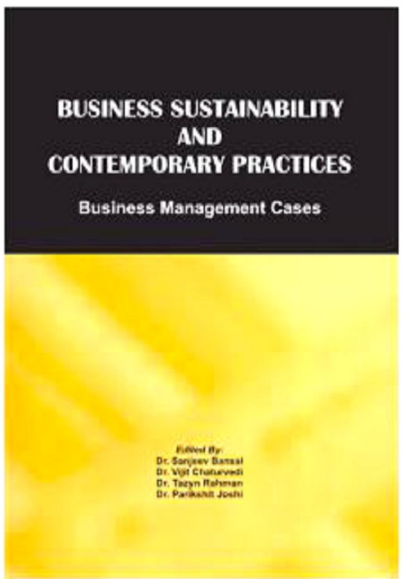

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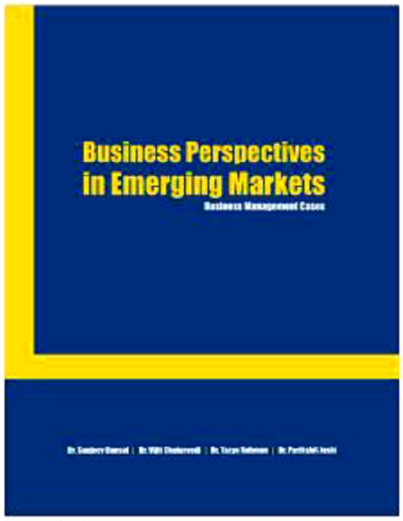

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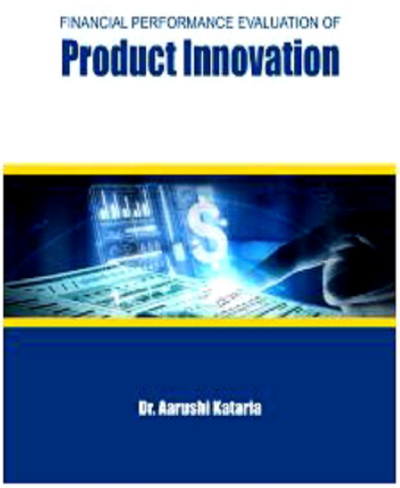

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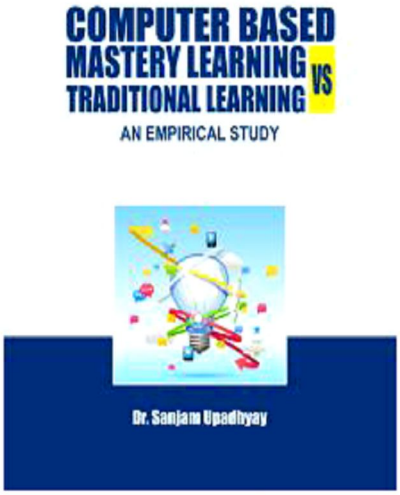

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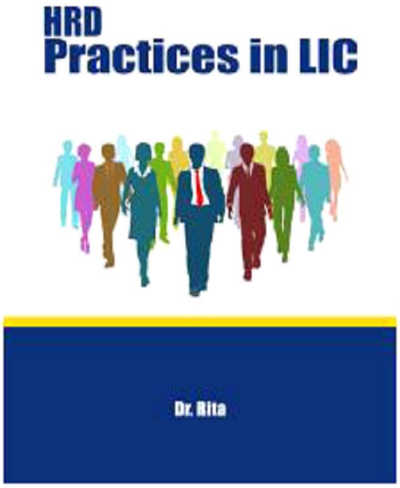

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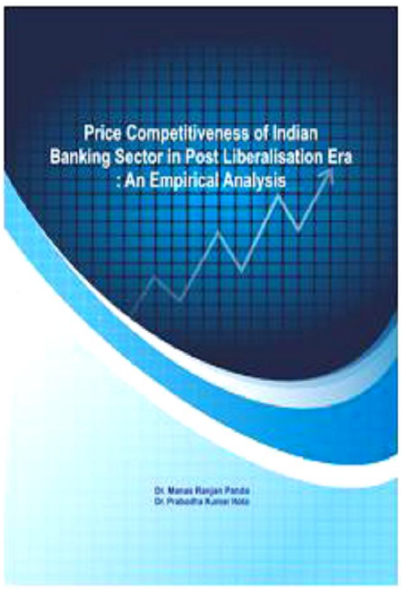

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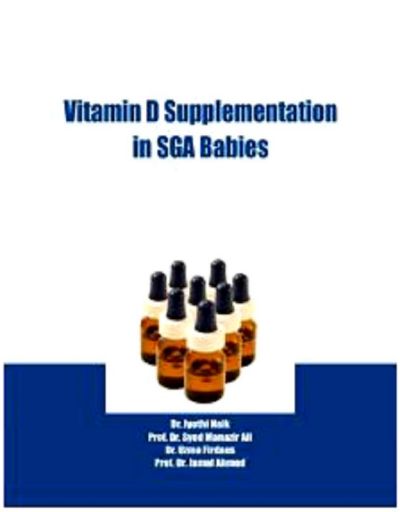

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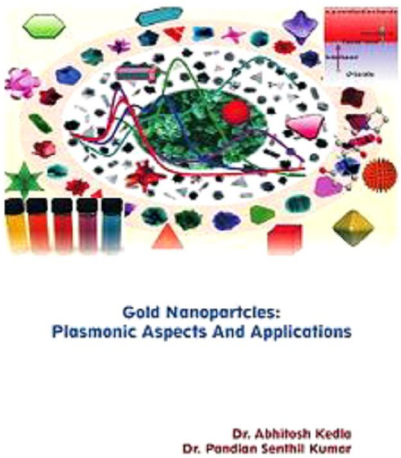

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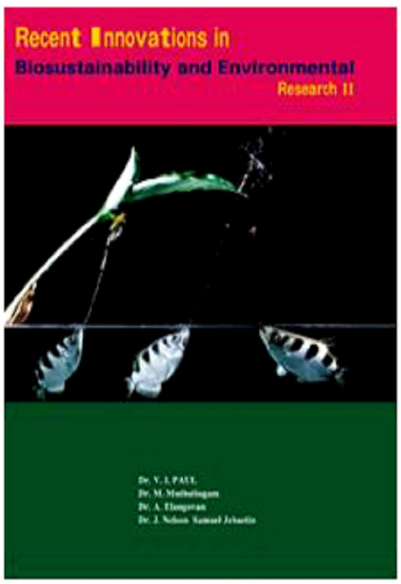

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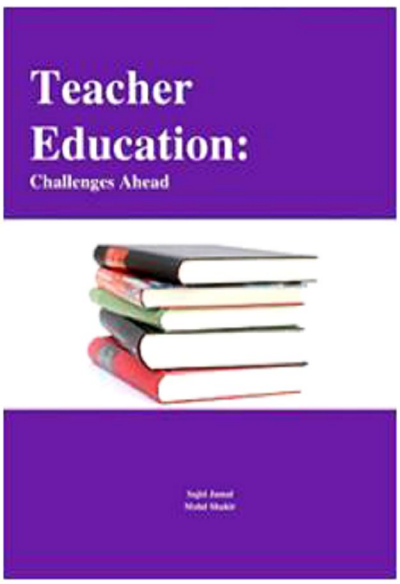

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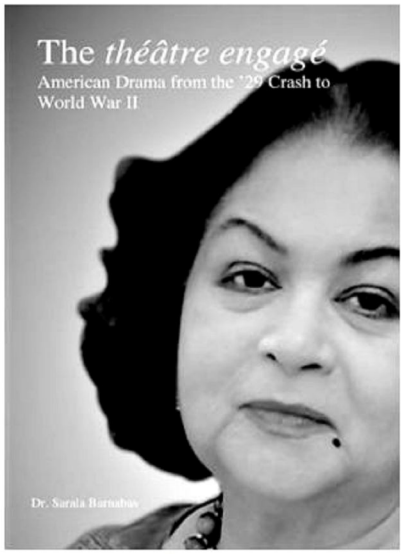

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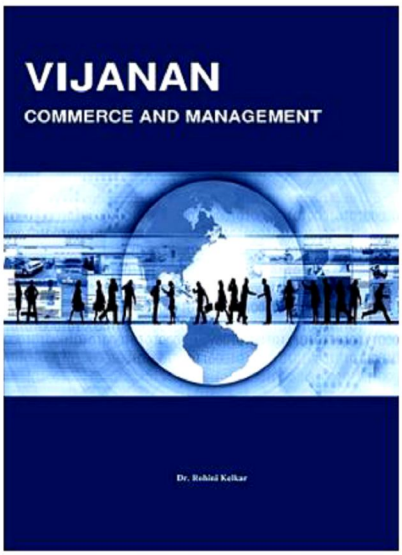

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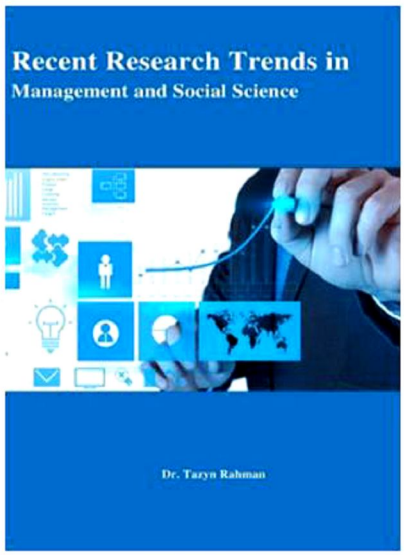

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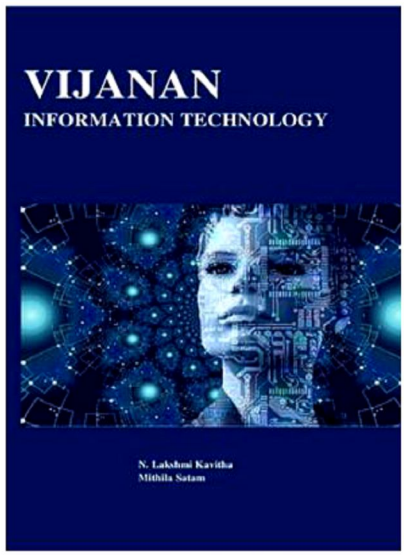

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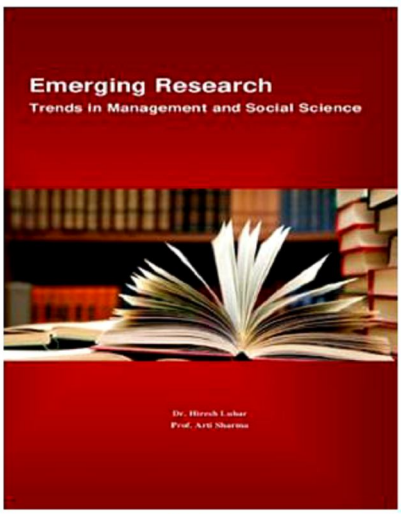

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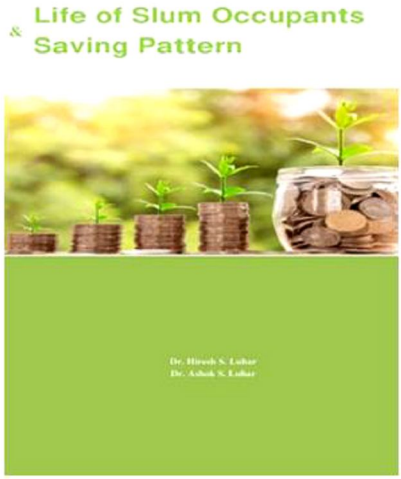

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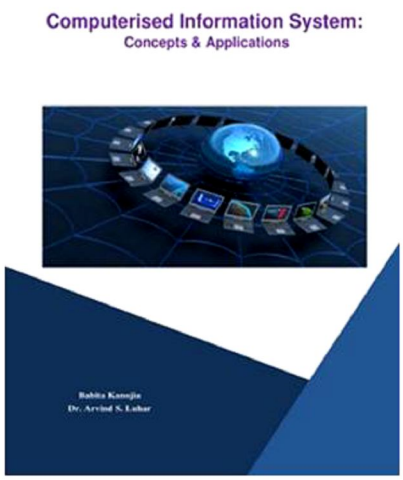

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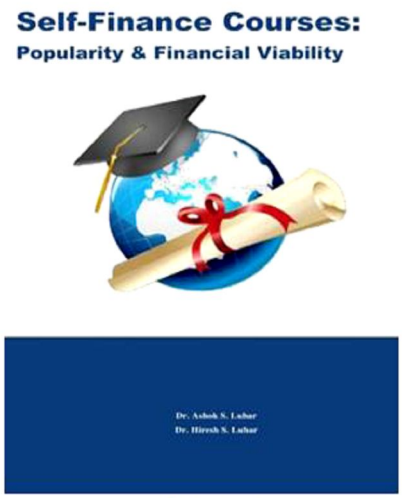

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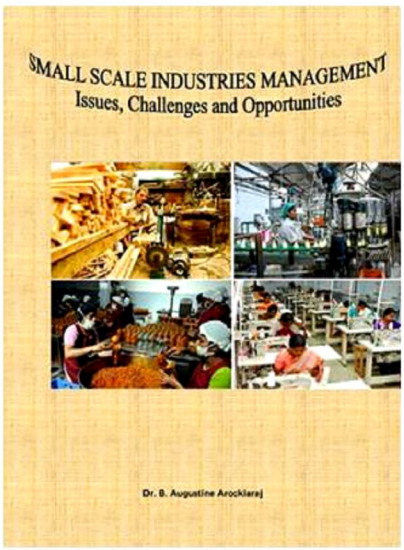

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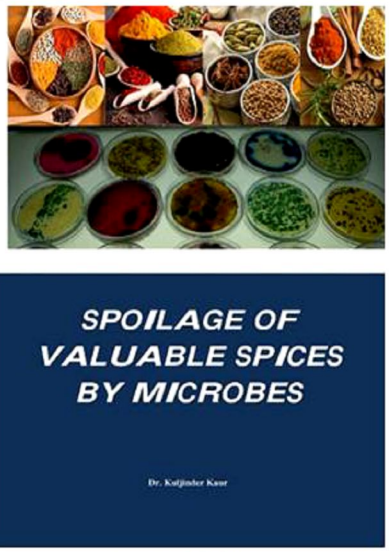

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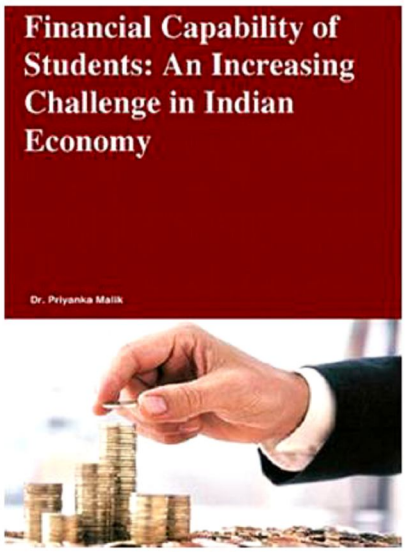

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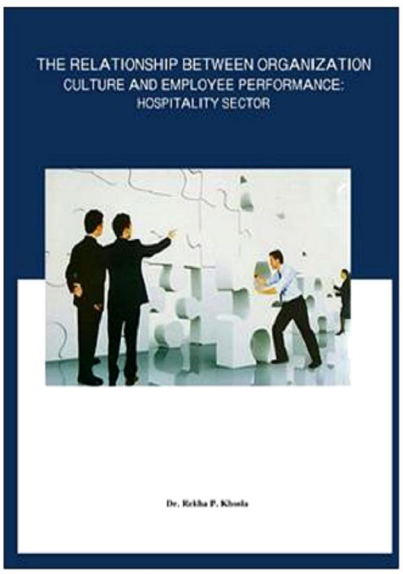

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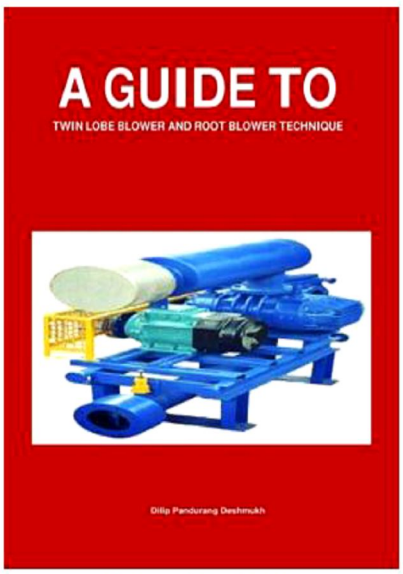

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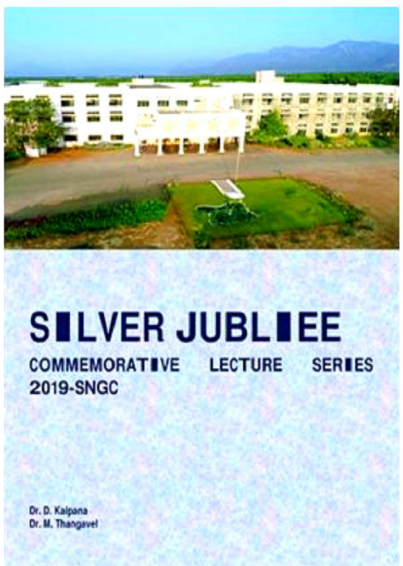

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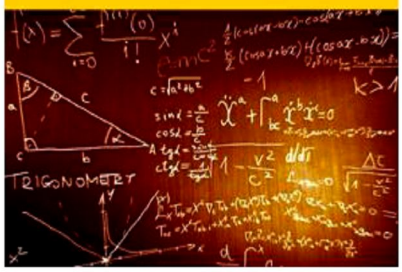

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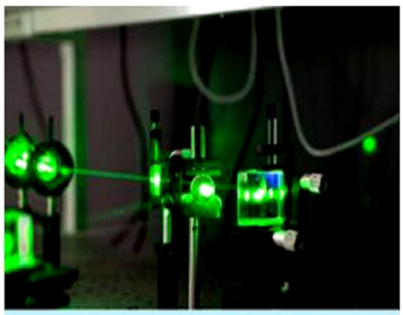

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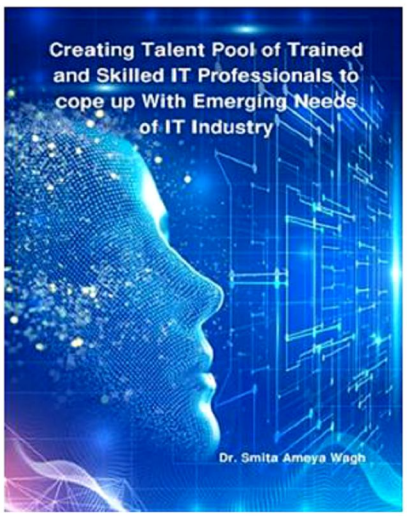

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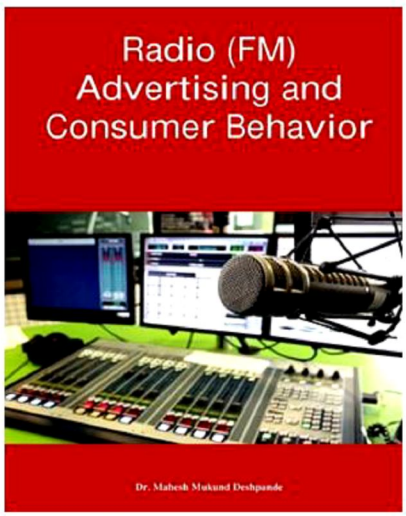

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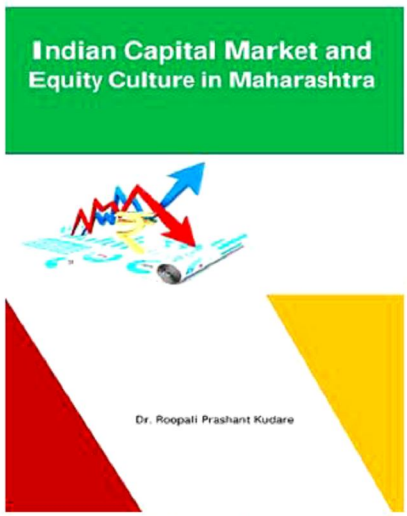

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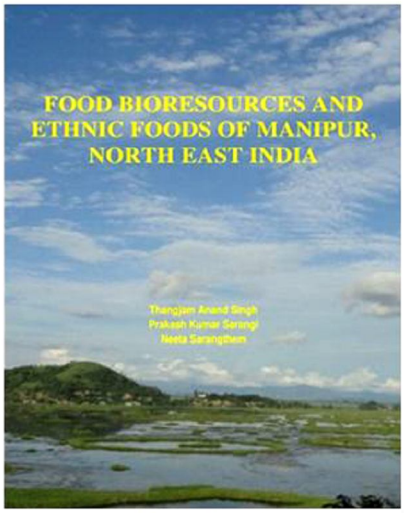

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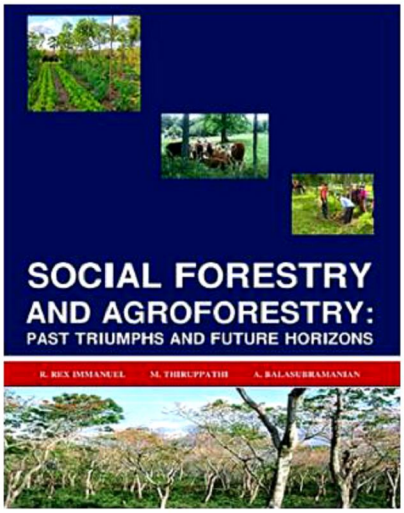

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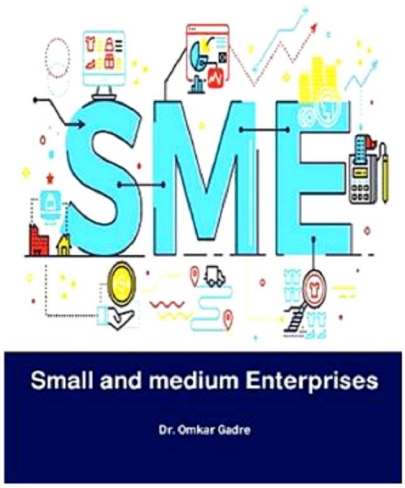

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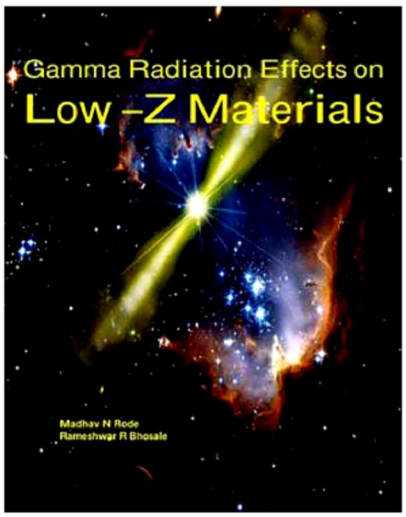

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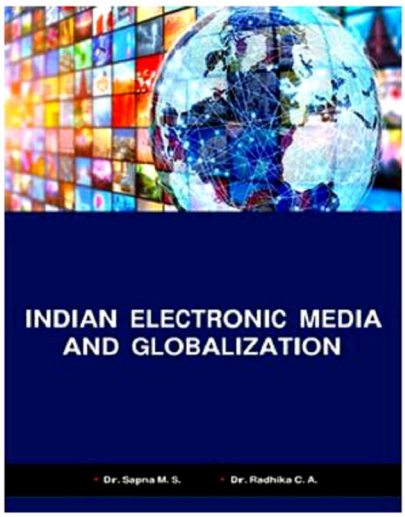

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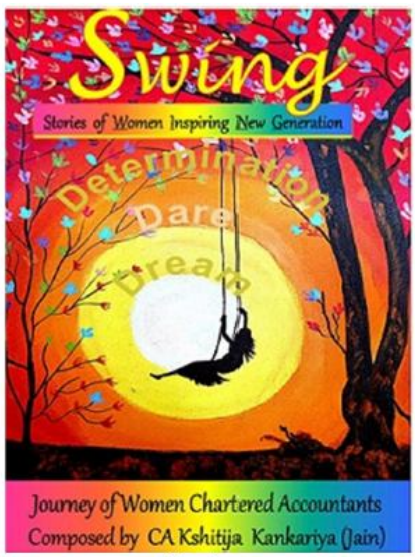

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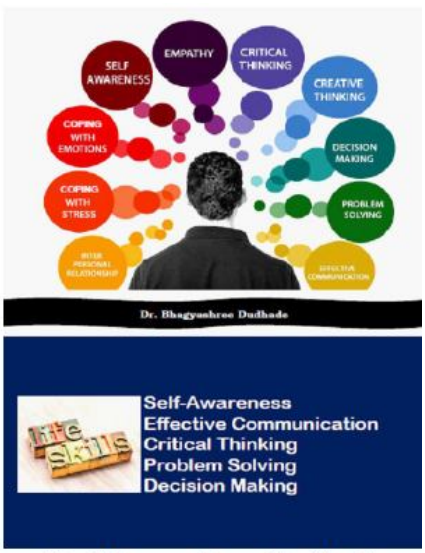

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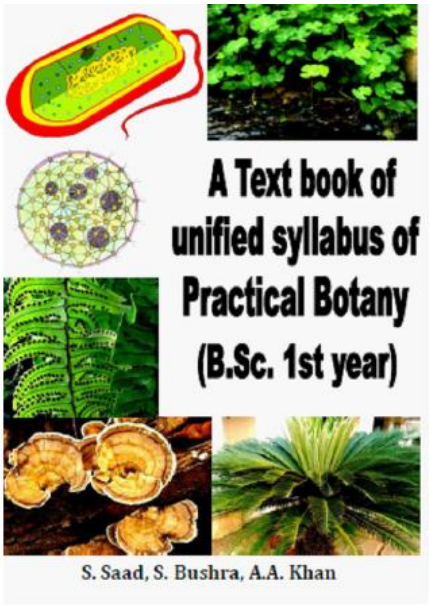

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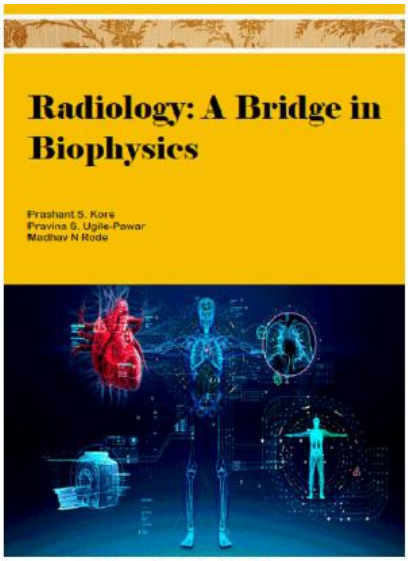

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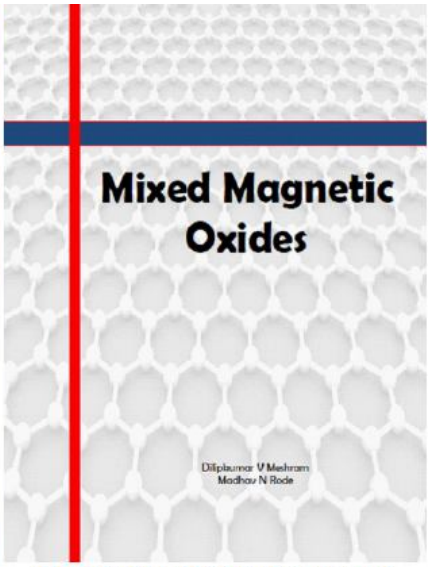

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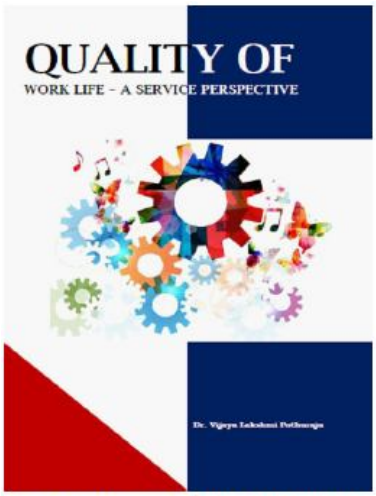

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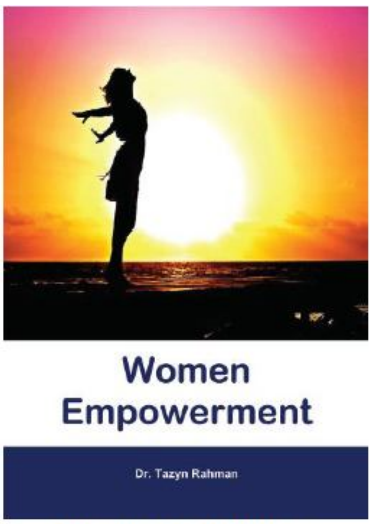

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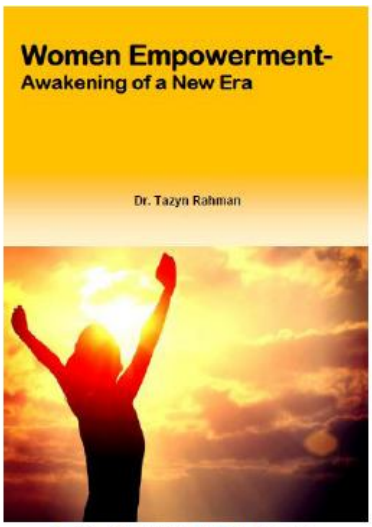

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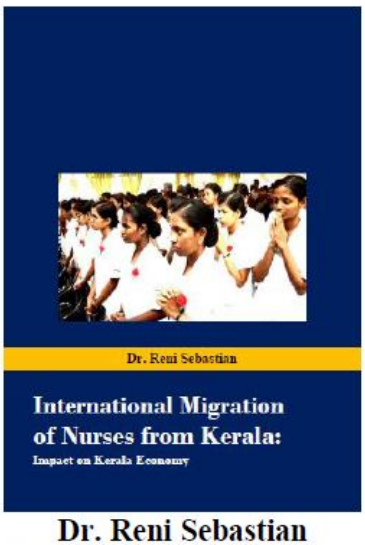

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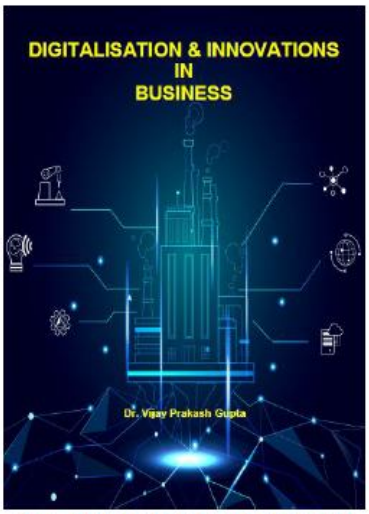

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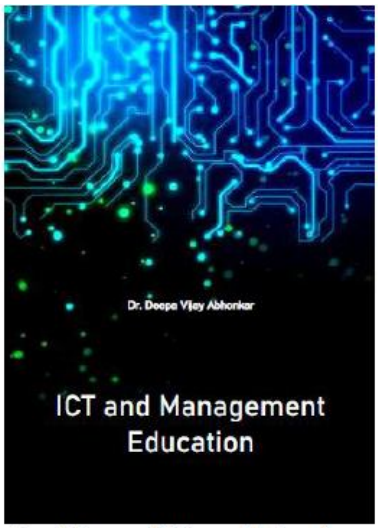

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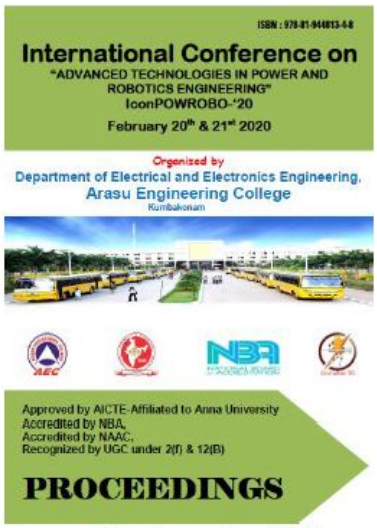

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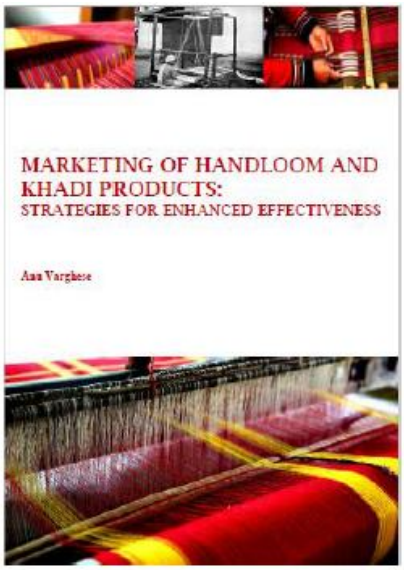

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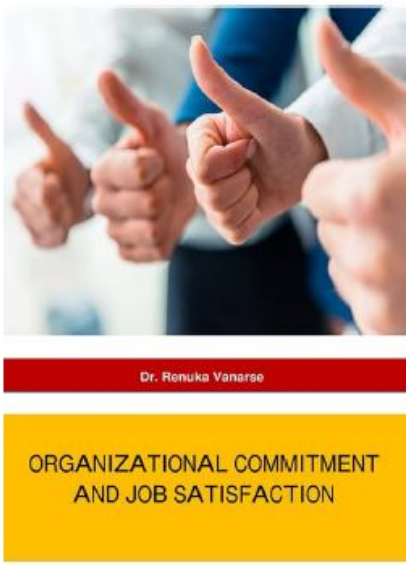

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