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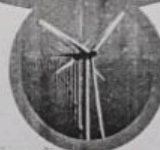
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## SMART WINDOWS - A STEP TOWARDS ENERGY CONSERVATION

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### Abstract:

Energy constitutes one of the most fundamental parts for our existence. Energy has come to be known as a 'strategic commodity' and any uncertainty about its supply can threaten the functioning of the entire economy, particularly in developing countries. The demand and supply imbalance in energy sources is all-encompassing requiring serious efforts by various bodies to augment energy supplies and alleviate possible severe energy supply constraints.

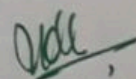
The word ENERGY is associated with three major components: Conversion, conservation and storage. While the renewable energy conversion efficiency continues to remain poor, alternate methods need to be looked into in order to conserve the existing energy resources. Statistics show that a major part of energy loss is encountered in the transport and residential sector. Significant increases in residential and automobile energy efficiency are required to meet emerging global and national energy efficiency goals.

One of the ways to reduce the energy consumption and lessen carbon footprints is to make use of chromogenic devices for low emissivity windows or e-windows, skylighting, automobile sunroofs, building facades etc. In these devices, the double-paned, low emissivity (low-E) glass system minimizes solar heat gain and energy loss while penetration of natural light is maximized. The all-glass facade and use of large floor-to-ceiling panels allows for 90% of interior spaces to have daylight. Architects have realized this dream by constructing buildings with large windows and facades aptly named as smart windows which can change their colors like a chameleon to block the sun or provide instant privacy at the flip of a switch to suit the needs of the owner. These windows and facades not only add to the aesthetic appeal but can control the transmitted light in response to the applied stimulus. The application of such windows may lead towards a drastic reduction of the energy consumption of highly glazed buildings by reducing cooling, heating loads and the demand for electric lighting. In this work, different types of smart windows, their stimuli response and the corresponding change in optical properties have been discussed.

*Keywords: smart windows, energy, chromogenic devices, glazing, facades*



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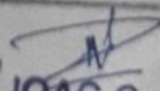
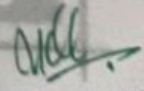
National Conference  
and  
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Abstracts



Glauconitic Sandstone of Vindhyan Supergroup

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## SEDIMENT DYNAMICS OF BEACHES BETWEEN REDI-VENGURLA, SINDHUDURG, WEST COAST OF INDIA

Pramod T. Hanamgond

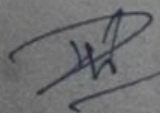
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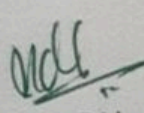
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Sediment textural study was carried out on Vengurla, Aravali and Redi beaches of Sindhudurg district, Maharashtra, West Coast of India. The area under study comprises the southernmost region of Maharashtra coast, (Redi to Vengurla) stretching about 20 km in length (Latitude  $16^{\circ}44'$ - $16^{\circ}52'$ N and Longitude  $73^{\circ}35'$ - $73^{\circ}40'$ E).

Sediments from top few centimeters of beach were collected from four seasons at 20 locations along the three beaches during 2003-04 to understand the sediment dynamics (texture, dispersal pattern, depositional environment etc). The textural study shows that the Redi beach sediments are coarser, ill sorted, highly skewed and highly kurtic compared to the rest of the beaches. Among Vengurla and Aravali beaches, the Vengurla beach sediments are coarser than that of Aravali. The study showed, in general, a seaward grain size fining along Vengurla beach (swash-backwash phenomena), and coarsening seaward trend along Aravali and Redi beaches (high energy conditions). The CM pattern studies revealed traction currents as the major transport mechanism. The study has indicated that the sediments of the study area are deposited under moderate to high-energy conditions. The sediment movement paths deduced following McLaren and Bowles (1985) model, indicate sediment circulation on-offshore during fair-weather and offshore during monsoon season. The longshore transport in general, for both the beaches show northerly sediment movement trend. However, during premonsoon 2004, the sediments at Vengurla beach show both southerly and northerly sediment movement (low energy regime). The observed northerly sediment movement is attributed mainly due to sediment input from Redi and Terekol rivers situated at the southern end of the study area.

The seasonal variations in the sediment dynamics are attributed to changing wind, wave and current regime prevalent in this coastal tract, which seem to be dissimilar even though the three beaches are situated adjacent (but separated by headlands and or a creek).

  
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## PHYSICO-CHEMICAL ANALYSIS OF OLD BELAGAVI LAKE, BELAGAVI (KARNATAKA)

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### ABSTRACT

A study on Physico-chemical parameters of Old Belagavi Lake revealed pH range from 6.0 to 9.0, electrical conductivity 840 to 980  $\mu\text{S}/\text{cm}$ , dissolved oxygen 5.2 to 6.5 mg/L, total hardness 100 to 300 mg/L, calcium hardness 65 to 180 mg/L, total alkalinity 55 to 115 mg/L, Temperature 21<sup>o</sup>C to 25<sup>o</sup>C, Iron 0.0 mg/L to 0.3 mg/L, phosphate 0.0 mg/L to 0.5 mg/L, nitrite 0.0 to 0.5 mg/L, nitrate 0.0 mg/L to 5 mg/L, chloride 130 mg/L to 300 mg/L, residual chlorine 0.0 mg/L to 0.2 mg/L, fluoride 0.0 mg/L and turbidity 0.86 to 0.99 m. Coli form test revealed lake is infected by pathogenic bacteria. Based on the investigation we conclude that Old Belagavi lake has high chloride, pH and electric conductivity. Overall study reveals water is unfit for drinking, fish rearing but may be used for irrigation and recreational activities.

Keywords: *Physico-chemical, old Belagavi lake, fluoride, E.coli, total alkalinity.*

### INTRODUCTION

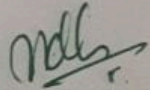
Old Belagavi Lake is 2,500ft above sea level situated in Belgaum city. At every lake there dwells human encroachment. Lakes are utilized for human in many ways like ground recharge, drinking, domestic use, Irrigation, Industries, fish rearing and for recreational activities. Lake Water is not much utilized by humans. Based on the physical and chemical composition of water one can assess the quality of water. Physical and chemical composition of water changes by human activities. Growth of algae and its diversity is dependent on the changing Physico-chemical properties of water [1&2]. Anthropogenic activities of human beings have led to pollution of water, unfit for use and thereby reduce the biodiversity. By studying the Physico-chemical parameters we can assess the quality of water, severity of pollution [3] and we can categorize the water based on the utilization as drinking, fish rearing, for irrigation, industries and recreational activities. Since during summer there is scarcity of water and hence to overcome the problem lakes can be used to fulfill the needs.

### MATERIALS AND METHODS

#### Lake details

The study was conducted in Old Belagavi Lake of Belagavi city with latitude of 15<sup>o</sup> 51', Longitude 74<sup>o</sup> 31', approximate depth of water is 7-10 ft and area approximately 900 m. A Kalmeshwar temple is situated in the bank of lake and is surrounded by agriculture field.

  
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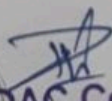
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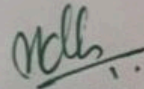
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We investigated electronic transport properties of some liquid transition metals (V, Cr, Mn, Fe, Co and Pt) using Ziman formalism. Our parameter free model potential which is realized on ionic and atomic radius has been incorporated with the Hard Sphere Yukawa (HSY) reference system to study the electronic transport properties like electrical resistivity ( $\rho$ ), thermal conductivity ( $\sigma$ ) and thermo electrical power ( $Q$ ). The screening effect on aforesaid properties has been studied by using different screening functions. The correlations of our results and others data with in addition experimental values are profoundly promising to the researchers working in this field. Also, we conclude that our newly constructed parameter free model potential is capable to explain the aforesaid electronic transport properties.

### I-201

#### Tuning Conductivity in Boron Nanowire by Edge Geometry

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In present study, we have investigated electronic and temperature dependent transport properties of carbyne like linear chain and ribbon like zigzag structures of Boron (B) nanowire. The linear chain structure showed higher electric and thermal conductivity, as it is sp-hybridized, than its counterpart ribbon (R) structure. However the conductivity of ribbon structure increases with increases in width due to edge geometry effect. The ribbon (3R) structure showed high electric and thermal conductivity of  $8.0 \times 10^{19} \text{ 1}/\Omega \text{ m s}$  and  $0.59 \times 10^{15} \text{ W/m K}$  respectively. Interestingly we have observed that B linear chain showed higher thermal conductivity of  $0.23 \times 10^{15} \text{ W/m K}$  than its ribbon R and 2R structure above 600K. Because of high Seebeck co-efficient of boron chain and ribbon (R) structures at low temperature, they could find applications in thermoelectric sensors. Our results show that tuning conductivity property of boron nanowire could be of great interest in research for future electric connector in nanodevices.

### I-203

#### Tracking Polaron Generation In Electrochemically Doped Polyaniline Thin Films

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<sup>1</sup>Department of Physics, G.S.S College, Belgaum, Karnataka

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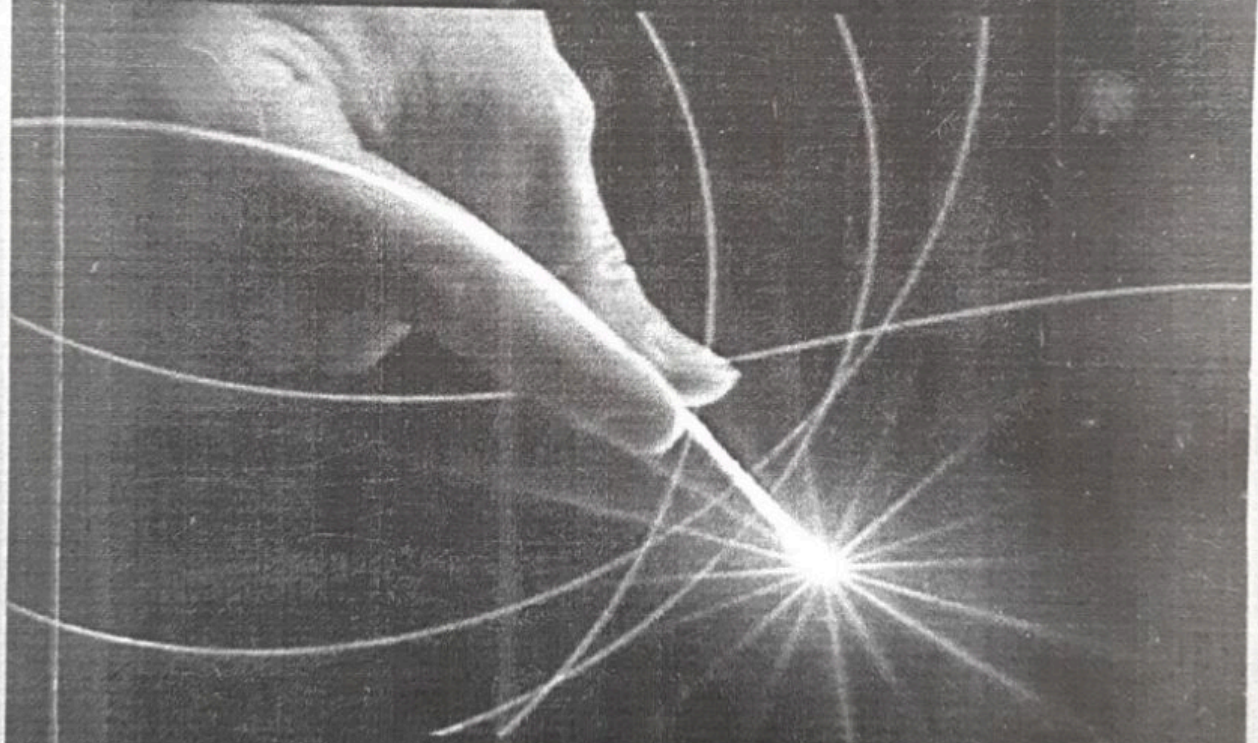
Electrochemically deposited polyaniline films on ITO substrates have been studied for their optical properties.  $\pi$ - $\pi^*$  transitions inducing the formation of polarons and bipolarons have been studied from the optical spectra. The generation of these quasiparticles and the corresponding quantum of energy stored has been analysed and calculated from the experimental data. The evolution of polaron with increased levels of protonation has been identified and the necessary energy required for the transitions have been explained with the help of band structure diagram.




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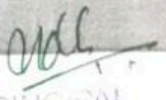
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**BOOK OF ABSTRACTS**



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observed with a free spectral range of 0.2 nm and a Quality factor of  $8.5 \times 10^3$ . The size dependent lasing characteristics is also investigated. As fiber diameter increases the free spectral range decreases and the lasing spectra shifts towards longer wavelengths. Also the lasing modes shows a shift towards the shorter wavelength region of the gain spectra as the temperature increases.

**CP-01-10. LONG PERIOD FIBER GRATING AS A POTENTIAL CHEMICAL SENSOR IN MONITORING HEAVY METALS IN WASTEWATER EFFLUENT**

Lata Laxmeshwar<sup>1</sup>, Mangesh Jadhav<sup>1</sup>, Sameer Kulkarni<sup>1</sup>, Prasad Raikar<sup>2</sup>, Jyoti Akki<sup>3</sup>, Ballesh Mastiholi<sup>4</sup>, U. S. Raikar<sup>1</sup>, <sup>1</sup>Department of Physics, Karnatak University, Dharwad, <sup>2</sup>Visvesvaraya Technological University, Mache, Belagavi, <sup>3</sup>JSS college, Vidyagiri, Dharwad, <sup>4</sup>J.S.S college of Arts, Science and Commerce Gokak, Karnataka

This paper is an effort to introduce the application of Long period fiber grating (LPG) sensors in perpetual monitoring of industrial waste water effluent. Wastewater effluent from sugar factories is mostly used for irrigation purposes and hence it is essential to monitor the levels of pollutants like heavy metals in it. We propose a simple and highly sensitive LPG chemical sensor, based on the principle of a shift in its resonant wavelength with change in the ambient refractive index, to determine the concentration of Zinc (Zn) ions present in the treated waste water effluent of sugar factories. The concentration of Zn ions in the effluent sample determined by our designed LPG sensor is 1.12 ppm which is in good agreement with the result, 1.16 ppm, obtained by Atomic absorption spectroscopy (AAS), a standard technique used for the purpose to verify our results. Sensitivity of Zn sensor is found to be as low as 390.9pm/ppm, reflecting enormous potential of the sensor in detection of trace elements in wastewater with accuracy. Limit of detection of sensor is 0.0025 ppm per pm shift in wavelength which is lower than that of AAS (0.008 ppm) and may be further reduced with higher resolution of detector. Simplicity, miniaturization and portability, cost-effectiveness and ability of online measurement at remote places are the most important features of LPG chemical sensors that give them an edge over existing techniques being used for wastewater analysis.

**CP-01-11. DEVELOPMENT OF A 300 W DIFFUSION COOLED CW CO<sub>2</sub> LASER FOR 3D PRINTING**

L. B. Rana, B. S. Rawat, M. O. Ittoop, Rajiv Yadav, Manoj Kumar, A. K. Biswas and R. Kaul, Laser Materials Processing Division, RRCAT, Indore

We report the development of a medium power diffusion cooled CW CO<sub>2</sub> laser for 3D printing applications. The laser parameters have been optimized and a maximum power of 352 W could be extracted from this laser system thus registering a specific output power of 76 W per meter of the discharge length. Due to its long zigzag folded imaging-type optical resonator, the beam quality of the laser is fairly good and possess the TEM<sub>00</sub> mode intensity pattern. The laser beam intensity distributions were measured with the help of a rotating wire beam analyzer and burn patterns on perspex. Long-term laser power stability of the order

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# Estimation of Toxic Elements in Drinking and Irrigational Water by Fiber Optic Evanescent Field Sensors

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**Abstract:** Heavy metals like Zn and Fe may be present in wastewater (WW) and drinking water (DW) in excess of the limit specified for them by water regulatory bodies and become toxic in the long run, effecting plant growth, crop yield and human health [1]. We propose a simple and highly sensitive LPG chemical sensor with lower detection limit to determine the concentration of Zinc ions (Zn) present in the treated waste water effluent of sugar factories, used for irrigation and Iron ions (Fe) in three samples of drinking water.

## Summary

Principle of LPG chemical sensor is based on its sensitivity to ambient refractive index variation. When light is coupled from fundamental core mode to  $i^{\text{th}}$  cladding mode, a series of resonance or attenuation dips are observed in the transmission spectrum of an LPG, at wavelengths given by equation (1)

$$\lambda_i = (n_{co} - n_{cl}^i) A \quad (1)$$

where,  $n_{co}$  and  $n_{cl}^i$  are the effective refractive indices of the core mode and  $i^{\text{th}}$  cladding mode respectively and  $A$  is its grating period [2].

For Zn WW sensor, light from Broadband source is coupled to LPG, immersed in prepared known standard solutions of varying concentrations of Zn. Zn reagents of appropriate volume are added to the solutions as well as treated WW effluent and mixed well to extract Zn ions present in it selectively in presence of other elements. This causes change in (RI) of cladding of LPG resulting in shift of its transmitted peak wavelength under observation, which is recorded using Optical Spectrum Analyzer. The transmitted peak wavelength is recorded for the WW sample too. The same procedure as above is carried out for Fe DW sensor by preparing standard solutions of varying Fe concentration and adding Fe reagents to them and DW samples. Graphs are plotted between concentration and transmitted resonant wavelengths for Zn sensor and Fe sensor respectively which are straight lines with negative slope. Unknown concentrations of Zn and Fe in samples are determined from Zn and Fe graphs respectively, corresponding to their measured values of resonant wavelengths. Table 1 gives the summary and comparison of the results obtained by our sensor with that of AAS which show that LPG sensors are competent alternatives as chemical sensors. Besides high sensitivity, their small size, low cost, easy fabrication and designing technique, immunity to radiations, non reactivity and most importantly their ability to make online measurements at remote places [3] give LPG chemical sensors an edge over the available spectroscopic techniques used for the purpose.

**Table 1: Comparison of results for the two sensor techniques**

S. No	Technique	Limit of detection		Conc. Of Zn in WW sample	Conc. Of Fe in DW samples		
		Zn sensor	Fe sensor		Sample1	Sample2	Sample3
1.	LPG sensor	0.0025 ppm	0.033 ppm	1.12 ppm	0.640 ppm	0.033 ppm	Not detected
2.	AAS	0.008 ppm	0.05 ppm	1.16 ppm	0.620 ppm	0.045 ppm	Not detected

## References

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# National Conference On Multidisciplinary Research in Geo Environmental Studies for Sustainable Development (MRGESSD – 2017)



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## Coastal Research – Methods, Materials and Field Work Components

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### ABSTRACT

The present article is designed looking at the young researchers who aim to work on Coastal Geomorphology and Dynamics. The coastal research components involve systematic planning of the field work, field data collection and type of data analysis need to be undertaken related mainly for the beaches and estuaries for - the morphological studies, coastal processes, sediment dynamics involving sediment movement, energy conditions, heavy mineral studies through sedimentological study and the studies on tide-wave and longshore currents.

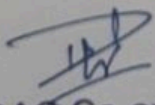
The field work and data collection for beach dynamics include - beach profile measurements on various time scales varying from diurnal to seasonal and annual scales; beach slope, beach width, waterline migration, measurements on waves and currents (wave height and period, longshore current speed and direction), sediment texture/grain size analysis through sieve analysis etc.

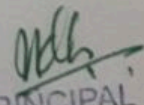
Similarly, for the field work and data collection for the study of estuarine dynamics include - variation in width of the river mouth (temporal changes), variation in water column, velocity of currents, water analysis (salinity, conductivity, turbidity, dissolved oxygen, major and trace elements etc., along with the study of suspended and bottom sediments and their geochemistry (major and trace elemental analysis).

The application of Remote Sensing and GIS for understanding the overall coastal setup, land use land covers changes, change detection, vulnerable zones and coastal evolution in general.

All these are fundamental for any coastal zone management and coastal developmental programs viz., ports and harbors, fisheries, coastal protection, marine recreation, pollution control, land reclamation, tourism development, coastal hazards or disasters etc.

**Keywords:** Coastal geomorphology, Field work, GIS

  
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## Variation in Beach Dynamics along Harwada Beach, West Coast of India during Premonsoon

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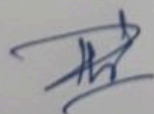
<sup>3</sup>Jain College of Engineering, Belagavi.

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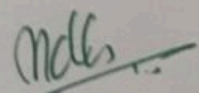
### ABSTRACT

Indian coastline is under great stress mainly due to factors such as sea level fluctuations, storm waves by way of natural processes or owing to anthropogenic influences. There are several reports of coastal erosion and land loss especially along west Coast of India. In view of this, the present study has been undertaken along Belekeri Bay around Belekeri River estuary. The main objective is to understand the morphological behavior of the beach at Harwada, sediment movement along and across the beach. The study over a period of 4 months indicates dominant erosion at station H ( $-2.8628 \text{ m}^3 \text{ m}^{-1}$ ), even though the area has been protected by coastal protection wall (irregular boulders of granite/granitic gniesses). The textural study of the study area shows the general trend of deposition. The cross shore textural variation shows the addition of fine sediments to the beach. Whereas the long shore variation shows the sediments move towards the northern portion of the beach. The study also indicates that the sediments of Harwada Beach are deposited by rolling and suspension. Linear discrimination function analysis shows that sediments are deposited under beach and shallow agitated water conditions. Remote sensing techniques were applied to study the coastline change (change detection), which reveals that, the erosion was dominant during 2000 to 2005, but erosion has reduced significantly at certain locations within the beach after construction of sea wall.

**Keywords:** Beach, Morphology, Texture, West Coast, India



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## Estuarine Dynamics of Karli River, Sindhudurg, West Coast of India

Shivani Hulaji<sup>1</sup>, Priyanka S. Sawant<sup>1</sup>, Suraj Mense, P T Hanamgond<sup>2</sup>, D. Nagaraju<sup>1</sup> and  
H.T.Basavarajappa<sup>1</sup>

<sup>1</sup>Department of Studies in Earth Science, Manasagangotri, Mysuru


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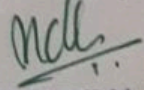
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### ABSTRACT

Estuaries are coastal ecological niche receiving significant importance in recent times mainly due to industrialization, urbanization, harbor development and biodiversity. Majority of the estuarine areas are put in to various anthropogenic uses, such as fishing, agriculture, recreation, navigation and dumping of domestic and industrial waste/sewage. All these aspects have made the estuarine environment a complex ecosystem with widely varying physico-chemical influences and characteristic biota. In the estuaries, the sediment composition depends mainly on amount and type of material released from the catchment area. Within the estuaries, sediments are major repositories of metals. Further, sediments composed of different geochemical phases such as clay, silt, sand, organic material, oxides of iron and manganese, carbonates and sulphide complexes, act as potential binding sites for metals entering an estuarine system. In the present study, an attempt is made to study the estuarine dynamics with special reference to sediment dynamics (texture, sediment movement and depositional environment). The Karli River of Sindhudurg district of Maharashtra originates in Western Ghats and meets the Arabian Sea near Devbag beach and Bhogwa beach, initially running East to West then near the estuarine zone runs North to South before joining the Arabian Sea towards West. About 25 sediment samples collected on 11 November 2016 (Postmonsoon), at every ~500m from the estuarine bottom portion of Karli River using a boat and Van-Veen Grab (Figure 1). These sediments were subjected to textural analysis in the laboratory at GSS College, Belagavi. It is noted that majority of Karli River estuary sediments show dominance of medium sand (85%-98%). These sediments are well sorted to moderately well sorted, positively skewed & nearly symmetrical and leptokurtic in nature. The mean size show seaward fining trend where as the sorting show increasing trend. The sand fraction of the sediments when analysed separately and plotted on CM diagram as given by Passega and Byramjee, (1977), in general fall in the fields I, II and III. This fact, suggests that, the sediments represent deposition in general by rolling mechanism. The multivariate linear discriminant function analysis was also used for the sediments on the lines of Sahu, (1964), which shows that the majority of the sediment samples (91%) fall in beach environment and about 9% of the sediment samples represent aeolian processes (blown from backshore or fore dune samples). Further discrimination among beach and shallow marine processes (Y2), shows that the sediments are predominantly represent 48% beach processes, 45% to shallow marine environment, remaining 3% shows aeolian environment. This indicates the influence of Ebb and Flood processes and that the sediments are brought from beach and shallow marine environment within the estuary. Finally, the discrimination between marine and fluvial processes (Y3) shows that majority of the sediments represent marine processes (100%). Alongwith the sediments, the turbidity data was also collected, which shows that the turbidity is almost constant at all 25 stations indicating normal dispersion of sediments under suspension. The dominating sand fraction can be attributed mainly due to significant sediment input from inland received from the catchment area. Several mud flat inlands present in the indicate that the area was receiving significant sediments in the past too. There is a sandy island which was formed recently owing to flood tide deposition and is locally being called as Tsunami Island as it was observed after Fayan cyclone that occurred along West Coast of India during 2011 (Hanamgond, 2012).

**Key Words:** Estuary, Sediment, Texture, Depositional Environment, Maharashtra, West Coast, India

  
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School of Earth Sciences, Solapur University, Solapur

## Geomorphology of Karli River Basin, Sindhudurg District, Maharashtra Using Geographical Information System (GIS)

Priyanka S. Samant<sup>1</sup>, Suraj Mense<sup>2</sup>, Shivani hulaji<sup>1</sup>, P.T. Hanamgond<sup>2</sup>, H.T.  
Basavarajappa<sup>1</sup> and D. Nagaraju<sup>1</sup>

<sup>1</sup>Department of studies in Earth Science, Manasagangotri, Mysuru

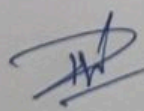
<sup>2</sup>Department of Geology, G S Sc. College, Belagavi-590006

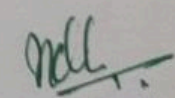
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### ABSTRACT

Morphometric analyses of watershed allow us to predict the hydrological response to various watershed development practices and to have better understanding of the impact of these practices. Present study is an attempt to understand the nature and structure of Karli watershed by applying various morphological parameters. The study area is situated in Sindhudurg district of Maharashtra covering basin area of about 392 Sq.km. Various morphometric parameters including linear, areal and relief aspects viz., stream order, stream length, bifurcation ratio, drainage density, relief ratio, circulatory ratio, elongation ratio, form factor, texture ratio, ruggedness ratio etc. were calculated using SRTM data and Geographical Information System (GIS) techniques. The study reveals that the area is composed mainly of homogenous rock without any strong structural disturbance hence watershed shows dendritic drainage pattern. The study also reveals that the area has very moderate to low degree of slope, hence it is highly susceptible for flooding.

**Keywords:** Morphometric analyses, GIS techniques, Karli River, West Coast, India

  
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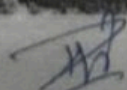
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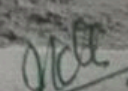
## NATIONAL SEMINAR on “M-Sand: Future Perspective & Its Sustainability”

30<sup>th</sup> August 2018, Hyderabad, Telangana State

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# SOURCES OF SAND AND THEIR DEPOSITIONAL ENVIRONMENTS

P.T. Hanamgond

## Abstract

*With the ongoing and present rate of construction the available natural sand resources in many parts of India will be exhausted in few years to come. In Karnataka and Maharashtra especially it has become very scarce. There was a move from Karnataka Government to import the sand from Malaysia. The increasing demand and scarcity aided by illegal mining has forced the government to ban on illegal sand mining and export to outside states. Overall the situation has created the construction business for builders as well as owners quite expensive and miserable. However, as seen in the daily newspapers, the illegal sand mining and transportation is going on uninterrupted. There are instances of adulteration of sand with yellow clay or soil mixing too. The present paper highlights the source of sand, depositional environment, environmental significance and alternate sources to sand.*

## INTRODUCTION

Indiscriminate sand mining destroying the natural environment and ecology observed in many areas has provoked the scientific community to try and find alternatives to river sand for construction industry. Since long past, the construction industry is using the river sand as a major building material. This is mainly due to the ease of acquisition, poorly sorted nature and its suitability for construction.

Sand is a weathered product of rocks owing to geological agents such as wind (Aeolian) and water (mainly fluvial and marine). Quartz is the main component of sand. In general, the size varies between 0.1mm to 2mm. Which is known as sand class (Wentworth, 1922), which is further sub divided into- Fine Sand (0.075 to 0.425 mm), Medium Sand (0.425 to 2 mm) and Coarse Sand (2.0 to 4.75 mm).

The major natural sources of sand are mainly river, beach sand and estuarine and to some extent lakes. Sandy shores are seen along large lakes but are quite rare and scanty.

## RIVER SAND

The sediments are brought by river through various geological processes such as weathering, erosion, transportation. The sediment deposits are usually found along the bends as point bars and shoals. The river sand is the most wanted and widely used for all construction purposes. It is obtained from the banks or beds of rivers, generally along the flood plains, point bars, shoals etc., (Photograph 1). The

angular fragments, unsorted nature, low or no organic content make the river sand quite useful for construction business.

**Submerged valleys or river courses:** The promising sand sources can be from submerged river

Channels (Photograph 2), oxbow lakes, paleo flood plains when the river enters mature to old stage. Such deposits are clearly seen in the satellite or aerial photos

## MARINE SAND

The oceanic or sea or marine sand (offshore, beach and estuary) covers a very large area of the earth. Most of the marine sand is contributed by terrestrial sources mainly through rivers and surface runoff over thousands of years. The sand deposits are mainly at the river mouths occurring as spit, flood tide deposit and ebb tide deposits or as delta (Photograph 3). The rocky cliffs and the nearshore seabed contribute little fresh sand for the beaches. However, the coastal/marine sand is not generally used for construction purposes mainly due to its well sorted nature, sub rounded to rounded grains, the large amounts of organic matter and saline nature. Further, the beach/sea sand has not enough properties such as high compressive and high tensile strength. However, now people are using this sand also by subjecting to washing or by mixing with river sand. Due to high demand and short supply of river sand, now all along the Karnataka-Maharashtra coast estuarine sand is being mined (Photograph 4)

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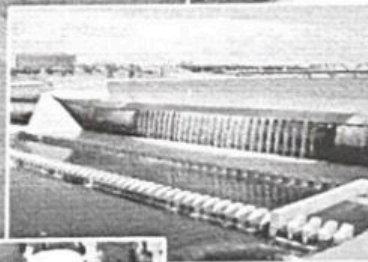


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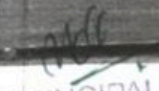


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## MULTIVARIATE ANALYSIS IN HYDROCHEMISTRY USING THE COMPOSITE DIAGRAM, SATURATION INDEX AND STATISTICAL ANALYSIS (AZNA RIVER, LORESTAN PROVINCE, IRAN)

Artimes Ghassemi Dehnavi<sup>1</sup>, Ramin Sarikhani<sup>1</sup>, Seyedeh Hadis Hosseini<sup>1</sup>, Zeinab Ahmadnejad<sup>2</sup>, Behrouz Ebrahimi<sup>3</sup>

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<sup>2</sup>Department of geology, Tabriz University, Tabriz, Iran

<sup>3</sup>Lorestan Regional water Authority

Hydrogeochemistry of Surface water and groundwater is suitable guidance to recognize of carried out reactions in water as well as identify contaminant natural factors and anthropogenic affecting of water resources. In this study, has evaluated the quality of Azna river at Chamzaman hydrometric station. The results showed that the Azna water type according to piper diagram is calcic bicarbonates. In water resources of Azna river, water-rock reactions are the main controller factors of water quality. According to statistical studies, the data analysis method led to be determined 11 principal components for the data set, the first three components with more than 70% variability, interpret statistical population. The plotted cluster graph show the samples place in four clusters :that respectively involve the first cluster SO<sub>4</sub>-2 and the second cluster pH, K +, the third cluster Ca+ and the fourth cluster TDS, EC, Cl-, Mg<sup>2+</sup>, HCO<sub>3</sub>-, Na + and TH.

**Key words:** Hydrogeochemistry, Azna River, Water-rock reactions, TDI.

## PREMONSOON STUDY ON SEA WATER INTRUSION USING GALDIT MODEL, KARWAR, WEST COAST OF INDIA

Priyanka S. Shinde<sup>1</sup>, Basavraj K. Koti<sup>2</sup>, Pramod T. Hanamgond<sup>3</sup>, Sagar M. Waghmare<sup>4</sup>

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Contamination of freshwater bodies caused by saltwater intrusion is a global issue, affecting water quality, vegetation, and soil conditions along coastal lines. Any developmental activity will largely depend upon availability of fresh water to meet domestic, industrial and agricultural demands therefore water resources in coastal areas assume a special significance. Excessive pumping of groundwater reverses the natural hydraulic gradient and aquifer may become saline. Sea water intrusion problem in the northern Karnataka has not yet reached the serious magnitude but, if the present situation remains identical for the next few years then, this may lead to the



# LIMESTONE AND DOLOMITE DEPOSITS OF BAGALKOTE DISTRICT

Yogesh M Kutre, Pramod T Hanamgond and Suraj S Mense

Department of Geology, G.S. Science College, Belagavi 590006

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## INTRODUCTION

Any developing country in the world possesses a strong infrastructure in terms of construction of industries, well planned cities, power plants, dams, reservoirs etc. For which, a country must have a sufficient amount of mineral resources. Particularly for urbanization and construction work limestone has a key role for cement and steel industries. After the China and USA, India has emerged as chief producer of limestone. India has extensive resources of limestone spread over different parts of the country. Cement-grade limestone occurs in all the limestone-bearing areas. Apart from construction and steel industry, limestone is important for agricultural, environmental, pharmaceutical, paints and pigments etc., which makes the limestone an important mineral of India.

The present article is an extract of the available published reports mentioned in the list of reference at the end and forms a detailed review.

## LIMESTONE DOLOMITE DEPOSITS OF INDIA

The total resources of limestone of all categories and grades as per UNFC system as on 1.4.2010 are estimated at 184,935 million tonnes, of which 14,926 million tonnes (8%) are placed under reserves category and 170,009 million tonnes (92%) are under remaining resources category. Karnataka is the leading state having 28% of the total resources followed by Andhra Pradesh, Gujarat and Rajasthan (11% each), Telangana (9%), Chhattisgarh (5%), Madhya Pradesh (4%) and remaining 21% by other states. Grade wise, cement grade (Portland) has leading share of about 68% followed by unclassified grades (13%) and BF grade (7%). Remaining (16%) are others (Indian Bureau of Mines, 2015).

Dolomite occurrences are widespread in the country. As per NMI data, based UNFC system, as on 1/4/2015 total reserves/resources of dolomite have been placed at 8,415 MT, out of which 677.8 MT are placed under reserves category and the balance 7,737 MT under remaining resources category. Major share of about 88% resources were distributed in eight states, namely, Madhya Pradesh (27%), Andhra Pradesh (15%), Chhattisgarh (11%), Odisha (10%), Karnataka & Rajasthan (7% each), Gujarat (6% each), and Maharashtra (5%). The remaining 12% resources are distributed in Arunachal Pradesh, Jharkhand, Haryana, Sikkim, Tamil Nadu, Telangana, Uttarakhand, Uttar Pradesh and West Bengal

## LIMESTONE AND DOLOMITE DEPOSITS OF KARNATAKA:

The Karnataka state is blessed with significant and variety of mineral resources. Other than valuable mineral resources such as gold, silver, copper, iron, manganese, asbestos, bauxite, chromite, kaolin and granite rock, Limestone is another important mineral with an estimated 51,000 MT, out of which 13,345 MT is of cement grade. Karnataka has the largest limestone reserve in India. The districts of Gulbarga, Bagalkote, Belgaum, Shimoga and Uttara Kannada districts are rich with medium to high grade limestone deposits. The present and consistent production of approximately 14 MT provides for the cement plants in these districts.

Dolomite in Karnataka are abundantly of sedimentary origin and occur associated with carbonate rocks of various lithostratigraphic units namely Surgur complex, exposed at Bettadabeedu in Heggadadevana Kote taluk, Mysore. Crystalline dolomite of greenstone belt of Chitradurga in Chitradurga district. Crystalline dolomite contributes 989 million tons of (measured, indicated and inferred) reserves. Dolomite of Kaladgi Super Group, well exposed in Bagalkote District contributes 1164 MT of (measured, indicated and inferred) reserves.

## MINERALOGY OF LIMESTONE AND DOLOMITE:

The limestone is calcareous sedimentary rock consisting mainly of carbonates. The two most important constituents are calcite and dolomite. Limestone often contains magnesium carbonate, either as dolomite CaMg(CO<sub>3</sub>)<sub>2</sub> or magnesite (MgCO<sub>3</sub>) mixed with calcite. Such rocks are termed as 'dolomitic' or 'magnesian' limestone. Dolomite (CaCO<sub>3</sub>.MgCO<sub>3</sub>) theoretically contains

A Brief

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From the SEM photographs the grain size  $D$  has been calculated as follow[4]

1. Drawing a diagonal on the photograph
2. Measuring the maximum unidirectional particle size in the vertical direction against the diagonal.
3. Averaging the maximum unidirectional particle size.

The SEM photographs of the summary presentative ferrite composition have been shown in Fig(3) which clearly indicate the fine grain nature of the ferrite formed-a characteristic of chemical method of ferrite preparation. The grains stained to be larger when the ferrite is formed by ceramic method. It is clearly seen that on an average the grain size is less than 500nm.[5-6] The fine grains lead to the improvement of density & hence the bulk magnetic property, this type of grain structure has been reported by some others. Careful observation of every nano graph reveals that the porosity within the material is very low & the chances of pores being present within the grains are also negligible. There is no change of either nano structure or the grain size & topology with the addition of  $\text{Co}^{2+}$  in the material.

#### 4 Conclusion

The present samples with chemical formula  $\text{Ni}_{0.6-x}\text{Co}_x\text{Zn}_{0.4}\text{Fe}_2\text{O}_4$  was prepared by oxalate method. X-ray diffraction pattern confirms the single phase formation of spinel ferrites. The SEM photographs gives the clearly indicate the fine grain nature of the ferrite formed with grain size 500nm.

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### 20.LIGHT-FIDELTY: A UNIQUE METHOD OF MANIPULATING THE VISIBLE COMPONENT OF ELECTROMAGNETIC SPECTRUM FOR HIGH SPEED DATA TRANSFER WITH LED NANO ARCHITECTURES

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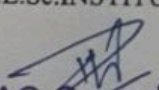
#### Abstract

*A novel method for transmission of data with low power usage, high speed and large bandwidth is discussed in this paper using Light emitting diodes (LED), basically used for illumination. The low power consumption and their ability to offer large control over the bandwidth make LEDs ideal candidates for being used for data transmission at the speed of light. With the internet of things(IOT) becoming a reality and a number of devices continuously accessing the internet, Wi-Fi is swiftly heading towards shrinking spectrum*

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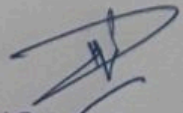
  
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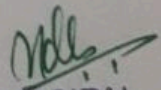
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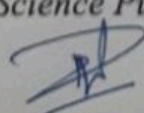
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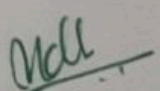
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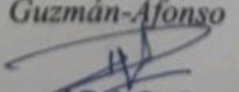
  
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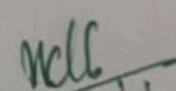
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Chapter 4

## POLARONS IN ELECTROCHEMICALLY DOPED NON-DEGENERATE $\Pi$ - CONJUGATED POLYMERS

*S. S. Kalagi<sup>1</sup> and P. S. Patil<sup>2</sup>*

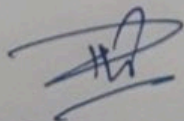
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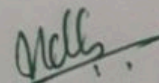
### ABSTRACT

Conjugate polymers comprise a class of polymers with alternate single and double bonds. In  $\pi$ -conjugated polymer systems with non-degenerate ground states, interchanging single and double bonds leads to a change in structure from high energy quinonoid states to low energy aromatic states. On electrochemical doping, charges are added or removed from the polymeric backbone producing defect states associated with quasiparticles such as polarons and bipolarons in the  $\pi - \pi^*$  bandgap. Delocalization of the  $\pi$  - electrons gives rise to semiconductor-like energy bands and increased electrical conductivity on electronic excitation, oxidation or reduction. The relatively smaller energy gap between HOMO and LUMO  $\pi$  -orbitals as compared to  $\sigma$ -orbitals, leads to intraband transition and appearance of absorption bands in UV-Visible range. By controlling the amount of charges inserted/removed, conductivity of the polymer can be made to vary from an insulating (non-doped) state to a highly conducting (fully doped) state. Coulomb interactions of the polaron with the surrounding electrons lead to a new band states because of the accessible midgap defect levels. The strong electron-phonon coupling, along with conformational and site disorder give rise to the polaronic species while its energy is determined by Coulomb interactions and optical transitions. An analysis of UV-Vis spectra of neutral and oxidized or reduced species as a function of doping levels shows that in most non-degenerate polymers, polarons are the major species generated by electrochemical doping which are responsible for decreased bandgap and increased conductivity.

**Keywords:** conjugated polymers, polarons, charge transport, transition energy, PEDOT:PSS



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**ಗಾಂಧಿ**  
ತತ್ವಾನ್ವೇಷಣೆ

ಪ್ರಸ್ತುತ 'ಗಾಂಧಿ: ತತ್ವಾನ್ವೇಷಣೆ' ಪುಸ್ತಕ ವಿಚಾರಧಾರೆಗಳ ಒಂದು ವೇದಿಕೆ. ಇಲ್ಲಿಯ ಲೇಖನಗಳಲ್ಲಿ ವೈವಿಧ್ಯತೆಯಿದೆ. ಗಾಂಧಿವಾದ, ಗಾಂಧಿವ್ಯಾಂಕ, ಗಾಂಧಿತತ್ವಶಾಸ್ತ್ರ, ಗಾಂಧಿದೃಷ್ಟಿಕೋನ, ಗಾಂಧಿ ಆರೋಚನಾಕ್ರಮ, ಗಾಂಧಿ ಅರ್ಥಶಾಸ್ತ್ರ, ಗಾಂಧಿ ರಾಜನೈತಿಕಶಾಸ್ತ್ರ, ಗಾಂಧಿ ಸಮಾಜಶಾಸ್ತ್ರ, ಗಾಂಧಿ ಟೆಕ್ನೊಶಾಸ್ತ್ರ, ಗಾಂಧಿ ಸಂಗೀತಶಾಸ್ತ್ರ, ಗಾಂಧಿ ಪಾರಮಾರ್ಥಿಕಶಾಸ್ತ್ರ ಮುಂತಾದ ಪುಸ್ತಕ ತಾತ್ವಿಕ ವಿಚಾರಧಾರೆಗಳು ಇಲ್ಲಿ ಮೇಳೈದಿರುವುದು ಮಹತ್ವದ ಸಂಗತಿಯನ್ನೊಳಗೊಳ್ಳುತ್ತದೆ.

ಕುರಿತ ಪುಸ್ತಕ ವಿಚಾರಧಾರೆಗಳು ಭೂಗೋಳಗೊಂದು ಒಂದು ಸೈದ್ಧಾಂತಿಕ ನಿಲುವಿನತ್ತ ಸಮೀಪಿಸಲೊಳ್ಳುವುದಕ್ಕೆ ಸಂದರ್ಭವನ್ನು ಇಲ್ಲಿನ ಲೇಖನಗಳು ಧ್ಯಾನಿಸುವುದು ಇಲ್ಲಿ ಗಮನಿಸಬೇಕಾದ ಸಂಗತಿಯಾಗಿದೆ. ಗಾಂಧಿ ಪುಸ್ತಕ ಅಧ್ಯಯನಕ್ಕೆ ದಿವ್ಯ ಪ್ರತಿಮೆ. ಗಾಂಧಿವಾದವನ್ನುವುದು ನಮಗೆ ಒಂದು ಆದರ್ಶದ ಪರಿಕಲ್ಪನೆ. ಗಾಂಧಿ ವಾದವನ್ನುವುದು ಗಾಂಧಿ ಪ್ರಚೋದನಾ ಒದ್ದಾಂಕದ ಅಮಿಡ ಜ್ಞಾನಸತ್ಯ. ಗಾಂಧಿ ತತ್ವಶಾಸ್ತ್ರವನ್ನುವುದು ಭಾರತೀಯರ ಕ ಬಂತನೆಯ ಒಂದು ಸಂಯೋಜಿತ ಪ್ರವೃತ್ತಿವೇಳೆ. ಗಾಂಧಿ ದೃಷ್ಟಿಕೋನವನ್ನುವುದು ನಾವು ಇಡಬೇಕಾದ ಪತ್ನಿಯ ಪ್ರವೃತ್ತಿ. ಗಾಂಧಿ ಆರೋಚನಾಕ್ರಮವೆಂದರೆ ನಮ್ಮ ಬಂತನಿಗೆ ತೋರಬೇಕಾದ ನೈತಿಕ ಪ್ರವೃತ್ತಿಯ ನೂರು ಮೀಮಾಂಸೆ. ಗಾಂಧಿ ಅರ್ಥಶಾಸ್ತ್ರವೆಂದರೆ ನಮ್ಮ ಸಂಪಾದನೆ ಮತ್ತು ನೈತಿಕತೆಯ ನಿಲುವಿನ ಒಟ್ಟು ವೋತ್ತ. ಗಾಂಧಿ ರಾಜನೈತಿಕಶಾಸ್ತ್ರವೆಂದರೆ ಬದುಕನ್ನು ನಾನು ಆಳಲೊಳ್ಳುವ ಸ್ವತಂತ್ರ ನಿಲುವು. ಗಾಂಧಿ ಸಮಾಜಶಾಸ್ತ್ರವೆಂದರೆ ಸರ್ವೋಚ್ಚದ ಮೂಲಕ ಪ್ರೀತಿಯ ಶಕ್ತಿಗಾರಿಕೆ. ಗಾಂಧಿ ಟೆಕ್ನೊವಿಜ್ಞಾನಿಕ ಮನೋನಿಗ್ರಹ ಮತ್ತು ಅತ್ಯೋನ್ನತಿ. ಗಾಂಧಿ ಸಂಗೀತವೆಂದರೆ ವಾತ್ಸಲ್ಯಾನುಭವವನ್ನೂ ಹೇಳುವಂತೆ. ನಾನು ಯಾರನ್ನು ಮೋಹಿಸಲೊಳುವುದಿಲ್ಲ. ಸತ್ಯವನ್ನು ಎಂದೂ ಕೈಬಿಡುವುದಿಲ್ಲ. ಕರ್ತವ್ಯವನ್ನು ನಾನು ಮಾಡುತ್ತೇನೆ ಎನ್ನುವ ಚರಣಾಕ್ಷತಿಯಲ್ಲಿ ತಿರುಗುವ ಬದುಕಿನಲ್ಲಿ ನಡೆಯುವ ಸಾಮಗ್ರಹ. ಇಲ್ಲಿಯ ಪಾರಮಾರ್ಥಿಕ ಪಥವೆಂದರೆ 'ರಾಜ್ಯ ಸಮಾಜ, ವ್ಯಕ್ತಿ ಮತ್ತು ಆತ್ಮೋನ್ನತಿಯ ಕುರಿತ ಭಗವದ್ ದರ್ಶನ. ಈ ದರ್ಶನವು ಗಾಂಧಿ ನಮ್ಮೆಲ್ಲರ ನೈತಿಕ ಪ್ರವೃತ್ತಿಯ ಮೂಲಮಂತ್ರ. ಇಂತಹ ಗಾಂಧಿಯವರ ಬದುಕನ್ನು ಅನಾವರಣಗೊಳಿಸುವುದು ಆವಶ್ಯಕತೆ. ಮೀಮಾಂಸೆಯನ್ನು ಒಂದೆಡೆ ದಾಖಲಿಸುವ ಒಂದು ಉಪಕ್ರಮವನ್ನು ಇಲ್ಲಿ ಅನುಸರಿಸಿ ನಡೆಯಲಾಗಿದೆ.

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# ಗಾಂಧಿ

## ತತ್ವಾನ್ವೇಷಣೆ

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
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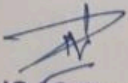
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## ೨೨. ಗಾಂಧಿ : ತತ್ವ ಪ್ರಸ್ತುತತೆ



ಡಾ. ಸುನಂದಾ ಎಂ. ಕಾಳಾಯಿ

ಭಾರತದ ಇತಿಹಾಸದುದ್ದಕ್ಕೂ ನೂರಾರು ಸಾವಿರಾರು ಸಾಧುಸಂತರು, ಶರಣರು, ಸಾಹಿತಿಗಳು, ಧರ್ಮಸಂಸ್ಥಾಪಕರು, ವಿಚಾರವಂತರು, ಯೋಧರು, ವಿದ್ವಾಂಸರು, ಮಾನವ ಸಂಕುಲದ ಮೇಲೆ ಆಗಾಧವಾದ ಪ್ರಭಾವವನ್ನು ಬೀರಿ ಜಗತ್ತಿನ ಇತಿಹಾಸ ಸೃಷ್ಟಿಗೆ ಮತ್ತು ಸಂಸ್ಕೃತಿ-ಪರಂಪರೆ ಉಳಿವಿಗೆ ಕಾರಣರಾಗಿದ್ದಾರೆ. ಬುದ್ಧ, ಬಸವ, ಯೇಸು, ಮಹಮದ್ ಮೊದಲಾದ ಧರ್ಮೋಪದೇಶಕರು ಜನಹೃದಯ ಸಿಂಹಾಸನದಲ್ಲಿ ತಮ್ಮ ಭಾಷಣವನ್ನು ಮೂಡಿಸಿ ಅವರ ಬಾಳಿನಲ್ಲಿ ಚಿರಂತನ ಜೀವಂತ ಸ್ಫೂರ್ತಿಯ ಸೆಲೆಯಾಗಿದ್ದಾರೆ. ತಮ್ಮ ವಿಚಾರವಂತಿಕೆಯಿಂದ, ದಾರ್ಶನಿಕ ಪ್ರತಿಭೆಯಿಂದ, ಮಾನವೀಯ ದೃಷ್ಟಿಯಿಂದ ಮನುಕುಲದ ಮೇಲೆ ಆಗಾಧವಾದ ಪ್ರಭಾವವನ್ನು ಬೀರಿ ಆಧುನಿಕ ಇತಿಹಾಸದ ನಿರ್ಮಾಪಕರಲ್ಲಿ ಅಗ್ರಮೂರ್ತಿಯಾಗಿ ಪಾತ್ರರಾದವರು ನಮ್ಮ ರಾಷ್ಟ್ರಪಿತ ಮಹಾತ್ಮ ಗಾಂಧೀಜಿಯವರು.

ಮಾನವಕುಲದ ವಿಮೋಚನೆಗಾಗಿ ಸತ್ಯ, ಪ್ರೇಮ, ಅಹಿಂಸೆ ತ್ಯಾಗ ಮತ್ತು ಶಾಂತಿ ಎಂಬ ಮಹಾಮಂತ್ರವನ್ನು ಪಠಿಸಿ ಅದರ ಮೂಲಕ ಜಯವನ್ನು ಸಾಧಿಸಿ ಜಗತ್ತಿಗೆ ಬೆಳಕು ನೀಡಿದ ಪ್ರಪಂಚದ ಕೆಲವೇ ಕೆಲವು ಮಹಾನ್ ಸಂತರಲ್ಲಿ ಮಹಾತ್ಮ ಗಾಂಧೀಜಿಯವರು ಒಬ್ಬರು. ಆ ಕಾರಣಕ್ಕಾಗಿಯೇ ಜನಮಾನಸದಲ್ಲಿ ಅವರು ಇಂದಿಗೂ ಮಹಾತ್ಮರಾಗಿ ಅಚ್ಚಳಿಯದೇ ಉಳಿದಿದ್ದಾರೆ. ಮಾನವಕುಲವನ್ನು ಶೋಷಣೆಗಳಿಂದ ಬಂಧ ಮುಕ್ತಗೊಳಿಸಲು, ಹೊಸ ಸಮಾಜ ನಿರ್ಮಾಣ ಮಾಡಲು ತಮ್ಮ ತತ್ವದರ್ಶನಗಳನ್ನೇ ಅಸ್ತವನ್ನಾಗಿ ಬಳಸಿಕೊಂಡು ಅದರಲ್ಲಿ ಯಶಸ್ವಿಯನ್ನೂ ಕಂಡ ಮಹಾಮುರುಪರಿವರು. ಭಾರತದ ಸ್ವಾತಂತ್ರ್ಯ ಚಳುವಳಿ ಮತ್ತು ಹೋರಾಟಗಳಲ್ಲಿ ಈ ತತ್ವಗಳನ್ನು ಯಶಸ್ವಿಯಾಗಿ ಅನುಷ್ಠಾನಗೊಳಿಸಿ ಅದರ ಮೂಲಕ ದೇಶದ ರಾಜಕೀಯವನ್ನು ಪುನರುಜ್ಜೀವಿಸಿದರು. ಗಾಂಧೀಜಿಯವರು ಭಾರತೀಯರನ್ನು

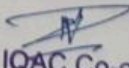
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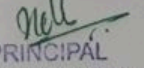
ಒಗ್ಗೂಡಿಸಲು ಮಾಡಿದ ಮತ್ತೊಂದು ಸಾಧನೆಯೆಂದರೆ ಸಾಮಾನ್ಯ ಜನರಿಗೂ ತಮ್ಮ ನೈತಿಕ ಹಾಗೂ ಆಧ್ಯಾತ್ಮಿಕ ಶಕ್ತಿಯ ಆಳವಾದ ಅರಿವನ್ನುಂಟು ಮಾಡಿಕೊಟ್ಟು ಜಗತ್ತು ಹಿಂದೆಂದೂ ಕಾಣದಂತಹ ರೀತಿಯಲ್ಲಿ ಭಾರತದ ಜನತೆ ಸ್ವಾತಂತ್ರ್ಯಕ್ಕಾಗಿ ಸಾಹಸದಿಂದ ಹೋರಾಡುವಂತೆ ಪ್ರೇರೇಪಿಸಿದರು. ಆ ಕಾರಣಕ್ಕಾಗಿಯೇ ಗೋಪಾಲಕೃಷ್ಣ ಗೋಖಲೆಯವರು ಗಾಂಧೀಜಿಯವರನ್ನು ಕುರಿತು 'ಧೋಳಿನಿಂದ ಧೀರರನ್ನು ಸೃಷ್ಟಿಸಿದ ಮಹಾನ್ ವ್ಯಕ್ತಿ ಗಾಂಧೀಜಿ' ಎಂದು ಹೇಳಿದ್ದಾರೆ.

"Gandhi rare gift of the world" Gandhi led the Indian independence struggle through his principles like truth and Nonviolence continue to inspire millions across the Globe" ಈ ಮಾತನ್ನು ಗಾಂಧೀಜಿಯವರ ವಿಚಾರಗಳಿಂದ ಪ್ರಭಾವಿತರಾದ ಅಮೇರಿಕಾದ ಮಾಜಿ ಅಧ್ಯಕ್ಷರಾದ ಬರಾಕ್ ಒಬಾಮಾರವರು ಗಾಂಧೀಜಿಯವರ ೧೫೦ನೇ ವರ್ಷಾಚರಣೆಯ ಸಂದರ್ಭದಲ್ಲಿ ತಮ್ಮ ಭಾಷಣದಲ್ಲಿ ಉಲ್ಲೇಖಿಸುತ್ತ ಗಾಂಧೀಜಿಯವರ ವಿಚಾರಗಳು ಸರ್ವಕಾಲಿಕ ಸತ್ಯವಾಗಿವೆ ಎಂದು ಹೇಳಿದ್ದಾರೆ.

### ಗಾಂಧೀಜಿಯವರ ತತ್ವದರ್ಶನಗಳ ಪ್ರಸ್ತುತತೆ

ಗಾಂಧೀಜಿಯವರು ಸಹಸ್ರಾರು ವರ್ಷಗಳ ವಾಸ್ತವಿಕ ವಿಮೋಚನೆಗೊಳಿಸಲೆಂದೇ ಈ ದೇಶದಲ್ಲಿ ಹುಟ್ಟಿ ಬಂದರೇನೂ ಎಂಬುವುದಕ್ಕೆ ಪುಷ್ಟಿನೀಡುವಂತೆ ವಿದೇಶಗಳಲ್ಲಿ ವ್ಯಾಸಂಗ ಮಾಡಿ, ಬೇರೆ ರಾಷ್ಟ್ರಗಳಲ್ಲಿ ತಮ್ಮ ವ್ಯಕ್ತಿತ್ವವನ್ನು ರೂಪಿಸಿಕೊಂಡು, ಸ್ವರಾಷ್ಟ್ರದಲ್ಲಿ ಮಹಾಗುರುಡಿಗನಂತೆ ಜನರ ಮನಸ್ಸನ್ನು ಗೆದ್ದು, ದೇಶಕ್ಕೆ ಸ್ವಾತಂತ್ರ್ಯ ಸಂಪಾದನೆಯ ಮೂಲಕ ಭಾರತೀಯರನ್ನು ಗುಲಾಮಗಿರಿಯಿಂದ ಮುಕ್ತಗೊಳಿಸಿ ದ್ರುವತಾರೆಯಾದರು. ಈ ಎಲ್ಲ ಮಹಾನ್ ವ್ಯಕ್ತಿಗಂತೆ ಅವರ ಜೀವನವೂ ಸುಖದ ಸುಪ್ಪತ್ತಿಯಾಗಿರಲಿಲ್ಲ. ವಿದೇಶಗಳಲ್ಲಾಗಲೀ, ಭಾರತದಲ್ಲಾಗಲೀ ಅವರು ಪಟ್ಟ ಶ್ರಮ, ಅನುಭವಿಸಿದ ಅವಮಾನಗಳು, ಸಹಿಸಿದ ಕಿರುಕುಳಗಳು, ಅನ್ಯಾಯಗಳು ಅವರ ಅಂತರಾಶಕ್ತಿಯನ್ನು ಮತ್ತಷ್ಟು ಗಟ್ಟಿಗೊಳಿಸುವಂತೆ ಮಾಡಿದವು. ಅವರ ಬಾಳಿನಲ್ಲಿ ಘಟಿಸಿದ ಪ್ರತಿಯೊಂದು ಘಟನೆಯೂ ಅವರನ್ನು ಹೋರಾಟಗಾರರನ್ನಾಗಿ ಮಾಡಲು ಕಾರಣೀಭೂತಿಯಾಯಿತು. ಸೇಡಿಗಿ ಸೇಡು, ಮುಯ್ಯಿಗೆ ಮುಯ್ಯಿ, ಕೊಲೆಯಿಂದ ಕೊಲೆ ಇವುಗಳಿಂದ ಸರ್ವನಾಶವೇ ಹೊರತು ಏನನ್ನು ಸಾಧಿಸಲು ಸಾಧ್ಯವಿಲ್ಲ ಎಂಬುವುದನ್ನು ಮನಗೊಂಡು ಸತ್ಯ, ಪ್ರೇಮ, ಅಹಿಂಸೆಗಳ ಮೂಲಕ ಎಂಥ ದುಷ್ಟಶಕ್ತಿಯನ್ನಾದರೂ ದಮನಗೊಳಿಸಲು ಸಾಧ್ಯವಿದೆ ಎಂಬುದನ್ನು ಸಾಧಿಸಿ

  
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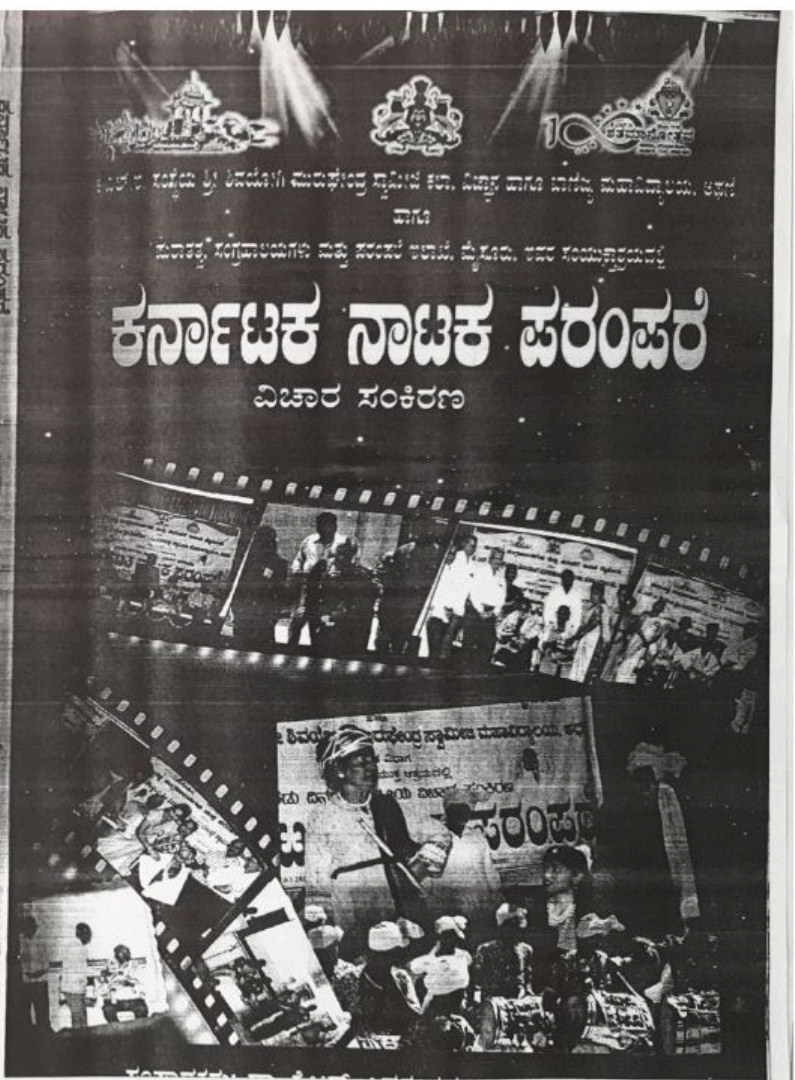


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ಕರ್ನಾಟಕ ನಾಟಕ ಪರಿನಾಮ

ಡಾ. ಕೆ.ಎಲ್. ಸುಂದಾ ಎಮ್. ಕಲಾ



# ಕರ್ನಾಟಕ ನಾಟಕ ಪರಿನಾಮ

ವಿಚಾರ ಸಂಕರಣ

Dr. Sunanda M. Kalai

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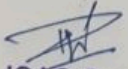
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■  
ಸುನಂದಾ ಎಂ. ಕಾಳಾಯ

ಪೀಠಿಕೆ: ಮಾನವ ಸಂಘ ಜೀವಿ ಮತ್ತು ಅವನು ಸಮಾಜದ ಘಟಕವಾಗಿರುವುದರಿಂದ ಆತನ ಬದುಕನ್ನು ಪ್ರತಿಬಿಂಬಿಸುವ ಸಾಹಿತ್ಯದಲ್ಲಿ ಆತನ ಮತ್ತು ಸಮಾಜದ ಸಹಸಂಬಂಧದ ಕುರಿತಾದ ಚಿತ್ರಣಗಳು ಸಾಮಾನ್ಯವಾಗಿ ಬಂದಿ ಬರುತ್ತವೆ. ಆದ್ದರಿಂದ ಸಾಮಾಜಿಕ ಪ್ರಜ್ಞೆಯಿರದ ಸಾಹಿತ್ಯವನ್ನು ಸಾಹಿತ್ಯವೇ ಅಲ್ಲ ಎಂದು ಹೇಳಬಹುದು. ಸಾಹಿತ್ಯವನ್ನು ರಚಿಸುವ ಲೇಖಕನಿಗೆ ಒಂದಿಲ್ಲೊಂದು ರೀತಿಯಲ್ಲಿ ಸಾಮಾಜಿಕ ಪ್ರಜ್ಞೆ ಸಾಮಾಜಿಕ ಕಳಕಳ ಇದ್ದೇ ಇರುತ್ತದೆ. ಅದು ಒಬ್ಬ ಸಾಹಿತ್ಯಿಯ ಮೂಲಭೂತ ತತ್ವವು ಹೌದು. ನಾವು ಕೆಲವು ಸಾಹಿತ್ಯ ಕೃತಿಗಳಿಗೆ ಸಾಮಾಜಿಕ ನಾಟಕ, ಸಾಮಾಜಿಕ ಕಾದಂಬರಿಗಳು ಇತ್ಯಾದಿಯಾಗಿ ಗುರುತಿಸುತ್ತೇವೆ.

'ಸಾಮಾಜಿಕ' ಎಂಬ ಶಬ್ದವನ್ನು 'ಐತಿಹಾಸಿಕ' 'ಪೌರಾಣಿಕ' ಎಂಬ ಶಬ್ದಗಳಿಗೆ ವಿರುದ್ಧವಾಗಿ, ಸಮಕಾಲೀನ ಸಮಾಜಕ್ಕೆ ಸಂಬಂಧಿಸಿದ ಎಂಬ ಅರ್ಥದಲ್ಲಿ ಉಪಯೋಗಿಸುತ್ತೇವೆ. ಸಾಮಾಜಿಕ ಪ್ರಜ್ಞೆಯಿಂದಾಗಿ ಸಮಕಾಲೀನ ಸಮಾಜದ ಬಗ್ಗೆ ಅರಿವು, ಜಿಜ್ಞಾಸೆ ಎಂಬ ಅರ್ಥವಿರುತ್ತದೆ. ಅಷ್ಟೇ ಅಲ್ಲದೇ ಸಾಮಾಜಿಕ ಪ್ರಜ್ಞೆ ವ್ಯಕ್ತಿಯನ್ನು ಪಾಮುಖ್ಯವಾಗಿ ಸಮಾಜದ ಘಟಕವೆಂದೇ ಬಗೆದು, ವ್ಯಕ್ತಿ, ಸಮಾಜ, ಇವುಗಳ ಸಂಬಂಧದ ಲಕ್ಷ್ಯವನ್ನು ಕೇಂದ್ರೀಕರಿಸಿ ಸಾಮಾಜಿಕ ಒತ್ತಡ ಪ್ರವೃತ್ತಿಗಳಿಂದ ರೂಪಗೊಂಡ ವ್ಯಕ್ತಿತ್ವದ ಅಂಶಗಳನ್ನು ಅಷ್ಟೇ ಆಯ್ದುಕೊಂಡು ಕೆಲಸ ಮಾಡುತ್ತದೆ ಎಂಬ ಅರ್ಥವೂ ಸಮಾವೇಶಗೊಂಡಿದೆ. ಕನ್ನಡ ನಾಟಕಗಳಲ್ಲಿ ಮೊಟ್ಟ ಮೊದಲಬಾರಿಗೆ ಸಾಮಾಜಿಕ ಅರಿವನ್ನು ಉಂಟು ಮಾಡಿದ ಕೀರ್ತಿ ಕೈಲಾಸಂ ಮತ್ತು ಶ್ರೀರಂಗರವರಿಗೆ ಸಲ್ಲುತ್ತದೆ. ಇವರ ಮೂಲಕವೇ ಕನ್ನಡ ನಾಟಕಗಳಲ್ಲಿ ಸಾಮಾಜಿಕತೆಯ ಅರಿವಿನ ಜ್ಞಾನೋದಯವಾಯಿತು ಎಂಬುವುದರಲ್ಲಿ ಎರಡು ಮಾತಿಲ್ಲ. ಈ ಲೇಖನದ ಮುಖ್ಯ ಉದ್ದೇಶ ಟಿ. ಪಿ. ಕೈಲಾಸಂ ಮತ್ತು ಶ್ರೀರಂಗರ

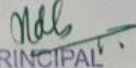
೧೩೮ /ಕರ್ನಾಟಕ ನಾಟಕ ಪರಂಪರ

  
IQAC Co-ordinator  
GSS College, Belagavi

ಪ್ರಮುಖವಾದ ನಾಟಕಗಳಲ್ಲಿ ವ್ಯಕ್ತವಾಗಿರುವ ಸಾಮಾಜಿಕ ಪ್ರಜ್ಞೆಯನ್ನು, ಸಾಮಾಜಿಕ ಕಳಕಳಯನ್ನು ಶೋಧಿಸುವುದು ಆಗಿದೆ.

ಕೈಲಾಸಂ ರವರ ನಾಟಕಗಳಲ್ಲಿ ಸಾಮಾಜಿಕ ಪ್ರಜ್ಞೆ:

ಕನ್ನಡದಲ್ಲಿ ಸಾಮಾಜಿಕ ನಾಟಕವು ಮೊಟ್ಟ ಮೊದಲಿಗೆ ಕಾರವಾರದಿಂದ ಬಂದಿತೆಂಬುದು ಇತ್ತೀಚಿನ ಸಂಶೋಧನೆಯಿಂದ ತಿಳಿದು ಬಂದಿದೆ. ಇದುವೇ ಇಗ್ಗಪ್ಪ ಹೆಗಡೆ ಪ್ರಹಸನ ಎಂಬ ನಾಟಕ. ಈ ನಾಟಕದ ತಂತ್ರ, ವಸ್ತು ಮತ್ತು ಭಾಷೆಗಳ ದೃಷ್ಟಿಯಿಂದ ಮಹತ್ವವನ್ನು ಪಡೆದಿದ್ದರೂ ಅದರ ಪ್ರಯೋಗವಾಗಿದ್ದರಿಂದ ಅದು ಜನತೆಯ ಮೇಲೆ ತನ್ನ ಪ್ರಭಾವವನ್ನು ಬೀರಲಿಲ್ಲ. ಅದರಲ್ಲಿರುವ ವಿಷಯ ವಿವಾಹದ ಸಮಸ್ಯೆಗಿಂತ ಅದರಲ್ಲಿರುವ ಸಾಮಾಜಿಕತೆಯ ಅರಿವು, ಶಕ್ತಿಯುತವಾದ ಹವ್ಯಕರ ನುಡಿ ಬಳಕೆ ಈಗ ಹೆಚ್ಚು ಮಹತ್ವವಾಗಿ ಕಾಣುತ್ತವೆ. ಇಂಥ ನಾಟಕಗಳು ಬೇರೆ ಪ್ರಾಂತದಲ್ಲಾಗಿದ್ದರೆ ಲೋಕಪ್ರಿಯವಾಗುತ್ತಿದ್ದವು. ಆದರೆ ಕರ್ನಾಟಕದ ಪ್ರೇಕ್ಷಕರ ಸಾಮಾನ್ಯ ಅನಾಸ್ಥೆಯ ಮೂಲಕ ಈ ನಾಟಕವು ಮೂಲಗುಂಪಾಯಿತು. ಮರಾಠಿಯಲ್ಲಿ ಶಾರದಾ ಮತ್ತು ಏಕಚಾಪಲ್ಯಾದಂತಹ ಸಾಮಾಜಿಕ ನಾಟಕಗಳು ಇಡೀ ಪ್ರಾಂತದ ಅಭಿರುಚಿಯ ಮಟ್ಟವನ್ನೇ ಇನ್ನೂ ಎತ್ತರವಾಗಿಸಿದವು. ಕನ್ನಡ ರಂಗಭೂಮಿಗೆ ಅಂಥ ಸೇವೆಯನ್ನು ಮಾಡುವ ಸುಯೋಗವೇ ಒದಗಿ ಬರಲಿಲ್ಲ. ಹುಯಿಲಗೋಳ ನಾರಾಯಣರಾಯರ 'ಶಿಕ್ಷಣ ಸಂಭ್ರಮ' ಹಾಗೂ 'ಸ್ತ್ರೀ ಧರ್ಮ ರಹಸ್ಯಗಳು' ಸತತ ಪ್ರಯೋಗದಿಂದ ಜನಮನವನ್ನು ಸೂರೆಗೊಂಡರೂ ಅವಿಲ ಕರ್ನಾಟಕದಲ್ಲಿ ತಮ್ಮ ವ್ಯಾಪ್ತಿಯನ್ನು ವಿಸ್ತರಿಸಲು ಸಾಧ್ಯವಾಗಿರಲಿಲ್ಲ. ಈ ನಾಟಕಗಳು ಸುಧಾರಣೆಯ ಹುಚ್ಚುತನ ಹಾಗೂ ಕೆಡುಕುಗಳನ್ನು ಚೇಷ್ಟೆ ಮಾಡುವ ವಿನೋದ ರೂಪಕಗಳಾಗಿವೆ. ವಿಚಾರದ ಬೆನ್ನೆಲುಬು ಗಟ್ಟಿಯಾಗಿಲ್ಲದ ಕಾರಣ ಈ ನಾಟಕ ಕೇವಲ ಪ್ರಹಸನವಾಗಿ ಬಿಟ್ಟಿದೆ. ಪಾತ್ರಗಳ ವೈವಿಧ್ಯ ಹಾಗೂ ವಿನೋದಪ್ರಿಯತೆಗಳು ಮಾತ್ರ ಈ ಕೃತಿಗಳ ವೈಶಿಷ್ಟ್ಯಗಳಾಗಿವೆ. ಆದರೆ ತಂತ್ರ ಮಾತ್ರ ಇನ್ನೂ ಸಂಸ್ಕೃತ ನಾಟಕಗಳದ್ದೇ ಇದೆ. ನಾಟಕ ದರ್ಶನ ಬದಲಾಗದೆ ಅದರ ರೂಪವು ಬದಲಾಗಲಾರದು. ಈ ನಾಟಕಗಳ ವಸ್ತು ಸಾಮಾಜಿಕವಾಗಿದ್ದರೂ ಅದರ ಅರ್ಥಪೂರ್ಣತೆ ಕಣ್ಣಿಗೆ ಕಾಣುವಷ್ಟು ಗೋಚರವಾಗಿಲ್ಲ. ೧೯೫೦ ರಲ್ಲಿ ಬಂದ ಪತಿಸೋದ್ಧಾರ ಎಂಬ ನಾಟಕವೇ ಇದಕ್ಕೆ ಸಾಕ್ಷಿಯಾಗಿದೆ. ಜಾತೀಯತೆಯನ್ನೇ ಮೂಲ ಸಮಸ್ಯೆಯಾಗಿಟ್ಟುಕೊಂಡು ನಾಟಕವನ್ನು ರಚಿಸಲಾಗಿದೆ. ಆದರೆ ಸಮಸ್ಯೆಯ ಬೆಳವಣಿಗೆ ಹಾಗೂ ಪರಿಹಾರಗಳೆಲ್ಲ ನಾಟಕಕಾರರ ಬುದ್ಧಿವಂತಿಕೆಯ ಫಲಗಳಾಗಿ ಬಂದಿವೆ. ಅವುಗಳಲ್ಲಿ ಮಾನವೀಯ ಅಂತಃಕರಣದ ನೈಜವಾದ ಮಿಡಿತ ಕೇಳಬರುವುದಿಲ್ಲ. ನಾಟಕ ಪ್ರಗತಿಯ ಮಾತನ್ನೇ ಹೇಳುತ್ತಿದ್ದರೂ ಅದರ ದನಿಯಲ್ಲಿ

  
PRINCIPAL  
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ಕರ್ನಾಟಕ ನಾಟಕ ಪರಂಪರ/ ೧೩೯

ವಿಶ್ವಪರಂಪರೆಯ ಪಾಠ್ಯಪುಸ್ತಕ ವಿರಾಟಮಾಧವನಿರಾಜನ ಖಾರತೀಯ ಪರಂಪರೆಯು ತನ್ನದೇ ಆದ ಧಾನ್ಯವನ್ನು ಮೂಡಿಸಿದೆ. ಈ ನಿಟ್ಟಿನಲ್ಲಿ ಅನೇಕ ಪಾಠ್ಯಪುಸ್ತಕ ಪ್ರಭಾವಂಶಗಳನ್ನು ನಿರ್ಮಿಸಿಕೊಂಡಿದೆ. ಇಂತಹ ಮಧ್ಯಕಾಲೀನವನ್ನು ಗಣಿಸಿಕೊಂಡಿರುವ ದೇಶದಲ್ಲಿ ಕನ್ನಡ ಭಾಷೆ-ಮುಖ್ಯ, ಖಂಡನಗಳೂ ಅಷ್ಟೇ ಪ್ರಭಾವವಾಗಿ ಕಾಣಿಸುತ್ತವೆ. ಆ ಹಾದಿಯಲ್ಲಿ ಪಾಠ್ಯಪುಸ್ತಕ ಪ್ರೇಮಿಯನ್ನು ಮಾತನಾಡಿಕೊಂಡು ಪ್ರಮುಖವಾಗಿರುವ 'ಇಂದಿನಿಂದಲೂ ಪ್ರಕಾಶನ' ಉದ್ದೇಶವಿರುತ್ತದೆ. 'ಇಂದಿನಿಂದಲೂ' ಈ ಪದವು ಪ್ರಕಾಶನವನ್ನು ಸೂಚಿಸುತ್ತದೆ. ಇದನ್ನು ಶ್ರೀಮಾನ್ ಭಗವಾನ್ ಕುಂದಕುಂದನಾರಾಯಣನ ವಿರಚಿತ 'ಪ್ರವಚನಾರ್ಥ' ಕೃತಿಯ ಮೊದಲ ಭಾಗವಾದ ಷಷ್ಠಾಧ್ಯಾಯ-ಪ್ರವಚನವನ್ನು ಮೂಲವಾಗಿ ತೆಗೆದುಕೊಂಡು ಅಧ್ಯಯನಕ್ಕೆ ಬರಿಸಿದೆ. 'ಇಂದಿನಿಂದಲೂ' ಇವರ ಪಂಕ್ತಿಯ ರೂಪ 'ಇಂದಿನಿಂದಲೂ' ಎಂದಾಗುತ್ತದೆ. ವಚನ, ವೈಚಾರ್ಯ, ಗೋಮೇಧಕ, ಮುಕ್ತಾಯ, ನೀತಿ, ಮರಕತ, ಮಾನವ್ಯ, ಹವ್ಯಕ, ಮತ್ತು ಈ ಪದಗಳಲ್ಲಿ ನೀತಿಮಯವು ಒಂದು ಪ್ರಮುಖವಾದುದು. ಪಾಠ್ಯಪುಸ್ತಕವಾಗಿ ಇದನ್ನು 'ಇಂದಿನಿಂದಲೂ', 'ಇಂದಿನಿಂದಲೂ' ಎಂದೂ ಕರೆಯಲಾಗುತ್ತದೆ.

ಹೊಳಪುಳ್ಳವು, ಪ್ರಕಾಶಮಾಧವನು, ಶೋಭಿಸುವಂತಹವು ಎಂಬ ಅರ್ಥಗಳೊಂದಿಗೆ ನಮ್ಮ ಪ್ರಕಾಶನವು ಪ್ರಕಾಶಿಸಲಿ ಎಂಬ ಅರ್ಥವೊಂದಿಗೆ 'ಇಂದಿನಿಂದಲೂ' ಎಂಬ ಪ್ರಾಮಾಣಿಕತೆಯನ್ನು ಇರಿಸಲಾಗಿದೆ. ಪಾಠ್ಯಪುಸ್ತಕ ಪ್ರೇಮಿಯ ನಿಟ್ಟಿನಲ್ಲಿ 'ಅಂತರ್ವಾಣಿ' ಪುಸ್ತಕವು ಖೇದವು ಪರಿಹರಿಸುವುದು ಸಾಧ್ಯವಿರುವುದು, ಏಕೆಂದರೆ ಖಂಡನವು ಕೈಗೊಳ್ಳುವುದು ಹೆಚ್ಚಿನ ವಿಷಯವಾಗಿದೆ. ಈ ಮೂಲಕ ಕನ್ನಡವನ್ನು ಪ್ರೇಮಿಯ 'ಇಂದಿನಿಂದಲೂ ಪ್ರಕಾಶನ'ವು ಪ್ರಕಾಶಿಸಲಾಗಿದೆ ಎಂದೂ ಹೇಳಲು ಪರಿಶೋಧಿಸುತ್ತದೆ. ಈ ಹಾದಿಯಲ್ಲಿ ಅಕ್ಕಿಯ ಗಿಡೆಯರಾದ ಜಾ. ಭರಮಪ್ಪ ಭಾವಿ, ಜಗದೀಶ ಮುಗುಳ, ಶೇಖರಕು ಹಾಗೂ ಕೊಟಗಿಪ್ಪನವರು ಪ್ರಕಾಶಿಸಿರುವುದು.

ನೇಮಿಪಾಠ ತಪಕೀರ  
ಪ್ರಕಾಶಕರು, ಇಂದಿನಿಂದಲೂ ಪ್ರಕಾಶನ,  
ಕೆ.ಆರ್.ನಂ-೨೯೧೧೨೨

# ಅಂತರ್ವಾಣಿ

(ತನ್ನದೇ ಸಾಹಿತ್ಯ ಮತ್ತು ಸಮಾಜ ಬದ್ಧವಾದ ಬಹುಮುಖದ ಸಂಕೋಚನ ಶೋಧನೆಯ ಸಂಗ್ರಹ)

ಪ್ರಧಾನ ಸಂಪಾದಕರು  
ಡಾ. ಭರಮಪ್ಪ ನಿಂ. ಭಾವಿ

ಸಹ ಸಂಪಾದಕರು  
ಜಗದೀಶ ಮುಗುಳ  
ನೇಮಿನಾಥ ತಪಕೀರ



Rs. 150



ಇಂದಿನಿಂದಲೂ ಪ್ರಕಾಶನ,  
ಬೆಂಗಳೂರು - ೫೬೦ ೨೨೨

**ಅನಕೃ ಅವರ ಕಾದಂಬರಿಗಳಲ್ಲಿ ಭಾರತೀಯ ಗ್ರಾಮೀಣ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಸಾಮಾಜಿಕ ಪ್ರಜ್ಞೆ-ಒಂದು ಪಕ್ಷಿನೋಟ**

ಡಿ. ಶ್ರೀಮತಿ ಸುನಂದಾ ಎಮ್. ಕಾಳಾಯಿ

ಅನಕೃ ಅವರು ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಎಲ್ಲ ಪ್ರಕಾರಗಳಲ್ಲಿ ಅಮೂಲಾಗ್ರ ಕೃಷಿ ಮಾಡಿದ ಅಗ್ರಮಾನ್ಯ ಕನ್ನಡ ಸಾಹಿತ್ಯಗಳೆನಿಸಿದರೂ ಅವರ ಮೂಲ ಮಂತ್ರ ಕಾದಂಬರಿಯಾಗಿತ್ತು. ಅವರು ತಮ್ಮ ಅಂತರಾಳದ ವಿಚಾರವನ್ನು, ಚಿಂತನೆಗಳನ್ನು ತಮ್ಮ ಕಾದಂಬರಿಗಳ ಮೂಲಕವೇ ಹೋರಾಡಿದರು ಎಂಬುವುದರಲ್ಲಿ ಎರಡು ಮಾತಿಲ್ಲ. ಅನಕೃ ಅವರ ಕಾದಂಬರಿಗಳಲ್ಲಿ ನಾವು ಮುಖ್ಯವಾಗಿ ಎರಡು ಮುಖ್ಯ ಮಹತ್ವವಾದ ವಿಷಯಗಳನ್ನು ಕಾಣುತ್ತೇವೆ. ಮೊದಲನೆಯದು ನಮ್ಮ ಪರಿಸರದಲ್ಲಿ ಬೇರುಬಿಟ್ಟಿರುವ ಸಾಮಾಜಿಕ ಸಮಸ್ಯೆಗಳ ಬಗ್ಗೆ ಅವರು ಇಟ್ಟುಕೊಂಡ ದೃಷ್ಟಿಕೋನ ಮತ್ತು ಎರಡನೆಯದು ಅವರ ಶುದ್ಧ ಮತ್ತು ನಿಷ್ಠುರವಾದ ಭಾರತೀಯತೆ.

ಕಾದಂಬರಿ ಸುಸಂಸ್ಕೃತ ವಿಚಾರಸಾಧನ ಎಂದು ಒಪ್ಪಿಕೊಳ್ಳುವುದಕ್ಕೆ ನಾವು ಸಂಕೋಚ ಪಡಬೇಕಾಗಿಲ್ಲ. ಕಥಾವಸ್ತು ಹಾಗೂ ನಿರೂಪಣೆಯೇ ಕಾದಂಬರಿಯ ಜೀವಾಳ. ಸತ್ಯಾರ್ಥ ನಿರೂಪಣೆ ಮಾಡುವಾಗ ಅದು ಇತಿಹಾಸವೂ ಆಗುತ್ತದೆ. ಸತ್ಯಾರ್ಥದ ಮನೋಭಾವವನ್ನು ಬಿಡಿಸಿ ಹೇಳುವಾಗ ಮನಃಶಾಸ್ತ್ರವೂ ಆಗುತ್ತದೆ. ಕಲಾವಿದನಾದ ಕಾದಂಬರಿಕಾರ ರಾಷ್ಟ್ರೀಕನೂ ಹೌದು, ಅಂತರಾಷ್ಟ್ರೀಯಕನೂ ಹೌದು. ರಾಷ್ಟ್ರ ಚೈತನ್ಯದ ಪ್ರಚೋದನೆಗೆ ಅವನ ಕಲೆ ಮೀಸಲಾಗಬೇಕು. ಅವನ ಕೃತಿಯಲ್ಲಿ ಪ್ರಾಧಾನ್ಯ ಕಲೆಗೆ, ತತ್ವಗೌಣ ಸ್ಥಾನದಲ್ಲಿರಬೇಕು. ಕಲೆ ತತ್ವ ಒಂದಕ್ಕೊಂದು ಹೂವು ಪರಿಮಳದಂತೆ ಹೊಂದಿಕೊಳ್ಳಬೇಕು.

"ಮಾನವತಾವಾದವು ಅನಕೃರವರ ವ್ಯಕ್ತಿತ್ವದ ಮತ್ತು ಸಾಹಿತ್ಯದ ವಿಶೇಷ ಲಕ್ಷಣವಾಗಿತ್ತು. ೧೯೩೦ ರಲ್ಲಿ ಪ್ರಕಟವಾದ ಮಿಂಚು ಸಂಗ್ರಹ ದ ಮುನ್ನುಡಿಯಲ್ಲಿ ನನ್ನ ಅಲ್ಪ ಸೇವೆಯಿಂದ ಸಮಾಜದ ಘಾತಗಳಿಂದ ಘಾಸಿಗೊಂಡಿರುವವರಿಗೆ ಸ್ವಲ್ಪವಾದರೂ ಮನಃಶಾಂತಿ ದೊರೆತಿತುಹಾಗೂ ಇವರನ್ನು ನೋಯಿಸುವುದು ದೇವನೂಪ್ಪದ ಕೆಲಸವೆಂದು ದಬ್ಬಾಳಿಕೆಯ ದರ್ಪದಲ್ಲಿ ಸತ್ಯ ಪ್ರೇಮಗಳಿಗೆ ತರ್ಪಣವನ್ನು ಕೊಟ್ಟಿರುವವರಲ್ಲಿ ತಿಳಿವು ಸ್ವಲ್ಪವಾದರೂ ಉಂಟಾದರೆ ನನ್ನ ದನ್ಯವೆಂದು ಭಾವಿಸುತ್ತೇನೆ." ಎಂದಿದ್ದಾರೆ.<sup>೧</sup>

ಅನಕೃ ಅವರು ತಮ್ಮ ಕಾದಂಬರಿಗಳಲ್ಲಿ ಓದುಗರ ಮನರಂಜನೆಗಿಂತ ವಿಚಾರ ಪ್ರಚೋದನೆ ಮತ್ತು ಭಾವಶುದ್ಧಿ ಅವರ ಗುರಿಯಾಗಿತ್ತು ಎಂದು ಅವರು ಹಲವೆಡೆ ಉಲ್ಲೇಖಿಸಿದ್ದಾರೆ. ಧರ್ಮ, ತತ್ವಜ್ಞಾನ ಮತ್ತು ಸಾಹಿತ್ಯ ಎಲ್ಲವುಗಳ ಉದ್ದೇಶ ಜೀವನವನ್ನು ಪವಿತ್ರಗೊಳಿಸಿ, ಅದನ್ನು ಶುಭಕರ ಮತ್ತು ಸಂಕುಚ್ಛವನ್ನಾಗಿ, ಮಾಡುವುದು ಎಂದು ಅವರು ಬಲವಾಗಿ ನಂಬಿದ್ದರು. ಸಂಸ್ಕೃತಿಯನ್ನು ಉಳಿಸಿ ಬೆಳೆಸುವುದು ಕಾದಂಬರಿಕಾರನ ಹೊಣೆಯೆಂದು ಅರಿತಿದ್ದ ಅನಕೃರವರು ತಮ್ಮ ಪ್ರಕೃತಿಯಲ್ಲಿ ಆದರ್ಶವಾದಿ ಮತ್ತು ವಾಸ್ತವವಾದಿ ಪ್ರವೃತ್ತಿಗಳಲ್ಲಿ ಸಮತೋಲವನ್ನು ಸಾಧಿಸಲು ಯತ್ನಿಸಿದರು. ಮನುಷ್ಯನ ಸ್ವಭಾವವನ್ನು ಯಥಾವತ್ತಾಗಿ ಚಿತ್ರಿಸುವುದು ಅವರ ಗುರಿಯಾಗಿದ್ದರೂ ಓದುಗರ ಮನಸ್ಸನ್ನು ಸಂಕುಚ್ಛವನ್ನಾಗಿ ಮಾಡುವುದು ಅವರಿಗೆ ಬೇಡವಾಗಿತ್ತು. ಎಚ್ಚರ ದಶಕದವರೆಗೂ ಜೀವಿಸಿದ

ಅನಕೃರವರು ಬದಲಾಗುತ್ತಿರುವ ಸಾಮಾಜಿಕ ಪರಿಸರಕ್ಕೆ ಸತತವಾಗಿ ಸ್ಪಂದಿಸಿದರು. ಅನಕೃರವರ ಒಲವು ಬಿಡುಗಡೆಗಿರದ ನಂತರದ ಬದುಕಿಗಿಂತ ಪಾರಂಪರಿಕ ಮೌಲ್ಯಗಳಲ್ಲಿ ಶ್ರದ್ಧೆಯುಳ್ಳ ಗ್ರಾಮಜೀವನದ ಕಡೆಗೆ ಬಹಳ ಗಾಢವಾಗಿತ್ತು ಎಂಬುದು ತಿಳಿದುಬರುತ್ತದೆ. ಅವರು ತಮ್ಮ ಅನೇಕ ಕಾದಂಬರಿಗಳಲ್ಲಿ ಆ ಗ್ರಾಮಜೀವನವನ್ನು ನೆನಪಿಸಿಕೊಂಡು ಮನಃ ಸೃಷ್ಟಿಸಿದರು. ಸಂಧ್ಯಾರಾಗದಷ್ಟು ಪೂರ್ವದಲ್ಲಿ ಕಾಣಿಸಿಕೊಂಡ ಈ ಪ್ರವೃತ್ತಿ ಐವತ್ತರ ಮತ್ತು ಅರವತ್ತರ ದಶಕಗಳಲ್ಲಿ ಇನ್ನೂ ಬಲಿಷ್ಠವಾಗಿತ್ತು. ಬಹುಶಃ ಅಧುನಿಕ ಸಮಾಜ ವೇಗದಿಂದ ಒಡೆದು ಹೋಗುತ್ತಿರುವ ಪ್ರಕ್ರಿಯೆಯೇ ಇದಕ್ಕೆ ಕಾರಣೀಭೂತವಾಗಿರಬಹುದು. ಗೃಹಲಕ್ಷ್ಮಿ (೧೯೫೩) ರುಕ್ಮಿಣಿ (೧೯೫೪) ಮತ್ತು ತಾಯಿಮಕ್ಕಳು (೧೯೫೫) ಕಾದಂಬರಿಗಳು ಇಂತಹ ಪ್ರಕಾರಕ್ಕೆ ಉತ್ತಮ ನಿದರ್ಶನವಾಗಿವೆ.

ಶ್ರದ್ಧೆ, ಕರುಣೆ, ವಿಶ್ವಾಸ ಮತ್ತು ಪ್ರಾಮಾಣಿಕತೆಗಳಂತಹ ಮೌಲ್ಯಗಳನ್ನೊಳಗೊಂಡ ಸಮಷ್ಟಿ ಜೀವನದ ಪರಿಪೂರ್ಣ ಚಿತ್ರ ಗೃಹಲಕ್ಷ್ಮಿಯಲ್ಲಿದೆ. ಈ ಕಾದಂಬರಿಯ ಪ್ರಮುಖ ದಾತ್ರಗಳಾದ ಮಾಧವರಾಯ ಮತ್ತು ರುಕ್ಮಿಣಿಯವರ ಜೀವನದ ಬಗೆಗಿನ ಎರಡು ಮೂಲಭೂತ ದೃಷ್ಟಿಕೋನಗಳನ್ನು ಪ್ರತಿನಿಧಿಸುತ್ತಾರೆ. ಭಾರತೀಯ ಸಂಸ್ಕೃತಿಯಲ್ಲಿಯೇ ಹುಟ್ಟಿದ ಇವುಗಳಲ್ಲಿ ಒಂದು ಮಾನವತಾವಾದ, ಇನ್ನೊಂದು ದೈವವಾದ. ವಕೀಲ ಮಾಧವರಾಯರ ಯಶಸ್ಸಿನ ಹಿಂದೆ ಅನೇಕ ಶಕ್ತಿಗಳು ದುಡಿಯುತ್ತವೆ. ಅನಿಷ್ಟ ಪ್ರವೃತ್ತಿಗಳಾದ ಈರ್ಷ್ಯೆ, ಕ್ಷುಲ್ಲಕತನ ಮುಂತಾದವುಗಳನ್ನು ಕಾದಂಬರಿ ಅಲಕ್ಷಿಸುವುದಿಲ್ಲ. ಆದರೆ ಇವು ಒಳ್ಳೆಯತನದ ವಿರುದ್ಧ ನಿಂತು ಗೆಲ್ಲಲಾರವು ಎಂಬ ನಂಬುಗೆ ಈ ಕಾದಂಬರಿಯ ವೈಚಾರಿಕತೆಯ ತಳಹದಿಯಾಗಿದೆ. ಅನಕೃರವರ ಒಂದೇ ಕಾದಂಬರಿಯ ಎರಡು ಭಾಗಗಳಾದ ಅತೀರ್ವಾದ (೧೯೫೫) ಮತ್ತು ಅನುಗ್ರಹ (೧೯೫೫) ಭಾರತೀಯ ಸಂಸ್ಕೃತಿ ಇನ್ನೂ ತನ್ನ ಗಟ್ಟಿತನವನ್ನು ಕಾಪಾಡಿಕೊಂಡಿದ್ದು ಅದು ತನ್ನ ದೃಷ್ಟಿಯನ್ನು ಕಳೆದುಕೊಂಡಿಲ್ಲವೆಂದು ತೋರಿಸುತ್ತವೆ.

ಅನಕೃ ರ ಹೆಂಗುರುಳು (೧೯೫೮) ಅವರ ಅತ್ಯಂತ ಶ್ರೇಷ್ಠ ಮತ್ತು ಪ್ರಾಮಾಣಿಕ ಕೃತಿಗಳಲ್ಲೊಂದಾಗಿರುವುದರಿಂದ ಅದನ್ನು ಇಲ್ಲಿ ಉಲ್ಲೇಖಿಸುವುದು ಅತ್ಯಂತ ಅವಶ್ಯಕವಾಗಿದೆ. ಈ ಕಾದಂಬರಿಗಳಲ್ಲಿಯ ವಿಭಿನ್ನ ಪಾತ್ರಗಳ ಕುರಿತು ಮಾತನಾಡುತ್ತ ದೇವಮ್ಮ ಅಜ್ಜ ಮತ್ತು ಶ್ರೀಕಂಠಯ್ಯ ಭವ್ಯವಾದ ಭಾರತೀಯ ಸಂಸ್ಕೃತಿಯ ಶ್ಲೇಷ ಛತ್ರದ ಕೆಳಗೆ ಬೆಳೆದವರು. ಅವರು ಜೀವನದ ತಿರುಳನ್ನು, ಪ್ರೀತಿಯ ಹಿರಿಮೆಯನ್ನು ಅರಿತವರು ಎಂದು ಹೇಳಿದ್ದಾರೆ. ಇವರೆಲ್ಲ ಗ್ರಾಮೀಣ ಪರಿಸರದಲ್ಲಿಯೇ ಬೆಳೆದವರಾದರೂ ದೂರದ ನಗರದಲ್ಲಿ ಬೆಳೆದ ಪಾರ್ವತಮ್ಮ ಮತ್ತು ಅವಳ ಮಗಳು ಮನೋರಮಾ ಅವರನ್ನು ಪ್ರಭಾವಿಸುತ್ತಾರೆ. ಗೌರಿ ನರಸಿಂಹಯ್ಯನವರ ಮನೆತನ ಭಾರತದ ಗ್ರಾಮೀಣ ಸಂಸ್ಕೃತಿಯ ಉತ್ತಮ ಪ್ರತೀಕವಾಗಿ ಕಾದಂಬರಿಯಲ್ಲಿ ಮೂಡಿ ಬಂದಿದೆ.

ಲೈಂಗಿಕ ವಿಷಯಗಳನ್ನು ಕುರಿತು ಅನಕೃ ಅವರು ಅನೇಕ ಕಾದಂಬರಿಗಳನ್ನು ಬರೆದರು. ಆದರೆ ಅವುಗಳಲ್ಲಿ ಬಹಳಷ್ಟು ತಾತ್ವಿಕತೆಯ ಕೊರತೆಯಿಂದ ಮಹತ್ವವನ್ನು ಕಳೆದುಕೊಳ್ಳುತ್ತವೆ. ಶ್ರೀಮತಿ (೧೯೫೪) ಮತ್ತು ಗೌರಿ (೧೯೫೮)ಯಂತಹ ಒಳ್ಳೆಯ ಕೃತಿಗಳಿಗೂ ಕೂಡಾ ಈ ಮಾತು ಅನ್ವಯಿಸುತ್ತದೆ. ಶ್ರೀಮತಿಗೆ ಬರೆದ ಮುನ್ನಡಿಯಲ್ಲಿ

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OP - 9

## Synthesis of SnO<sub>2</sub> Nanoplates for Degradation of Orange – G dye

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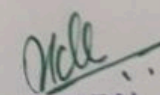
Email: [pspatilgss@gmail.com](mailto:pspatilgss@gmail.com)

### Abstract:

The Tin oxide (SnO<sub>2</sub>) nanoparticles were synthesized using simple chemical reduction method. Acetonitrile is used as the solvent for the preparation of nanoparticles where as sodium borohydride acts as reducing agent to produce Tin oxide nanoparticles. Synthesized nanoparticles were subjected to optical and morphological studies using UV – Visible spectrometer and Transmission electron microscopy techniques. The absorption peak at 290nm with a satellite peak at 320nm indicates the formation of tin oxide nanoparticles. The TEM images show the poly dispersed nanoparticles with size ranging from the 20 – 150nm nanoparticles. The catalytic activity of the synthesized nanoparticles was explored by studying the catalytic degradation of Orange - G dye. The catalytic process follows first order Langmuir – Hinshelwood kinetics. The apparent rate constant 'k' of 0.005s<sup>-1</sup> has been observed. The synthesized nanoparticles clearly demonstrate the catalytic behaviour. Synthesized nanoparticles may be used in industrial waste water treatment plants.



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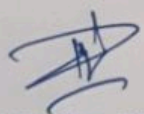


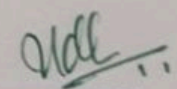
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## NANOMATERIALS IN MEDICINE

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Advancement in the field of nanotechnology and its application to the field of medicines and pharmaceuticals has revolutionized the twentieth century. Nanotechnology is the study of extremely small structures. The prefix 'nano' is a Greek word which means 'dwarf'. The word "nano" means very small. Nanotechnology is currently one of the fastest growing scientific fields. Nano medicine is the application of nanotechnology to the field of medicine by the use of a material at the nanometer scale. The most common application of nano medicine involves employing nano particles to enhance the action of drugs in treatment. There has been a considerable research interest in the area of drug delivery systems using nanoparticles. Nanostructured biomaterials have unique physiochemical properties such as ultra-small and controllable size, large surface area to volume ratio, high reactivity and functionalizable structure. It alter and improve the pharmacokinetic and pharmacodynamic properties of various types of drug molecules that are capable of targeted delivery of both imaging agents and anticancer drugs and early detection of cancer lesions, determination of molecular signatures of the tumor by noninvasive imaging and most importantly molecular targeted cancer therapy. Along with this I have mentioned the other applications of NanoMaterials in medicine such as use of Bismuth nanoparticles, nanospongers, nanotubes, nanogenerator technologies, nanoparticles for early detection and diagnosis of infectious diseases, early detection of kidney damage, cardiovascular imaging, chemotherapy and tumor detection.

  
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## GLOBAL IMPACT OF COVID 19 ON TOURISM

**Yashwanthrao. B. Dalvi**

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Department of Botany,  
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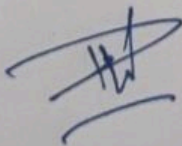
### ABSTRACT


Globally the tourism industry has come to halt due to pandemic Covid 19. The transportation by roadways, railways and waterways has been cancelled. International tourist destinations are closed. Tourist destinations like hill stations, religious places, heritage places, resorts, hotels, jungle lodges, nature camps, historical tourist destination has shut down. About 50% of employees have lost their job in tourism sector. The tourism industry slowly can be boosted by domestic tourism following certain rules and regulations, maintaining hygiene and sanitation. Thereby initiating tourism in india and globally also.

**KEY WORDS:** Global, Covid 19, Impact, Tourism.

### INTRODUCTION

Tourism is one of the major contributors of economy to the country. Travel & tourism industry in India has been a significant contributor to the country's GDP. The sector even generates a large employment base [2]. The major tourism dependent country is Thailand, Malaysia, Nepal, Bhutan, Singapore, Dubai etc these countries are hardly hit and their economy has come down. The reason is the Covid 19 pandemic started first in Wuhan, china on 11 February 2020.

  
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IMPACT OF  
**nCOVID-19** ON  
HIGHER EDUCATION

*Nelli*  
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## Covid 19 and Its Impact on Travel and Tourism

**Yashwanthrao B Dalvi**

*Department of Botany, GSS College, Belgaum.*

*Email ID: yashwanthraobdalvi@gmail.com*

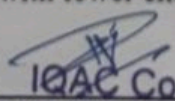
### **Abstract**

The travel and tourism companies have been hit harder by (Covid-19) pandemic. The various sectors like flights, buses, Trains, lodges, resorts, restaurants and tourist places have been closed. Most of the employees have lost their jobs. International tourism economy in 2020 has declined to 60-80 %. The countries have come up with measures to support tourism. They are thinking of slowly lifting the ban travel restriction, develop confidence in traveler and to restore tourism and travel in future.

**Key words:** Covid-19; Impact; Travel; Tourism.

### **Introduction**

Over the past tourism is one of the major contributors for economic growth of the country [1]. Provides numerous job opportunities. COVID- 19 called as Corona virus came into existence on 11 February 2020. On 30 January 2020 the outbreak was declared as International health emergency. This disease was first diagnosed in China (Wuhan), when a patient was suffering from pneumonia of unknown cause. It is pandemic about 155 countries have become the victim of this disease. The tourism sector is hardly hit in china, Asia and Europe [3]. High mortality rates are observed in Asia, Europe and the Americas. Italy, China, the US, Spain and France. Many of them have died especially the old people are more prone to the disease. But the disease is not fatal. Italy, china, Spain, Germany and of course US have lost many lives. The pandemic has created fear in the minds of People. Due to fast spreading and increasing COVID 19 cases travel and tourism has totally stopped in all the countries. The boundaries of respective countries are sealed. The flights are cancelled. Trains are stopped. The Bus transportation is halted. The cruise ship sailing is stopped. Tourist places like Kathmandu, Berlin, Rome, Paris, New York, Thailand, Malaysia etc has stopped people entering to these places. In Spain, Italy about 14% of the GDP is contributed by tourism [5]. The tourism agency and the employees have lost their job. About 50% of the jobs are reduced in tourism. The employees are given 50% of the salary. In the month of April and May India lost the revenue of Rs. 69,400 crore in travel and tourism [2]. No doubt online work is in progress in travel and tourism agencies but with fewer employees.

  
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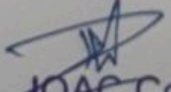
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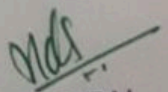
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## Preparation and Characterizations of Cadmium Substituted Cobalt Ferrite Nanoparticles

Priyanka P. Kashid <sup>a</sup>, Shridhar N.Mathad <sup>a</sup>, Mahadev Shedam <sup>b</sup>, Akshay B.Kulkarni <sup>c</sup>

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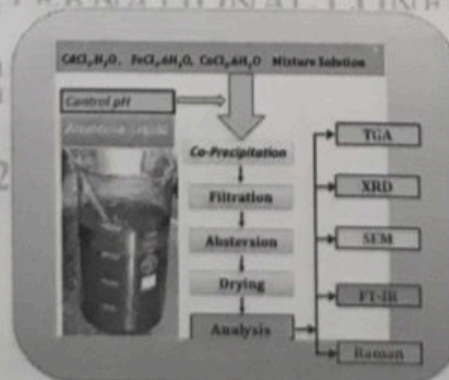
E-mail: [physicssiddu@gmail.com](mailto:physicssiddu@gmail.com)

### Abstract

The series of cadmium doped cobalt ferrite ( $\text{Co}_{(1-x)}\text{Cd}_x\text{Fe}_2\text{O}_4$ ) with  $x = 0.08, 0.16, 0.24, 0.32, 0.40, 0.48$  nanoparticles (NPs) have been successfully synthesized by simple, low cost coprecipitation method at room temperature. The structural analysis have been done by using X-ray diffraction spectroscopy, Fourier transform infrared spectroscopy, Scanning electron microscopy and RAMAN spectroscopy characterizations. The decomposition behaviour of salts and their degradation was carried out by TGA-DTA analysis. XRD measurement confirms that formation of particles of single phase spinal cubic structure. Scanning electron microscopy studied the surface morphology of samples. The detailed about material parameters such as crystallite size ( $D$ ), lattice constant ( $a$ ), micro strain ( $\epsilon$ ), X-ray density ( $\Delta\rho$ ), hopping lengths ( $L_A$  and  $L_B$ ), bond lengths (A-O and B-O) and mechanical properties were measured and comparatively analyzed.

### Graphical Abstract

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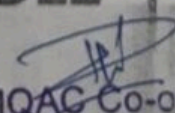
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August 04-07, 2020**

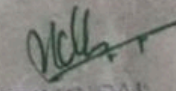


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detection range (LDR), limit of detection (LOD) and technique used are presented. The present work also compared to various electroanalytical sensors utilized for the determination of responses were near-Nernstian (-55.3, -52.6 mV/concentration decade) for PVC and screen printed electrodes, and super-Nernstian (161.2 mV/concentration decade) for the carbon paste electrode. Lower limit of detection ( $8.2 \times 10^{-6}$  mol L<sup>-1</sup>) and improved selectivity over the highly interfering anions were obtained in comparison with the previously reported sensors.

## **OC-08 : Unsymmetrical Thioureas And Their Derivative Synthesis; Spectral Characterization; Molecular Osiris And Admet Evaluation**

**Chetna Bhagoji, Tasneem Taj\***

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Unsymmetrical thioureas operate as building blocks in the synthesis of heterocycles. These have earned interest in the preparation of a wide variety of biologically vital compounds. The synthesis of unsymmetric thioureas was investigated considering the study of symmetric ones having a notably wide array of applications. These compounds and their derivatives evince unveiling antiviral, anticancer, anticonvulsant, analgesic. The versatility of these derivatives, varied methods have delineated there-by offer easy access and outstanding yields. Thiosemicarbazones have been acknowledged under medicinal studies for their biological activities like

antineoplastic, antimycobacterial, etc. Thiosemicarbazones are probe as iron-chelating groups gaining tremendous interest in the development of antibacterial drugs. The sole purpose of the investigations conducted in this work was to synthesize a series of unsymmetrical thioureas from substituted amines and thiourea giving substituted phenyl thioureas, thiosemicarbazones and semicarbazides through highly efficient syntheses. The final synthesized compound was semicarbazide by carrying out a diazotization reaction with thiourea and  $\beta$ -naphthol. The products were characterized by melting points which were recorded in open tubes and were uncorrected. IR spectroscopic technique recorded on the I.R. SHIMADZU-410 instrument. The  $^1\text{H-NMR}$  spectra of the compounds were recorded using the  $^1\text{H-NMR}$  BRUKER 300MHz instrument using TMS as an internal reference and  $\text{CDCl}_3$  as solvent. The synthesized compounds were analyzed by Molecular Osiris Property Explorer and ADMET software which gave *clogP*, solubility, TPSA, drug likeliness, and drug score as per the Lipinski's rule.

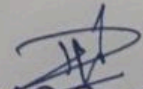
## **OC-10 : Phenyl Ester Synthesis Manoeuvre Bases, Ptc Catalysts; Their Molecular Osiris Property Explorer Evaluation**

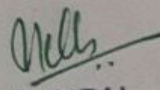
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*P.G. Dept of Chemistry, Govindram Seksaria Science Degree College, Belgaum, Karnataka, India-*

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Substituted phenyl esters are aromatic fatty acid metabolites of phenylalanine with potential antineoplastic

  
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activity. Naturally occurring in mammals, phenylesters induces differentiation, growth inhibition, and apoptosis in tumor cells. In view of the above significance of the compounds in this study we have synthesized substituted phenyl esters using catalysts like bases, diphenyl carbonate, PTC- tetrabutyl ammonium bromide. The synthesis included reactions of substituted phenols and benzoyl chloride. These reactions were catalyzed by bases like NaOH, pyridine which gave poor yields. The other catalysts used were diphenyl carbonate and tetrabutyl ammonium bromide which gave moderate to excellent yields. PTC gave excellent yields because of the heterogenous catalysis. Dichloro methane is a moderately polar solvent. The solvent polarity of dichloro methane is 3.1 which helps in the completion of the reaction. The synthesized products were characterized by their melting points which were recorded in open tubes and were uncorrected. IR spectroscopic technique recorded on the I.R. SHIMADZU-410 instrument. The  $^1\text{H-NMR}$  spectra of the compounds were recorded using the  $^1\text{H-NMR}$  BRUKER 300MHz instrument using TMS as an internal reference and  $\text{CDCl}_3$  and DMSO as solvents. The synthesized compounds were evaluated using Molecular Osiris Property Explorer which gave mutagenic, tumorigenic, irritant, reproductive effect, *clogP*, solubility, TPSA, druglikeness and drugscore. These properties evaluation followed Lipinski's rule . Lipinski's rule of five is a thumb rule to evaluate drug-likeness or to determine if a compound with a certain pharmacological activity has properties that would make it a likely orally active drug in humans. *o*-tolyl benzoate

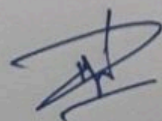
gave very good, *p*-tolyl benzoate gave moderate and 4-nitrophenyl benzoate gave less drug scores.

## **OC-11 : Exploring Carbon Nano Tubes role in drug delivery systems for cancer treatment**

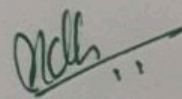
**Raju Hajare**

*Electronics and Telecommunication Engineering Department, BMS  
Institute of Technology & Management, Bangalore, Karnataka, India  
E-mail: rajuhajare@bmsit.in*

Recent advances in material science demonstrate that carbon-based composites play a vital role giving rise to field nano medicine. This hold great promise in majorly dangerous diseases like cancer treatment. Nano particles enter human body in different ways, it may include in injection form, penetration through skin and inhalation etc. Carbon nano tube structure have been analyzed based on existing research for understanding. In this review, various finding of CNT including its surface chemistry, size and also functionality factors determine the toxicity. CNTs have physicochemical properties which has drawn lot of research interest among material scientists. Apart from its cellular imaging with diagnostic effects in medicine are also promising drug carriers in drug delivery systems in the cancer treatment. Here detailed studies show that exploration of CNTs role in delivering the drug targeting the affected cells in human body. Detailed review also acknowledges the challenges and constraints of CNTs in the medical field.



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A rapid, improved and eco-friendly synthesis of thiopyrimidines is carried via one-pot multicomponent reaction of substituted indole-3-carboxaldehydes (**1a-c**), ethylcyanoacetate **2** and thiourea **3** in the presence of ethanolic  $K_2CO_3$  using conventional heating method. The application of multi-component reactions involves the combination of multiple starting materials with different functional groups leading to the highly efficient and environmentally friendly construction of multifunctional molecules (**4a-c**). The structures of all these unknown compounds have been confirmed with the help of elemental analysis, IR,  $^1H$  &  $^{13}C$  NMR and mass spectral data. All these previously unknown synthesized compounds screened for their antimicrobial and antitubercular activities. The compounds **4a** exhibited potent/equipotent antimicrobial and antitubercular activities.

### **OC-29 : Comparative Studies On Synthesis Of Dihydropyrimidine Derivatives By Bignelli Reactions Using Green Synthesis And Conventional Methods And Their Spectral Studies**

**Vinayak Bellad<sup>1</sup>, Akshay Chougule<sup>2</sup>, Vishal Kole<sup>3</sup>**

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Multi component reactions are being carried out instead of multistep synthesis because of the efficiency, cost effectiveness, easy operations, high product complexity and large molecular diversity. Bignelli reaction is an example of one such reaction. Which includes condensation of aldehyde,

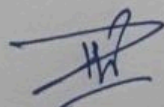
a  $\beta$ -keto ester, a urea or thiourea yields 3,4-dihydropyrimidin-2(1H)-one/thiones. The pyrimidine derivatives were synthesized in large quantities due to their abundant usage in medicines as antibacterial, antifungal, antihypertensive, anticancer, antiHIV etc. The 3,4-dihydropyrimidine-2(1H)-one/thiones have been synthesized by utilizing different types of catalysts and under solvent free conditions. By the introduction of green chemical method in the synthetic process, we have avoided use of hazardous chemicals. In the present work a simple & efficient procedure for synthesis of 3,4-dihydropyrimidin-2(1H)-ones derivatives has been reported with caffeine as green, eco-safe, solid catalyst which functions in solvent free conditions. The methods were reported as usage of solid catalyst, solvent free conditions which are, mild, inexpensive, non-toxic, biodegradable and eco friendly. The reaction progress was followed by TLC analysis and the chemical structure confirmed by spectroscopic analysis (IR and NMR).

### **OC-31 : Quinine-Based Semisynthetic Ion Transporters with Potential Antiproliferative Activities**

**N. Akhtar:<sup>a</sup> N. Pradhan:<sup>a</sup> G.K. Barik:<sup>b</sup> S. Chatterjee:<sup>c</sup> S. Ghosh:<sup>d</sup> A. Saha:<sup>a</sup> P.Satpati:<sup>d</sup> A. Bhattacharyya:<sup>c</sup> M. K. Santra:<sup>\*b</sup> D. Manna:<sup>\*a</sup>**

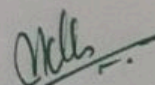
*<sup>a</sup>Department of Chemistry and <sup>d</sup>Department of Bioscience and Bioengineering, Indian*

*Institute of Technology Guwahati, Guwahati, Assam 781039, India*



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# POSTER PRESENTATION

## ORGANIC CHEMISTRY SECTION

### OC-01 : Functional Group Transformation of Carbonyl and Hydroxyl Groups; Spectral Characterization and Molecular Osiris Property Evaluation

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Recent years have witnessed a great deal of interest in the synthesis and characterization of Schiff bases. Several reports have shown that the presence of lone pair of electrons in  $sp^3$  hybridized orbital of nitrogen atom of the azomethine group has considerable chemical and biological importance like anti-oxidant, anti-cancer and anti-tubercular etc. chalcones possess a wide variety of cytoprotective and modulatory functions. Oximes have been used to synthesize compounds like carpolactum. Coumarin derivatives display a remarkable array of pharmacological and biochemical activities. These are pointed up as anti-viral, antimicrobial and antifungal drugs. In the present synthesis N,N dimethyl aniline was reacted with 2,4 DNP, p-nitroaniline to yield Schiff bases. N,N dimethyl aniline was reacted with acetophenone and hydroxyl amine to yield chalcone and oximes. The other part of the synthesis included reaction of resorcinol and ethylacetoacetate to yield 4-methyl-7-hydroxy coumarin. This

substituted coumarin was reacted with acetyl chloride and benzoyl chloride to yield acetylated and benzoylated compounds. The synthesized compounds were characterized by melting points which were determined in open capillary tubes and were uncorrected. IR of the compounds were recorded on I.R. SHIMADZU instrument. The spectra were determined in KBr pallets. The  $^1\text{H}$  NMR spectra of the compounds were recorded using  $^1\text{H}$  NMR BRUKER 300 MHz instrument. TMS was used as internal reference.  $\text{CDCl}_3$  was used as solvent. The synthesized compounds were analysed by Molecular Osiris Property Explorer which is based on Lipinski's rule of five. All the synthesized compounds shown good drugscore. Coumarin and its derivatives did not show any toxic properties. Hence can become potent drug.

## **OC-02 : Studies on metal (II) complexes of bisazo dye 2, 2<sup>1</sup> [benzene-1, 3-diyl di (E) diazene 2, 1-diyl] dianiline**

**Anitha<sup>1</sup>, Vittalarao K.S.<sup>2</sup>**

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Co (II), Cu (II), Mn (II), Ni (II) and Zn (II) complexes of a novel bisazo dye 2, 2<sup>1</sup> [benzene-1, 3-diyl di (E) diazene 2, 1-diyl] dianiline were synthesized. Characterization of the ligand and metal complexes has been done on the basis of elemental analysis, mass, FT-IR,  $^1\text{H}$  NMR, magnetic data and thermal analysis (TGA). From the analytical and thermal data,

the stoichiometric ratio of the complexes has been found to be 1:1(metal-ligand). On the basis of physico-chemical data octahedral and square planar geometries were assigned for the azo complexes.

## **OC-06 : Design, Synthesis and Characterization of 1,3,4-Thiadiazole, 1,2,4-Triazole and 1,3,4-Oxadiazole; Molecular Osiris Property Evaluation**


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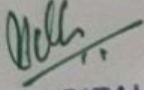
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Triazole, thiadiazole and oxadiazole are sub class of azole compounds belonging to five membered heterocyclic molecules containing nitrogen and atleast one other then carbon atom *viz.*, nitrogen in triazole, sulphur in thiadiazole, oxygen in oxadiazole. These compounds and their derivatives revealed a broad spectrum of biological properties in, pharmaceutical such as virucidal, anti-HIV, CNS-depressant, anti-tubercular, anti-inflammatory, anti-microbial, etc., and agrochemical field like insecticidal, herbicidal. The derivatives of 1,3,4-thiadiazole, 1,2,4-triazole, 1,3,4-oxadiazole reported biological applications like antifungal, anti-HIV, which gained tremendous interest in the development of pharmaceutical drugs. In the present work, *p*-cresol was treated with monochloroacetic acid which yields 2-(*p*-tolyloxy) acetic acid; which on esterification gave an ester. The ester was reacted with hydrazine hydrate gave 2-(*p*-

  
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*p*-tolylloxy) acetohydrazide. The acetohydrazide on treatment with methanol yielded 2-methyl-5-(phenoxymethyl)-1,3,4-oxadiazole. Acetohydrazide reacted with carbon disulphide and potassium hydroxide gave potassium salt of 2-(*p*-tolylloxy) acetomido dithiocarbamate intermediate. This intermediate on treating with acetic acid gave 5-(phenoxy methyl)-1,3,4-thiadiazole-2(3H) thione; and on treatment with hydrazine hydrate results 4-amino-5-phenoxymethyl-4H-1,2,4-triazole-3-thiol. The products were characterized by melting points which were recorded in open tubes and were uncorrected. The structure of these newly derived derivatives were established by IR spectroscopic technique using KBr pallets and <sup>1</sup>H-NMR spectra using TMS as an internal reference and CDCl<sub>3</sub> as solvent. The synthesized compounds were analyzed by Molecular Osiris Property Explorer and ADMET software which gave *clogP*, solubility, TPSA, drug likeliness, and drug score as per the Lipinski's rule. The synthesized compound 5-(phenoxy methyl)-1,3,4-thiadiazole-2(3H) thione shown good, 2-methyl-5-(phenoxymethyl)-1,3,4-oxadiazole shown moderate and 4-amino-5-phenoxymethyl-4H-1,2,4-triazole-3-thiol shown poor drug score.

**OC-09 : Facile *Phoenix sylvestris* sap mediated synthesis of gold nanoparticles and its diverse catalytic activity in formylation reaction and antimicrobial assay**

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