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Calcium incorporated copper indium oxide thin films - a promising candidate for transparent electronic applications

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ABSTRACT

This paper reports the possibility to fabricate transparent diodes with the configuration: Fluorine doped Tin Oxide/n-type copper indium oxide/p-type calcium doped copper indium oxide/Silver with better rectification ratio than that of the diodes with Sn-doped Copper Indium Oxide as the n-counterpart of p- calcium doped copper indium oxide. The ideality factor and turn on voltage of the former diodes are determined as ~1.1 and ~ 0.68 respectively while for the latter types they are ~2.38 and ~ 0.5 V respectively. In addition to this, the paper details the structural, morphological, optoelectronic and electrical properties of delafossite crystalline p-type calcium doped copper indium oxide thin films deposited by activated reactive evaporation in oxygen plasma followed by post air annealing. The temperature of crystallization of the films obtained here is the lowest crystallization temperature reported for the delafossite formation of this compound till date. Electrical transport mechanisms governing conductivities in the temperature range 55 – 430 K are also investigated.

1. Introduction

Transparent Conducting Oxides (TCOs) are unique in their ability to combine optical transparency as well as electrical conductivity in a single material [1]. The alluring combination of both these properties make them competent technological materials that are used in commercial applications like liquid crystal displays, flat panel displays, electromagnetic shielding devices and touch screen panels [2–5]. Development of functional p-n junctions solely using TCOs is a major goal for material scientists since this would open up the possibility of progress in transparent (invisible) electronics. This necessitates the development of good quality p and n type TCO materials.

Metallic oxides usually exhibit wide bandgaps because of the ionic character of their chemical bonds between metal cations and oxygen anions. This ionic nature not only suppresses the formation of shallow donors and acceptors but also encourages the localization of holes and electrons, imparting a restriction on electrical conductivity of these materials which challenges their application in devices. A solution to improve the electrical conductivity and existence of bipolarity in these transparent metal oxides has been suggested by Kawazoe et al. [6], where they proposed the introduction of a metal cation with closed d shell lying almost at the same energy level of O 2p, such that hybridization of the cation 'd' and the anion 'p' orbitals occurs resulting in the delocalization of valence band edge from oxygen to align it on the hybrid orbital, which in turn sets the holes free and attributes p-type conductivity to the material.

Delafossites are a group of Cu based or Ag based (A cations) metal oxides which consist of alternately stacked A cations and MO_2 (M = any III group element) perpendicular to the c-axis [7–14]. Each A cation is linearly coordinated with two oxygen atoms and MO_2 layers are arranged in the form of edge sharing MO_6 octahedra, leading to bipolarity in delafossites due to their peculiar layered structure. Here, the MO_6 layer provides a path for easy flow of electrons while O-A-O dumbbell layer acts as a conduction path for holes [10].

Out of a number of Cu based delafossite compounds, $CuInO_2$ (CIO) is the only compound which is reported to be amphoteric so far. With the induction of bipolarity in CIO through doping by Yanagi et al., it became the runner up following p-type $CuAlO_2$, the first p-type TCO fabricated. The conductivity of the Ca doped CIO (CIO:Ca) reported by them was $\sim 2.8 \times 10^{-1}$ S/m [10]. Teplin et al. fabricated CIO:Ca films by the method of Pulsed Laser Deposition (PLD) at a substrate temperature 823 K and reported an electrical conductivity of 3×10^{-1} S/m

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INQUISITION ON THE MECHANICAL AND MORPHOLOGICAL CHARACTERISATION OF NANO Mn_3O_4 OXIDE SPINEL/DGEBA NANOCOMPOSITES

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Abstract: This paper focuses on the reinforcing influence of nano Mn_3O_4 spinel exerted on the mechanical and morphological properties of epoxy resins, particularly with regard to fracture and toughening mechanisms. A comprehensive study on the nano Mn_3O_4/DGEBA nanocomposites containing varying amounts of nano Mn_3O_4 spinel was under consideration. The mechanical performance of the nanocomposites was characterized. The microstructure of specimens and the corresponding fracture surfaces were examined using SEM and TEM techniques in order to identify the relevant fracture mechanisms involved and to gain information about the dispersion quality of nanoparticles within the polymer. It was found that the presence of nanoparticles in epoxy resin induces various fracture mechanisms like crack deflection, plastic deformation, and crack pinning. The mixing ratio of resin/hardener was kept constant while the nanoparticle of 0.5, 1, 1.5, 2 and 2.5 wt% was incorporated into the system to investigate the mechanical and morphological properties.

Keywords: spinel, nanocomposites, fracture mechanism, crack deformation.

I. Introduction

Recently, polymer matrix nanocomposites have attracted significant academic and industrial interest. This interest stems from the fact that nanoparticle filled polymers can exhibit dramatic improvements in mechanical and morphological properties at low filler contents because of the strong synergistic effects between the polymer and particles on the nanometric scales. The potential properties enhancements of polymer matrix nanocomposites have led to increased application in various fields such as the automobile industry, electronic industry, packaging industry, coating industry and aerospace industry. DGEBA resins have been widely used as impregnating materials, adhesives or matrices for composites because of their excellent electric insulating properties, thermal characteristics, chemical resistance and low shrinkage during cure and ease in processing. However, the major problems with the resins for engineering applications are their low strength, brittle nature and stiffness when compared with metals. The rapid development in the fabrication of nanocomposites during the past few decades had led to a wide range of advances in the polymer field. Although utilization of nanoparticles as fillers in polymer materials to enhance physical and mechanical properties has attracted major attention, there has been special interest in researching and developing the structures of nanoparticles in polymers. The nanocomposites allowed one to tailor the properties of the particles by the choice of polymer matrix and surface compositions. Mainly, evolvements in the polymeric based nanoparticle composite materials are generating interest in several applications. These applications include utilizing nanoparticles in electronic and optical materials according to the properties of the metallic and semiconductor particles used. Furthermore, other applications include nanostructured catalysis in addition to utilizing nanoparticles in polymer-based scaffolds[1].

Modifiers less rigid than the polymer matrix may serve as excellent toughеners in matrices which show ductility to some degree. In rigid particle filled epoxies the toughening mechanism may comprise a combination of particle-matrix debonding, void formation around the particles and subsequent yielding of the inter-particle matrix ligaments [2-6]. Review of the literature shows that majority of the previous work employed thermoplastic, thermosets, nano fillers and elastomer compounds as toughening agents in epoxy systems [7]. Azeez et.al [8] have studied the properties and applications of epoxy clay nano composites in 2013. Nayak et.al have examined Effect of Epoxy Modifiers (Al_2O_3/SiO_2/TiO_2) on Mechanical Performance of epoxy/glass Fiber Hybrid Composites in 2014 [9]. In 2013 Xi Zhang et.al have worked on Iron-core carbon-shell nanoparticles reinforced electrically conductive

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Investigations on the effects of rGO incorporation on the photosensitivity of (Cd:Zn)S nanocrystalline thin film-based visible photodetectors by hydrothermal synthesis

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Abstract
Reduced graphene oxide-incorporated cadmium zinc sulphide (rGO–CZS) thin films were synthesised on glass substrates by hydrothermal-assisted chemical bath deposition. The effect of the rGO concentration (0.5–2 wt%) on the photosensitivity of the films was established along with the structural, morphological and optical properties of the composite films. The structural investigations by XRD analysis ensured that the prepared samples are nanocrystalline with hexagonal structure of cadmium zinc sulphide. Scanning electron microscopy showed aggregated sphere-like CZS nanoparticles enveloped with rGO flakes. The average particle size attained from TEM image is approximately 8 nm. The presence of various functional groups was scanned by FTIR analysis. Further, we established the characteristics of the rGO–CZS nanocomposite films as visible-light photodetectors. The photosensitivity, photo response and detectivity of the devices were found to increase with rGO concentration. (2 wt%) rGO–CZS detector exhibits highest photosensitivity of the order of 10^6, photoresponse of 18.5 mA/W and specific detectivity of 2.08×10^{12} Jones. This work demonstrates fast and simple preparation process of rGO–CZS visible-light detectors with high sensitivity, responsivity and good stability. The enhancement of sensitivity and responsivity can be attributed to the excellent electron conductivity and mobility due to the warm interfacial contact between CZS nanoparticles and the rGO sheet.

1 Introduction

Cadmium sulphide and zinc sulphide with direct electronic band gap of 2.46 eV and 3.6 eV, respectively, are researched extensively and their potential as light sensors was established. CdS is an optimised visible detector whereas ZnS is a UV detector. Their ternary alloy (Cd:Zn)S prepared by hydrothermal synthesis exhibits high photosensitivity [1]. Photodetectors with high figures of merit such as high detectivity, excellent responsivity, large on/off current ratio, broad spectral range and good stability are rarely reported. The lifetime of electron–hole pairs generated by the interaction of photons with semiconducting material is the crucial factor which governs the performance of a detector. On the other hand, the increase in the life time of electron–hole pairs through doping leads to slow response time. Therefore, we require a balance among lifetime of electron–hole pairs and outstanding response time [2, 3]. Graphene is an excellent photodetector material due to its exceptional properties such as wide optical absorption spectrum, wavelength independent absorption, high room-temperature electron and hole mobilities, mechanical flexibility and dynamic tunability in optical and electrical properties. Graphene layers can be employed as work-function tunable electrodes, while semiconductors such as (Cd:Zn)S are utilised as photoactive material, revealing strong light–matter interaction and photon absorption [4, 5]. By incorporating graphene into (Cd:Zn)S, multifunctional and high-performance devices may be created. When rGO is attached with the photosensitive nanomaterials, the rGO serves as a continuous pathway for electron transfer process from the molecules, and the composite is expected to be an extraordinary potential candidate for photoexcitonic charge generation [6]. These

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Effect of Dopant Precursor Solutions on the Structural and Optical Properties of ZnS:Cu Nanophosphors

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Nanoparticles of ZnS doped with Cu (ZnS:Cu) were prepared at room temperature by wet chemical method without any capping agent using two dopant precursor solutions-aqueous: (i) Copper acetate [ZnS:CA] and (ii) Copper nitrate [ZnS:CN] solutions. The characterization of the samples was carried out for the structural, surface morphological and optical properties. XRD analysis results revealed the formation of cubic structure ZnS:Cu particles with an average size of 2.5 nm. From diffuse reflectance spectral (DRS) studies the band gap was found to be higher than bulk due to quantum confinement effect. In Photoluminescence (PL) spectra a sulphur vacancy related blue emission around 432 nm and a green emission from the recombination between the shallow donor level and the t_2 level of Cu were observed. The ZnS:CN nanoparticles showed enhanced luminescence property compared with that of ZnS:CA nanoparticles.

Keywords: Nanophosphors, Capping Agents, Photoluminescence, Stress.

1. INTRODUCTION

Transition and rare earth metal ions doped ZnS nanoparticles are used as prominent phosphor materials for display, lighting, sensors and lasers. It is well known that among the transition metal ions Mn can be incorporated into nano ZnS host in large proportions without altering the crystal structure. Hence, studies on the growth and optical properties of ZnS:Mn have been conducted by several researchers. Because of its excellent luminescence properties, bulk ZnS:Cu phosphors are also well-studied luminescent materials. Since CuS precipitates earlier than ZnS during the synthesis, studies of nano ZnS:Cu have not been carried out as widely as ZnS:Mn nanoparticles. Most of the synthesis methods of nanophosphors with capping agents or surfactants cause undesirable luminescence centers; subsequently the PL emission process becomes more complex. Hence, it is advantageous to attain efficient PL emission from uncapped nano ZnS:Cu. Many researchers reported the PL emission of ZnS:Cu nanoparticles in different ways [1–4]. In our present work, for the excitation wavelength of 340 nm, we have observed the two emissions-blue emission around 432 nm and green emission around 522 nm. This paper discusses the preparation of uncapped ZnS:Cu (ZnS:CA and ZnS:CN) nanocrystals from two dopant precursor solutions by wet chemical method and has been characterized by X-ray diffraction (XRD), scanning electron microscopy (SEM), energy dispersive X-ray spectroscopy (EDS), diffuse reflectance spectroscopy and photoluminescence (PL) techniques.

2. MATERIALS AND METHODS

2.1. Chemicals

Zinc acetate [$Zn(CH_3COO)_2$, Spectrum Reagents, 98%], copper acetate [$Cu(CH_3COO)_2$, Sigma Aldrich, 99%], copper nitrate [$Cu(NO_3)_2$, Sigma Aldrich, 99%] and sodium sulphide [Ns_2S, Merck] were used as received, without additional purification.

2.2. Synthesis

Two different dopant precursor solutions viz; aqueous copper acetate and aqueous copper nitrate solutions were attempted for the preparation of ZnS:Cu nanocrystals. These nanoparticles were synthesized by wet chemical method similar to our previous work [5]. In the procedure, 25 ml of 0.0005 M dopant precursor solution was added

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Research Article

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Optical and antimicrobial properties of silver nanoparticles synthesized via green route using honey

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Abstract: Among the various green synthesis methods for nanoparticle synthesis, the honey-mediated green synthesis of nanoparticles is a fast, safe, biocompatible, and cost-effective method. In the present work, we demonstrate the sunlight-induced honey-mediated synthesis of silver nanoparticles and report the effect of light intensity, its color, and exposure time on the formation of nanoparticles. The visual inspection followed by UV-Vis spectral studies was performed to confirm the formation of silver nanoparticles. The HRTEM measurement confirms the formation of polydispersed silver particles. We further report the excellent antimicrobial activity of the synthesized nanoparticles against various strains of bacteria, which is found to be comparable to that of the antibiotic drug of choice. Our study points to further research on the possibility of considering these green synthesized silver nanoparticles as an alternative to antibiotics.

Keywords: green synthesis, silver nanoparticles, antimicrobial activity, optical properties

1 Introduction

There have been rapid advances in nanotechnology in recent years. The increasing environmental issues related to the nanoparticle synthesis have attracted the researchers toward the green synthesis of nanoparticles as a step toward a sustainable and eco-friendly environment. In the green synthesis of nanoparticles, green chemistry is integrated with nanotechnology to create an environment-friendly, cost-effective, and safe synthesis of nanomaterials using biological resources [1,2]. The different approaches of green synthesis make use of resources such as microbial systems, plant systems, and biological materials. The demand for green synthesis keeps on increasing since the production of nanoparticles is cost-effective and eco-friendly [3,4]. The synthesis of metallic nanoparticles by green route is gaining attention due to the growing microbial resistance of disease-causing microorganisms against antibiotics and metal ions. Researchers have reported green synthesis of metal nanoparticles such as silver, gold, platinum, and palladium [5–17]. More focus has been on silver owing to its unique properties [18].

The green synthesis of silver nanoparticles using honey has been reported [14,19–24] where honey act as both a reducing and a stabilizing agent [14,19,22]. The sunlight-induced, honey-mediated synthesis is an easy and fast method for the synthesis of silver nanoparticles [21,25]. Although the anticorrosion properties of such nanoparticles have been reported [21], the antimicrobial properties of nanoparticle synthesized by our method has not been reported to our knowledge. In our previous work [25], we made an attempt to determine the nanoparticle size by employing the Mie theory. In this work, we report on the optical properties and the antimicrobial activity of the silver nanoparticles synthesized using natural honey. The only chemical used in the synthesis is the source of Ag^+ ions; silver nitrate is used in this study. The influence of exposure time, light intensity, and color of incident light on the formation of nanoparticles is specifically mentioned. The antimicrobial activity is compared with that of an antibiotic drug of choice.

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Article

Noninvasive and Noncontact Sequential Imaging of the Iridocorneal Angle and the Cornea of the Eye

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Keywords: aqueous outflow system; iridocorneal angle; trabecular meshwork; high-resolution imaging; Bessel beam; light sheet fluorescence microscopy; cornea; ocular imaging; glaucoma

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Purpose: High-resolution imaging of the critical anatomic structures of the eye, especially of the anterior chamber, in vivo, remains a challenge, even with currently available state-of-the-art medical imaging techniques. This study aims for the noninvasive and noncontact sequential imaging of the iridocorneal angle, especially the trabecular meshwork (TM) and the cornea of the eye in high-resolution using a newly developed imaging platform.

Methods: Bessel beam scanned light sheet fluorescence microscopy is used to attain high-resolution images of the TM. The ability of the Bessel beam to self-reconstruct around obstacles increases the image contrast at the TM region inside eye by reducing scattering and shadow artifacts. With minimal modifications, the excitation arm of the developed imaging system is adapted for noncontact, high-resolution corneal imaging.

Results: High-resolution images of the TM structures and cellular-level corneal structures are obtained in ex vivo porcine eyes, and subsequently in New Zealand white rabbit, in vivo. The spatial resolution of the developed system is 2.19 µm and has a noncontact working distance of 20 mm.

Conclusions: A high-resolution imaging platform for noncontact sequential imaging of the TM and the cornea of the eye is developed. This imaging system is expected to be of potential interest in the evaluation and diagnosis of glaucoma and corneal diseases.

Translational Relevance: The developed prototype offers the plausibility of in vivo, noncontact, and high-resolution imaging of the iridocorneal angle and cornea of the eye that will aid clinicians in diagnosing open-angle glaucoma and corneal diseases better.

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Formation and photoluminescence of ZnS:Tb nanoparticles stabilized by polyethylene glycol

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ABSTRACT

ZnS nanoparticles doped with 1 mol.% of Tb have been prepared at 70 °C by simple chemical precipitation method using poly ethylene glycol (PEG) as capping agent. The synthesized nanoparticles have been analysed using X-ray diffraction (XRD), Fourier transform infrared spectroscopy (FT-IR), photoluminescence (PL) and UV–Vis absorption spectroscopy. From X-ray diffraction analysis, it was found that nanostructured ZnS:Tb particles exhibited cubic structure with an average crystallite size of 2.75 nm. Room temperature photoluminescence (PL) spectrum of the doped sample exhibited broad emission in the visible region with multiple peaks at 395 and 412 nm due to $^5D_3 \rightarrow {}^7F_6$ and $^7F_5$ transitions and 492, 536, 600, 653 and 680 nm due to $^5D_4 \rightarrow {}^7F_6$, $^7F_5$,$^7F_4$,$^7F_1$and $^7F_0$ transitions.
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1. Introduction

Researchers have been taking enormous interest to synthesize semiconductor nano materials because of their size-dependent optoelectronic properties. Zinc sulphide (ZnS) is an important II-VI semiconductor material with remarkable optical properties due to its wide optical band gap of ~3.65 eV. The ZnS nanomaterials are non-toxic, with high temperature stability, chemical stability and exhibit good biological compatibility. Due to wide band gap ZnS is a suitable host material for the doping of RE and transition metal ions. ZnS doped with these optically active luminescent materials finds its applications in displays, LEDS, lasers, etc. [1–4]. It is known that ZnS doped with the rare-earth elements could be more valuable in amending the luminescence properties of ZnS due to their special 4f-4f intra-shell transitions. Hence ZnS nanocrystals doped with various RE ions can be used in producing efficient phosphor materials with a range of colors in red, blue, and green [5]. Therefore, the development of rare-earth activated luminescent materials has been the subject of wide research recently. Among the rare earth elements trivalent terbium ion (Tb) is well recognized as the highly competent green phosphor [6]. The trivalent terbium metal ion has $4f^8$ electronic configuration in ground state and $4f^7$, $5d^1$ electronic configuration in the excited state. After the absorption of energy, the excitation happens and intraelectronic transitions take place from $4f^8$ to $4f^7$ $5d^1$. When terbium ion comes to its ^7F_j ground level from $^5D_4$ and $^5D_3$lowest excited levels, the characteristic f-f emission transitions takes place. The green emission produced from $^5D_4 \rightarrow {}^7F_5$ transition in Tb provides a four-level laser system with a lower threshold pump power compared with that of Er^{3+} ions makes the Tb a promising ion for green lasing applications. Besides, Tb doped phosphors are environmentally friendly and more energy saving than mercury-containing fluorescent lamps [7–9]. Thus, terbium doped phosphors are appropriate for many technological applications like fluorescence lamps, cathode ray tubes, field emission displays and for many others [10–14]. Considering the wide applications of Tb doped materials, in this work we report the synthesis of 1 mol% Tb doped ZnS nanoparticles by the chemical precipitation method using poly ethylene glycol (PEG) as capping agent and its characterization by the X-ray diffraction (XRD), Fourier transform infrared spectroscopy (FTIR), UV–vis and PL spectroscopy.

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RESEARCH ARTICLE

Aluminium doping in iron oxide nanoporous structures to tailor material properties for photocatalytic applications

Julie Ann Joseph[1] · Sinitha B. Nair[1] · K. Aijo John[2] · Shinto Babu[1] · Sadasivan Shaji[3] · V. K. Shinoj[1] · Rachel Reena Philip[1]

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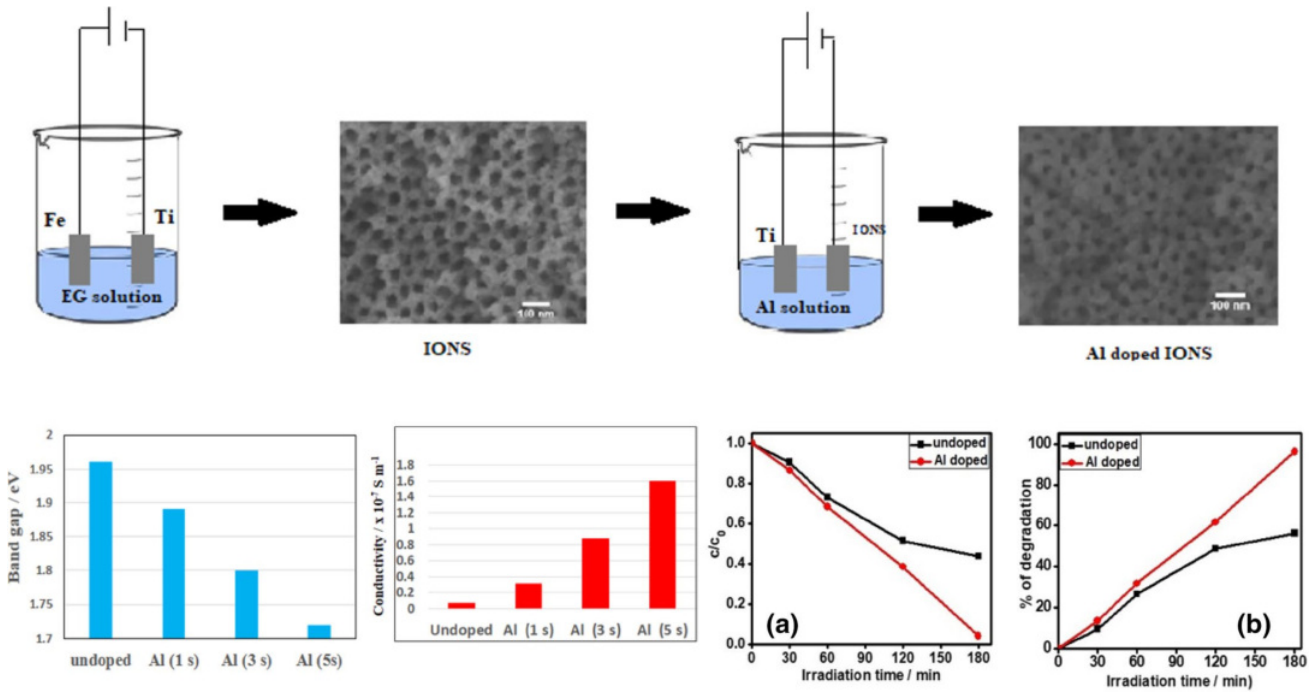
Abstract

In this study, metal doping of iron oxide nanostructures grown by anodization is successfully achieved by the simple cost effective technique of electrochemical doping. Structural and morphological characterizations of all the samples are done using X-ray diffraction, Raman spectroscopy and X-ray photoelectron spectroscopy in conjunction with field-emission scanning electron microscopy, respectively. A detailed analysis of the X-ray photoelectron spectra is done for all the samples to obtain the effect of aluminium doping on the multiplet peak positions of Fe 2p and different species of oxygen. Analysis of the valence band X-ray photoelectron spectra (VB XPS) reveals a displacement of 'valence band edge' towards higher energy on doping. The VB XPS coupled with optical data is used for evaluating the shift in the Fermi level towards the conduction band minimum, which indicates the formation of donor defect level on doping. The reduction in band gap from 1.96 to 1.72 eV and enhanced electrical conductivity on doping are observed to produce an improvement in the photo catalytic activity for aluminium-doped nanostructures compared to undoped.

Graphic abstract



Keywords Nanostructures · Iron oxide · Hematite · Electrochemical · Anodization · Valence band spectra · Photo catalysis

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Band structure and diode characteristics of transparent pn-homojunction using delafossite $CuInO_2$

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Abstract

Technologically relevant highly rectifying all transparent delafossite pn homojunctions with $CuInO_2$ as n-type layer and Ca doped $CuInO_2$ as p-type layer are fabricated by oxygen plasma assisted thermal evaporation method. The best diode gives a forward to reverse current ratio ~619, which is about 62 times than that reported to date in a delafossite pn homojunction, with an ideality factor of 2.42 and a cut-in voltage of 0.87 V. Optical transmittance is 50%–70% in the visible region. Junction capacitance is in picoFarads and it is independent of frequency in the range 2 kHz to 2 MHz at a reverse voltage of 5 V. The band structure of the transparent delafossite diode is deduced for the first time by a combined analysis of the valence band spectra from x-ray photoelectron spectroscopy and the optical data.

Keywords: delafossite, transparent pn-homojunction, transparent conducting oxides, valence band XPS, diode energy band diagram

(Some figures may appear in colour only in the online journal)

1. Introduction

With the advances in electronics, intense researches are being carried out towards the realization of transparent devices like transparent optoelectronic devices, transparent flat panel displays, automobile windows embedded with transparent circuitries that can suddenly flash important messages, transparent UV absorbers and detectors, etc [1–3]. This emerging field of invisible electronics or transparent electronics has transparent semiconductor junctions and transistors with specific properties for each application as the basic structure of all the devices. Transparent conducting oxides (TCO) are materials having high electrical conductivity with a very low absorption rate in the visible region of the electromagnetic spectrum [4, 5]. Many researchers have reported the fabrication of transparent heterojunction diodes with different transparent conducting oxides (TCOs), organic thin films and nanostructures forming the various layers. A survey of literature reveals that most of the works on transparent diodes are based on zinc oxide (ZnO) as its n-type layer and the maximum forward to reverse current ratio obtained with those pn heterojunctions is around 120 [6–15]. Wang *et al* [6] reported fabrication of a transparent pn junction with diamond as the p-layer and ZnO as the n-layer, with a forward to reverse current ratio as high as 120 and transmittance 50%–70%. But the preparation of this heterojunction required a laborious and highly expensive hot filament chemical vapour deposition method. Kudo *et al* [7] fabricated a heterojunction between p-$SrCu_2O_2$ and n-ZnO

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Al doping for bipolarity induction in transparent conducting $CuInO_2$ and its application in diode fabrication

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ABSTRACT

Al doping is used in transparent conducting $CuInO_2$ (CIO:Al) thin films for producing bipolar electrical conductivity. The doped thin films of electrical conductivity ~2 to 4 S/cm and mobility 10^0 to 10^1 V/cm^2 are deposited by oxygen plasma assisted reactive evaporation technique. The change in conductivity from n-to p-type with the variation in doping atomic percentage is confirmed by multiple techniques like hot probe, hall and Seebeck measurements. The as deposited amorphous films are found to assume 3R poly type delafossite structure after post air annealing at 673 K. The suitability of the doped films in transparent device fabrication is verified by construction and characterization of a diode with configuration FTO/n-CIO:Sn/p-CIO:Al/Ag.

1. Introduction

The discovery of transparent conducting delafossite compounds especially Cu based compounds has initiated rapid technological advancements in invisible electronics. Now a days TCOs have wide applications in variety of fields such as window defrosters of automobiles and airplanes, electrically controlled electrochromic smart windows, automatically dimming rear view mirrors of automobiles, in-built transparent radio antennas of automobile windows, touch screen panels, transparent electrodes of solar cells, infrared reflectors, electroluminescent as well as liquid crystal displays and also in active bipolar devices like p-n hetero junction diodes, p-n homo junction diodes, UV emitting diodes and bipolar p-n junction transistors[1–4]. Development of functional p-n junctions solely using TCOs is a major goal for material scientists since this would open up the possibility of progress in transparent (invisible) electronics. This necessitates the development of good quality p and n-type TCO materials. Up to 1997 all the known TCOs were n-type in their conductivity. Invention of $CuAlO_2$ by Kawazoe in 1997 triggered rapid technological advancements in invisible electronics. Reports on achievement of bipolarity by intrinsic or extrinsic defect formations in various TCOs in literature includes, p-type electrical conductivity due to some native defects in $CuAlO_2$ [5], p-type electrical conductivity by Mg doped $CuCrO_2$ due to substitution of Mg in Cr site (Mg_{Cr}) [6], p and n-type polarity of CIO by the substitution of In sites by Ca and Sn respectively [1], p-type conductivity by $CuScO_2$ films on intercalation of film with O_2 [7]. These contributions found them a position in the field of 'transparent electronics' [8] where the combination of these p-n junctions led to the fabrication of a number of technologically useful devices. The methods such as cation exchange reaction [9–11], Pulsed Laser Deposition (PLD) [1,12,13] and magnetron sputtering [14,15] are conventionally used for the deposition of the films. It has been reported that the main limitation that restricts wide use of these films in device fabrication is their poor electrical conductivity compared to the other compounds. This limitation is circumvented through the deposition of both doped and un doped films with 3–5 orders of magnitude higher electrical conductivity than those reported by other researchers, through oxygen plasma enhanced reactive evaporation in our lab, which yielded highly crystalline films on post air annealing [16–18].

This paper reports a very interesting result of bipolarity obtained in CIO when Al is used as a dopant in an attempt to fabricate CIO films having improved electrical conductivity. The CIO films with lightly Al incorporated are found to exhibit n-type electrical conductivity while those with Al at% > 6 are found to possess p-type electrical conductivity. The conductivity variation is confirmed through multiple techniques such as hall coefficient, hot probe and Seebeck coefficient measurements. The diode fabricated using the p-type film so deposited as the counterpart of n-type CIO:Sn is characterized and are found to have the parameters like turn on voltage and rectification ratio in par with the existing transparent diodes. Moreover, the transparency of the

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Screening of potential antiandrogenic phytoconstituents and secondary metabolites of *Terminalia chebula* by docking studies

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ABSTRACT

Terminalia chebula (Haritaki) is known as the "King of Medicines" in Tibet because of its extraordinary powers of healing. It is extensively used in ayurveda, unani and homoeopathic medicine. It is listed first in Ayurvedic literatures due to its multifarious use in treating diseases. However continuous usage of this herb was known to cause decrease in sexual strength and infertility problems in males. Around 150 phytoconstituents have been isolated and characterised from *T. chebula* having various pharmacological activities. Some of the characterized compounds from *T. chebula* esp. the flavonoids and phenolics were found to have either antiestrogenic or antiandrogenic effects. This points to the fact that such compounds can function as endocrine disruptors which limits the long term use of this wonder drug. In this study an attempt is made to screen the potential antiandrogenic compounds from *T. chebula* using molecular docking. Two classes of compounds viz. triterpenoids and ellagitannin metabolites that are known to act as antiandrogens were selected for docking. A total of 17 triterpenoids and 13 ellagitannin metabolites were docked to the three binding sites (viz. ABS, BF3 and AF2 sites) in LBD of Rat and Human AR using AutoDock Vina. Also known agonists and antagonists of AR were docked to the above mentioned binding sites to draw a comparison. Eventhough both triterpenoids and ellagitannin metabolites showed comparable affinity to the binding sites with respect to the reference antagonists, urolithins and its derivatives showed the best binding. This point to the possibility that urolithins and its derivatives can function as potent antiandrogens. At a time when urolithins and ellagitannins are rising as promising nutraceuticals, more studies have to be done on its long term endocrine disrupting effects to ensure safety.
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1. Introduction

Terminalia chebula (Family Combretaceae) commonly known as Haritaki is found all over the different parts of India. Seven varieties of Haritaki fruits have been reported in 'Bhavaprakasha Nikhandu' which are *Vijaya*, *Rohini*, *Putana*, *Amrita*, *Abhaya*, *Jivanti*, and *Chetaki* [1] although only two botanical varieties are available today *Terminalia chebula* var. *chebula* and *Terminalia chebula* var. *tomentella* [2]. *Terminalia chebula* (Haritaki) is known as the "King of Medicines" in Tibet because of its extraordinary powers of healing [3]. It is extensively used in ayurveda, unani and homoeopathic medicine. It is listed first in ayurvedic literatures due to its multifarious use in treating diseases. In ayurveda it is used as a "health – harmonizer" in combination with *Terminalia bellerica* and *Emblica officinalis* popularly known as "Triphala".

In traditional Ayurvedic literature the qualities of haritaki was mentioned [1]. It has also been referred to have aphrodisiac properties and is used as 'vajikarana' (aphrodisiac therapy) in ayurveda. This is because of its 'Rasayana' (Anti-ageing, Rejuvenative) properties. It has been termed as 'Shukra Shoshaka' (The drugs, which dry up the semen) and 'Ushna Veerya' because of its astringent property and hot potency which confers it the aphrodisiac property if used short term in small doses. Continuous usage of this herb was known to cause decrease in sexual strength and infertility problems in males. Because of this, in ayurveda, it is contraindi-

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Role of magnesium doping for ultrafast room temperature crystallization and improved photocatalytic behavior of TiO_2 nanotubes

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ABSTRACT

In this work, a simple and cost effective two step anodization method is used to prepare Magnesium doped TiO_2 nanotubes (Mg-TONTs) which demonstrate superior photocatalytic performance. Room temperature (28 °C) crystallization of well alligned TONTs is achieved by Mg doping within a record time of 10 s whereas undoped samples prepared at 28 °C are amorphous. Mg-TONTs possess a photocatalytic degradation rate of 0.006/min which is 5 times higher than that by undoped amorphous TONT (0.0015/min) for the degradation of the organic pollutant methylene blue. The samples are morphologically, structurally, compositionally as well as optically characterised by field emission scanning electron microscopy (FESEM), X-ray diffraction (XRD), transmission electron microscopy (TEM), X-ray photoelectron spectroscopy (XPS) and diffuse reflectance spectrometer (DRS). FESEM reveal perfect tubular structure even after Mg doping with no Mg overlayer at the top of the tube. XRD and TEM confirm the polycrystalline nature of the tube and attainment of room temperature crystallization with a prominent peak at 25.10^0 and 47.80° in the former. XPS peak at ~1303.5 eV corresponding to Mg1s confirms the formation of Mg bonding in the compound. The optical study indicates a decrease in the band gap of the doped sample that enables visible photon absorption that contributes to the enhanced photocatalytic activity.
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1. Introduction

With rapid increase in industrialization, various harmful organic pollutants enter the environment. Control of such organic pollutants is an important concern to researchers and environmentalists [1]. Photocatalysis process is an efficient and economic method to decompose organic pollutants into harmless products [2]. Semiconducting TiO_2 is a widely investigated photocatalyst in controlling environment pollution, because of its photochemical properties, biocompatibility, low-cost and non toxicity [3]. However, their fast electron hole recombination and their large band gap energy (~3.2 eV, anatase) that is responsive only to a narrow range of UV-light limits their efficiency while applied in photocatalysis. In order to circumvent these limitations, band structure modification of TiO_2 is essential. One approach that has drawn significant attention to enhance its photo response to visible region is by doping with metal ions [4,5]. The doped elements would form in-gap states in the band structure and hence narrow its band gap as well as reduce the recombination rate of electrons and holes [6,7]. There are many reports on doping by transition metal, noble metal and rare earth ions on TiO_2, but doping by alkaline-earth metal and their photocatalytic properties on TiO_2 have seldom been reported [8]. Magnesium is particularly suitable for industrial applications due to its low cost, easy preparation and non toxicity [9]. Since magnesium is having nearly equivalent atomic radius compared to titanium, its doping is theoretically predicted to substitute Ti ions, which results in a decrease in the band gap energy [10]. This reduction can enhance visible photon absorption and increase the photocatalytic performance [11].

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Influence of p-n junction mechanism and alumina overlayer on the photocatalytic performance of TiO_2 nanotubes

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Abstract

Modified hybrid structures of TiO_2 nanotubes (TONT), p-Al doped TONT/n-TONT with an additional overlayer of alumina, are constructed to achieve 99.57% photodegradation of the stable organic pollutant methylene blue (MB) within 180 min, a degradation rate 17 times higher than pure TONTs. The anodization at three different temperatures 2, 28 and 40 °C followed by impregnation of Al is used for their preparation. The analyses of structure, chemical composition and morphology are completed using x-ray diffraction, x-ray photoelectron spectroscopy (XPS) and high resolution transmission microscopy, respectively, Rutherford back scattering and field emission scanning electron microscopy confirm the formation of the hybrid structure. This structure exhibits the highest photodegradation rate with TONT based catalysts to date for MB blue, by enhancing the electron—hole separation, the absorption of visible photons and the adsorption sites for the pollutant. The optical data coupled with valence band XPS is used for elucidating the energy band structure of the p-n junctions and to gain insight into the effect of the junction mechanism on photoactivity. The rectification ratios of the impregnated p-n junctions, determined by current—voltage measurements, are found to vary from 10^2 to 10^6.

Keywords: TiO_2 nanotubes, alumina, photocatalysis

(Some figures may appear in colour only in the online journal)

1. Introduction

Extensive use of dyes in textile, paper, leather, plastic and cosmetic industries and their discharge into water bodies pose serious threats to life and the environment. The organic dyes are stable, carcinogenic and toxic and hence development of efficient technologies for their removal from water is of great concern to scientists [1]. Among the various techniques investigated, photocatalysis is found to be one of the most promising methods for water purification and semiconducting TiO_2 has been widely investigated as a potential photocatalyst, with the advantages of nontoxicity, low cost and high chemical stability [2, 3]. However its use is limited due to two factors: (i) the wider band gap (~3.2 eV) that responds only to the ultraviolet region of the solar spectrum and (ii) the rapid recombination of charge carriers that leads to low quantum efficiency and

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Dependence of thermal diffusivity on nanoparticle shape deduced through thermal lens technique taking ZnO nanoparticles and nanorods as inclusions in homogeneous dye solution

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ABSTRACT

We are presenting our results of comparison of thermal diffusion behavior of composite media of nanoparticles and nanorods of ZnO in a homogeneous solution of fluorescein dye, done using the dual beam, pump-probe thermal lens technique. It was observed that both nanorods and nanoparticles can be used to control the thermal diffusivity of the composite fluid by changing the relative volume fractions. It was also observed that there is an optimum value for this volume fraction in the two cases considered. We have also explained this behavior using theoretical approach taking into account the Unit cell model, Brownian motion and the near field effects. We expect that this work will enhance the understanding of the influence of particle size, shape and the thermal properties of this novel composite which can widely find application in thermoelectric coolers, high performance thermal transfer liquids and in random lasing.

1. Introduction

Zinc Oxide (ZnO) is a highly adaptive material with many distinct properties such as large band gap of 3.37 eV, large excitonic binding energy 60 meV, large specific area, bio compatibility, non toxicity and moreover the tunable properties of nanostructured ZnO has wide applications in solar cells, batteries, super capacitors, biosensors, optoelectronic devices etc. These nanostructures show higher solubility, higher dissolution rates when compared to bulk materials [1]. Rapid progress in the field of device engineering from bulk to nano brings forward the scientific relevance of understanding the thermal transport mechanism in nano scale. Thermal studies were focused on thermal conductivity measurements but now research has gained momentum to understand other important thermo physical parameters such as diffusivity which essentially determines the heat diffusion in nanoparticles [2].

The idea of suspending the nanoparticles in a base liquid can be termed as "nanofluid" as coined by Choi and Eastman with high specific area, dispersion stability with predominant Brownian motion, reduced pumping power when compared to pure liquids to attain the equivalent heat transfer intensification and reduced agglomeration and clogging [3]. Nano fluids hence tend to increase the thermal diffusivity and thermal conductivity which further finds application in random lasing, nano devices, micro channels etc. [4].

Different types of nanoparticles preferably of size less than 100 nm can be used to study the heat transfer mechanism and the base fluid selected is normally water, ethylene glycol, engine oil etc. Many researchers have proposed the thermal conductivity enhancement in nano fluids when compared to micro fluids which are supported with theoretical models in order to explain and predict this anomalous thermal conductivity ratios, defined as thermal conductivity of nanofluid (nk_f) to that of the base fluid (k_f) [5].

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A study of the structure, luminescence and cytotoxicity of new green-emitting terbium-doped CaS nanophosphors

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A study of the structure, luminescence and cytotoxicity of new green-emitting terbium-doped CaS nanophosphors

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Abstract
CaS nanoparticles have attracted significant attention due to their wide range of optoelectronic applications. The synthesis of CaS nanophosphors doped with different terbium concentrations through a simple wet chemical co-precipitation method using triethanolamine (TEOA) as a capping agent is reported here. X-ray diffractogram ensured that the nanoparticles were crystallized in the cubic phase with space group $Fm\bar{3}m$. Morphology and particle size of the TEOA-capped CaS:Tb nanophosphors were determined using scanning electron microscopy and transmission electron microscopy. The optical properties of the samples were studied by photoluminescence spectroscopy and UV–Vis absorption measurements. The prepared nanoparticles exhibited green luminescence, which is attributed to $^5D_4$–^7F_J transitions of terbium ions incorporated into the CaS lattice. The existence of various functional groups in the synthesized products was identified by Fourier transform infrared spectroscopy. The lifetime decay measurements showed that the lifetime of the samples was in the nanosecond range. Cytotoxicity analysis of the nanoparticles was carried out on L929 fibroblast cells, which confirmed that the nanoparticles are biocompatible across a wide range of concentrations. Our findings indicate that CaS:Tb nanophosphor could be a potential candidate as a green-emitting phosphor in optoelectronics and biomedical field.

1 Introduction

Calcium sulfide (CaS) has become a promising material for the fabrication of many optoelectronic devices due to its wide bandgap and size-tunable optical properties [1]. With the development of nanotechnology, nanophosphors have gained considerable interest since they are superior to traditional phosphors on account of their small size and large surface-to-volume ratio. CaS nanophosphors have been synthesized by several investigators that find applications in cell imaging, biolabeling, cancer therapy, and drug delivery systems [2–7]. The fact that they are cadmium-free nanoscale semiconductors encouraged many researchers to conduct investigations on CaS nanostructures which confirmed the applicability of these nanostructures in nanomedicine. Rare-earth ions incorporated into CaS nanoparticles result in remarkable changes in the optical and electronic properties of CaS. The luminescence of rare-earth elements originates from the intra configurational 4f–4f transitions, which give rise to sharp emission bands spanning the entire visible and near infrared regions, making them feasible for various luminescence applications. Of the many rare-earth ions, terbium is an important dopant giving green emission band. Tb^{3+}-activated green phosphor finds applications in fluorescent lamps, field emission displays, and cell imaging [8–13].

Investigations on the optical properties of terbium-doped CaS have been reported by a few researchers [14–18]. Karpinska et al. studied the optical properties of CaS:Tb thin films grown by atomic layer epitaxy [14]. They reported the occurrence of a bright green emission of Tb^{3+}, which depends weakly on the ambient temperature. Extended X-ray absorption fine structure (EXAFS), which is a powerful method to study the luminescent centers in thin-film electroluminescent structures, was used to determine the local structure of Tb^{3+}-, Ce^{3+}-, and Eu^{2+}-doped CaS thin films by Charriere et al. [15]. Pham-Thi investigated the cathodoluminescent emission spectra CaS:Ce^{3+},Tb^{3+} phosphors prepared by flux method having different concentrations

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Electrical conductivity tuning in p-type transparent conducting $AgGaO_2$ and in quaternary $AgInGaO_2$ thin films

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HIGHLIGHTS

- This is the first report seen in literature on $AgInGaO_2$.
- Band gap and electrical conductivity tuning by compositional variations.
- Three orders magnitude increase in electrical conductivity by quaternary formation.

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ABSTRACT

We report tuning of electrical conductivity in a wide range from 10^{-2} to 10^{+3} S/m in p-type transparent conducting thin films of silver gallium oxide and in the quaternary films of silver indium gallium oxide. The conductivity tailoring is correlated with changes in carrier concentration and mobility induced by compositional variations and indium incorporation. The achievement of crystallization of the films at a temperature ~623 ± 5 K, the lowest temperature of crystallization for AGO so far reported, enhances the technological importance of the study. Tuning of optical band gap from 3.62 eV to 3.77 eV for AIGO and 3.98 eV–4.01 eV for AGO is realized by adjusting the composition.

1. Introduction

Transparent conducting oxides (TCOs) have broad applications in transparent electronic devices such as light emitting diodes, liquid crystals, touch screen displays, solar cells, glass window coatings etc [1–3]. Till 1997, only n-type TCOs were known and scientists have been in search of a p-type transparent conducting material for transparent electronic applications. The delafossite $CuAlO_2$ is the first p-type TCO that has been prepared and ever since, research on delafossites have been intensified [4]. Delafossites are a group of I-III-VI TCOs having ABO_2 structure that have been attracting wide research interest in the recent years because of their exceptional properties of good optical transmittance, tunable electrical conductivity and bipolarity. The bipolarity is due to their particular layered structure which offers two different conduction paths for electrons and holes. O–A–O dumbbell layer is considered as an easy path for holes and the edge sharing octahedral BO_6 layer for electrons [5–9]. Various Ag based delafossites reported in literature are $AgInO_2$, $AgGaO_2$, $AgScO_2$, $AgFeO_2$, $AgCrO_2$, $AgAlO_2$ and $AgYO_2$ [10–12]. Of these, $AgGaO_2$ exhibit properties like visible light transparency, moderate conductivity, wide optical band gap and photocatalytic activity that could find applications in Transparent Electronics, Gas sensing, Photocatalysis, DSSCs etc [5,12]. However some major drawbacks that have been limiting its applications are the poor electrical conductivity and the high energy budget due to requirement of substrate temperatures above 773 K for their preparation [13].

Here, we report preparation of thin films of amorphous and delafossite crystalline $AgGaO_2$ and $AgInGaO_2$ of p-type polarity by two different methods: plasma assisted reactive evaporation and vacuum evaporation followed by post air annealing. Apart from the fact that this is the first report on p-type amorphous $AgGaO_2$ as well as on amorphous and crystalline $AgInGaO_2$, one interesting observation is that here crystalline delafossite formation is achieved at a temperature ~623 ± 5 K which is much lower than so far reported by other authors. The latter offers the possibility of avoiding expensive substrates like quartz for the film deposition and hence makes the method more cost effective.

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Design and development of portable handheld multimodal spectroscopic probe system for skin tissue analysis

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(Dated: 19 May 2020)

The potential of optical spectroscopic techniques such as diffused reflectance and fluorescence as non-invasive, in-vivo diagnostic tools is being explored and validated recently. In this paper, we present the design and development of a handheld, portable, multimodal fiber optic based probe scheme to sequentially measure diffuse reflectance and fluorescence. The proposed prototype is designed to sequentially acquire diffused reflectance in the broad wavelength range of 400-1600 nm and fluorescence using custom-chosen spectrophotometers, monochromatic and broadband light sources, fibers to accommodate a wide wavelength range, custom-built probe distal end, and real-time spectral stitching and display unit. The prototype is characterized using in-house fabricated phantom tissue with tunable optical properties such as scattering and absorption. The depth profile study is carried out using phantom tissue layers of known optical parameters followed by sequential measurement of diffused reflectance and fluorescence from the tissue mimicking sample.

I. INTRODUCTION

As a multi-layered and inhomogeneous structure constituted by cells, chromophores and fibers; skin give rise to scattering, absorption and auto-fluorescence when beam of light incidents on it[1]. Diffuse reflectance and detection of autofluorescence of cells are two optical methods which yield useful diagnosable information from skin. Optical methods are often preferred over electrochemical detection due to their noninvasive nature, high sensitivity, capacity for quantitative output, compatibility with bench-top assays, and prospective for multimodal detection from single sample[2–4]. Different optical instrumentation schemes have been investigated previously as diagnostic tools for different disease conditions[5–9].

When biological tissues are irradiated with broadband light, the photon migrates randomly inside the tissue in diffusing manner[10]. This random propagation of photon results in scattering, absorption and multiple reflection. Scattering is governed by nuclei, collagen, and mitochondria within the cells. Light absorbing components such as oxy- and deoxy-hemoglobin, lipid, fat etc. play vital role in absorption process[1,10–12]. The light returning to the skin surface after diffusion, multiple reflections and scattering are collected and analyzed in diffuse reflectance spectroscopy(DRS). The difference in the propagation of light in normal tissue and pathologic tissue will be reflected in their diffuse reflectance spectra. These variations can be analyzed to arrive at quantification of the cause of the variations. Specifically, changes in concentrations of hemoglobin and melanin, keratin variations, presence and effects of pigmentation exhibited by skin tissues etc. result in changes in optical properties such as absorption, scattering and fluorescence. Quantitative determination of such changes in optical phenomenon were explored during the recent advancements in search of non-invasive diagnostic tools based on spectroscopic techniques[3,13–16]. Power of DRS as a diagnostic tool has been widely studied[17–19].

Cellular autofluorescence consisting of the emission of light in the UV-visible and near-IR spectral range is exhibited by fluorophores present inside human cells when biological substrates are excited with light at suitable wavelength[20]. Nicotinamide adenine dinucleotide (NADH), collagen, elastin, tryptophan, keratin, hemoglobin etc. are some examples of such endogenous fluorophores. The correlation of these endogenous fluorophores with morphofunctional properties of the living systems offers an extremely powerful resource for directly monitoring the biological substrate condition[21,22]. When such fluorophores interact with light, they absorb the exciting radiation and subsequently emit radiation. Changes in autofluorescence can be quantitatively traced back as the cause for disease conditions[23,24].

Clinical evaluation using visual inspection is becoming outdated in various branches of medicine due to the possibility of errors. Variations in DRS and cellular autofluorescence are being used as indicators for the detection of various diseases from dermatological research to oncological research. In vivo study of inflammation mapping of periodontal diseases using DRS[25], study of variations in oxygenation and hemoglobin concentration as a result of tumors using DRS[26], successful assessment of resection margins in oral cavity cancer using DRS in cancer surgery[27], detection of arterial and venous occlusion from skin flap studies and their differentiation using DRS and autofluorescence[28], clinical study of psoriasis using DRS[29], study of Erythema caused by exposure to UV light using DRS[30], study on early detection of disorder in microcirculation in rheumatic patients using DRS[31], quantification of liver steatosis condition to different degrees[32], inspection of use of DRS in biopsy needle to differentiate tumors from parenchyma[33] and assessment of blood perfusion using DRS are some examples.

Although, development of dedicated systems for DRS and

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Optimized synthesis temperature and doping concentration of copper in zinc sulphide nanoparticles for green emission

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ABSTRACT

Photoluminescence (PL) of copper doped zinc sulphide (ZnS:Cu) nanoparticles synthesised with different Cu concentrations and at different synthesis temperature have been investigated. These ZnS:Cu nanoparticles were synthesised without any capping agent by simple chemical precipitation method. So as prepared Cu doped ZnS nanoparticles are then characterized by using scanning electron microscopy (SEM), Transmission electron microscopy (TEM), X-ray diffraction (XRD), photoluminescence (PL) and diffuse reflectance (DRS) spectroscopy. The optical properties of the ZnS:Cu nanoclusters are investigated in detail. Four emissions bands consisting of surface state emission (blue), Cu blue, green and red emissions which are both sensitive to the synthesis temperatures and dopant concentration are observed. The determination of the CIE colour coordinates from PL emission spectra confirms tunable color emission by varying the Cu concentration and synthesis temperature.

1. Introduction

Semiconductor nanoparticles have attracted more attention in the recent decades due to their novel optoelectronic properties. The structural and optoelectronic properties of semiconductor nanoparticles differ from those of their corresponding bulk form due to quantum confinement effects. Aong the II-VI semiconductors, Zinc sulphide has a a direct band gap of 3.65 eV for cubic zinc blende and 3.77 eV for hexagonal wurtzite. On account of unique fundamental properties ZnS has been found diverse applications such as display technologies, luminescent devices, sensors, solar cells, biological devices, etc. [1–3]. The extensive designing and engineering of ZnS allows it to be widely and effectively used in diverse applications such as transparent conductors, UV photodetectors, luminescent devices, and catalysis [4–6]. Among the doped ZnS nanoparticles ZnS:Mn and ZnS:Cu nanoparticles are prominent phosphorescence materials. Since the solubility of $Cu^{2+}S$ is less than ZnS $Cu^{2+}S$ precipitates earlier than ZnS during the synthesis. Hence the incorporation of Cu^{2+} ions into the ZnS lattice is not easy compared to the doping of Mn^{2+} ions [7]. For this reason studies on ZnS:Cu nanocrystals have not been done widely like ZnS:Mn nanoparticles. ZnS doped with Cu has been explored as an excellent candidate for developing high-performance transparent conductive materials (TCMs) which can be seen everywhere in our daily life such as light-emitting diodes (LEDs), smartphones, solar cells, display technologies, etc. [8–10].In recent years various efficient optoelectronic devices uses ZnS–CuS nanocomposite films as p-type TCM [11]. Besides, Cu has been specifically used for doping ZnS to produce luminescent materials with emission bands in the range of 420–600 nm. Coming to luminescence properties of Cu doped ZnS crystals there are two familiar emission bands, namely green and blue bands. Besides these emissions UV, red and IR emissions were also reported in bulk Cu doped ZnS [12]. For ZnS:Cu nanoparticles, the emission spectra reported by various groups were quite different the emission of ZnS:Cu nanoparticles becomes a debating topic [13–18]. In our present work we have observed the three emissions of Cu^{2+}- blue emission at 468 nm, green emission at 522 nm and weak red emission at 625 nm. To our knowledge in ZnS:Cu nanoparticles any two of these emissions were reported only. Similarly there are reports to tune this dual emission by changing the quantity of Cu ions added or by passivating the surface of the quantum dots with different inorganic or organic surfactants or by different synthesis methods like solid state reaction method, solvothermal method, colloidal method, electro spinning, etc [9,12,19–26]. The use of the expensive, environmentally toxic materials as capping agents may cause unintentional luminescence centers and hence the energy transfer mechanism in luminescence turns to be complex. Hence it is advantageous to get intense, tunable color emission from ZnS:Cu nanoparticles without using any capping agent

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विभाजन के बाद भारतीय मुसलमान : मुस्लिम उपन्यासकारों की रचनाओं के विशेष संदर्भ में

भारतीय विभाजन के पश्चात् हिन्दुस्तान में मुसलमानों की स्थिति अत्यन्त दयनीय हो गयी थी। भारत में रह जाने वाले मुसलमानों की समस्या बढ़ गयी। विभाजन के बाद, मुस्लिम समुदाय का संपूर्ण अस्तित्व ही विभाजित हो गया था। जीवनशैली से लेकर प्रत्येक बिन्दु पर एक प्रश्नचिह्न – सा लग गया। सरकार द्वारा भारतीय मुसलमानों से किये गये प्रश्न (भारत में रहेंगे या पाकिस्तान में) उन्हें चिन्ता – निमग्न कर देता है। उनमें एक ओर भविष्य का सपना नवनिर्मित पाकिस्तान के प्रति आकर्षण पैदा कर रहा है तो दूसरी ओर स्वजनों से बिछुड़ने के दर्द ने उन्हें रोक रखा। पूरे वातावरण में मानसिक द्वन्द्व व्याप्त हो गया था।

तमाम भय और प्रलोभन के बाबजूद भारत का आम मुसलमान पाकिस्तान नहीं गया क्योंकि वह अपना घर, अपनी जमीन और अपनी विरासत को छोड़कर अजनबियों के बीच जड़ – छीन वृक्ष की भाँति नहीं जी सकता था। इस मिट्टी से उसे न भय जुदा कर सका, न नफरत पर आधारित स्थितियों ने उसकी राष्ट्रभक्ति, वफादारी और मिट्टी से लगाव को कठघरे में ला खड़ा कर दिया। पाकिस्तान बन जाने और भारत में जमींदारी व्यवस्था खत्म हो जाने के बावजूद मुसलमान टूट जाते हैं और एक अजीब तन्हाई का दर्द सबको घेर लेता है। एक ओर अपनी मिट्टी न छोड़ने की तमन्ना और दूसरी ओर अपनी ही मिट्टी अपनी पैरों तले से खिसकती देखने के एहसास के बीच तनाव ही महसूस कर रहा था। भारत में बसे मुसलमानों में इस त्रासद विभाजन के बाद आत्मविश्वास घटा। विभेदकारी राजनीति के कारण वे लोग गहरी आशंका और असुरक्षा से घिर उठे। आजादी के बाद शैक्षिक, आर्थिक, सामाजिक आदि क्षेत्रों में आये पिछड़ेपन के कारण मुस्लिम समाज मुख्यधारा से कट गया। "वास्तव में विभाजन के बाद भारत का मुसलमान एक दीन – हीन प्राणी है। उस पर इतिहास की गहरी छायाएँ और वर्तमान के कुरूप दबाव हैं। उसकी सामाजिक स्थिति दयनीय है, राज्य सत्ता का कोई संरक्षण नहीं और लोगों की संख्या लगातार बढ़ती जा रही है जिन्हें भारत में मुसलमानों का रहना अतार्किक है।" (भारतीय मुसलमान : मिथक और यथार्थ – राजकिशोर, पृ.सं : 07–08)

समकालीन हिन्दी उपन्यासों में विभाजनोपरांत भारत के मुसलमानों की अवस्था का अत्यन्त सूक्ष्म एवं यथार्थ चित्रण मिलता है। विभाजन के पश्चात् भारतीय मुसलमानों में उपजी असुरक्षा की भावना एवं उनके मनोविज्ञान को चित्रित करने में यह उपन्यास पूर्ण समर्थ रहा है।

सामाजिक व आर्थिक स्थिति :– राही मासूम रजा रचित 'आधा गाँव' उपन्यास में भारत–पाक विभाजन के समय की मानवीय पीड़ा को 'गंगौली' गाँव के माध्यम से प्रस्तुत किया गया है। गंगौली गाँव, विभाजन को भोगा एक गाँव है ३३३३..सामाजिक रूप से टूटा हुआ, राजनीतिक रूप से त्रस्त, धार्सिक रूप से भ्रान्त और नैतिक रूप से द्वन्द्वमय। 'आधा गाँव' उपन्यास ने देश की स्वतंत्रता –प्राप्ति और उनसे जुड़ी ऐतिहासिक घटनाओं को मुस्लिम साधारण की आँखों से देखने का प्रामाणिक कार्य किया है। उपन्यास के आरंभ में ही विभाजन की काली छाया का मंडराते जाने का संकेत लेखक ने दिया है। ज्यों – ज्यों उपन्यास आगे बढ़ता जाता है, यह काली छाया फैलती जाती है और अंत में समूचे देश को निगल लेती है। यह विभाजन, देश के नक्शे पर खींची गयी भारत – पाकिस्तान की रेखा ही नहीं बल्कि वह रेखा

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आदिवासी स्त्री का जीवन – संघर्ष : समकालीन उपन्यासों के विशेष संदर्भ में

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साहित्य, मानवीय भावों के अनुभूति की शाब्दिक अभिव्यक्ति है । मानव के साथ साहित्य, आदिम काल से जुड़ा है । मनुष्य के मन में भावनाएँ समयानुसार जागृत होती है और इन भावनाएँ जब शब्द में लिपिबद्ध होती है, तब साहित्य की निर्मिति होती है । साहित्य का मूल उद्देश्य मानवीय समस्याओं का वास्तविक रूप से चित्रण करना और इन समस्याओं का समाधान खोजना होता है ।

साहित्य के विभिन्न अंगों में उपन्यास, अत्यंत लोकप्रिय एवं प्रचलित अंग है । उपन्यास, एक ऐसी विधा है जिसने समाज से अपना संबंध बहुत गहरे रूप में रखा है, इसमें जीवन का रूप मनोरंजक घटनाओं से बनता है जो सरलता से मन को अपनी ओर खींच लेता है ।

आदिवासी, प्रकृति की गोद में रहते हैं । जल, जंगल, ज़मीन इनकी धरोहर हैं, इनके संसाधन हैं और इनकी जीविका के आधार हैं । डॉ. विनायक तुकाराम के शब्दों में, ''प्रत्येक सदी में छला – सताया गया, नंगा किया गया और एक सोची – समझी साजिश के तहत वन – जंगलों से जबरन भगाया गया असंगठित मनुष्य – अपनी स्वतंत्र परंपरा सहित, सहस्र सालों से गाँव – देहातों से दूर, घने जंगलों में रहनेवाला संदर्भहीन मनुष्य है, आदिवासी'' । इन्हीं आदिवासियों के प्रति अपन्तव एवं आत्मीयता रखते हुए उपन्यासकारों ने संवेदनात्मक धरातल पर इनके जीवन – संघर्ष को उभारा है ।

आदिवासी विमर्श का प्रधान उद्देश्य आदिवासियों के जीवन और समाज को करीब से जानना – समझना रहा है । उसके साथ, उनके जीवन की विभिन्न समस्याओं से समाज को परिचित कराना तथा उनके प्रति सकारात्मक सोच का निर्माण कराना भी रहा है ।

भारत की सामाजिक संस्कृति में आदिवासी समाज का अपना अस्तित्व है । कभी उनकी स्वतंत्र सत्ता थी, जल, जंगल और ज़मीन के संसाधनों पर उनका अधिकार था । लेकिन साम्राज्यवादी शक्तियों के आगमन के बाद , उनके संसाधनों पर आक्रमण होने लगा , उनके कई तरह के शोषण होने लगे । इस तरह आदिवासियों पर हो रहे सभी आक्रमणों के दस्तावेज़ बने आदिवासी विमर्श , असल में उनके अस्तित्व का विमर्श है ।

आदिवासी – समस्याएँ – भारत की पूरी आबादी का आठवाँ भाग , आदिवासी हैं जो देश के पहाड़ी इलाकों में आबाद हैं । भारत के जनजाति समूह अपनी ठहरी हुई अर्थव्यवस्था के कारण शेष – समाज से दूर रहने के लिए विवश हैं । आज भी उनकी कई ऐसी परंपराएँ हैं जो शेष भारतीय समाज के लिए कौतूहल , जुगुप्सा और भय का कारण बनी हुई हैं । इसीके चलते बहुलांश समाज उन्हें स्कीकारने तथा संवेदनात्मक तादाम्य स्थापित करने से परहेज करता है ।

स्वतंत्रता – प्राप्ति के बाद, भारतीय संविधान ने आदिवासियों की सुरक्षा और विकास के लिए अनेक प्रावधान किए । इसके बावजूद आदिवासियों के शोषण एवं उनके संसाधनों का दोहन चलता रहा, बल्कि इसने और भी विकराल रूप धारण कर लिया । भारत सरकार ने इन मामलों को सुलझाने के लिए अनेक कारवाइयाँ कीं । उत्तरपूर्व में अनेक राजय बनाए गए जैसे झारखंड, उत्तरांचल और छत्तीसगढ़ जिसमें आदिवासियों का प्रतिशत अधिक हैं । लेकिन ऐसे सकारात्मक पहलुओं के बावजूद भी आदिवासी समस्या गंभीर होती जा रही है ।

आदिवासी हमारे समाज के, हमारी ज़मीन के सबसे पुराने, सबसे दमदार और प्रकृति से सबसे अच्छा संबंध रखकर जीनेवाले लोग हैं । उनकी जिंदगी, जितनी सरस – सहज और सरल है, वहाँ की समस्याएँ उतनी ही ज्वलंत और जटिल हैं । आदिवासियों के प्रति शासन और प्रशासन द्वारा ओढ़ी गई चुप्पी, नीतिनियंताओं की विवशता कम, विमुखता ज़्यादा दिखती हैं । जंगल और प्रकृति से सहजीवि संबंध रखने के एवज में सरकार प्रायोजित आतंक, पिटाई, बंदूकों की गूँज और जेलों की प्रताड़ना – आज़ादी के बाद वन्य समाज के साथ ऐसे ही बर्ताव हो रहे हैं । उन पर आरोप है कि वे जंगल काट रहे हैं, जड़ी – बूटियों की तस्करी करवा रहे हैं और दुर्लभ प्रजाति के पशु – पक्षियों की हत्या कर रहे हैं । लेकिन आदिवासियों की संपूर्ण जिंदगी जंगलों से जुड़ी हैं । इससे अलग होकर उनका कोई अस्तित्व नहीं है ।

पुरखों को देवता मानकर पूजनेवाले आदिवासी, सभ्य समाज द्वारा असुर, ज़ाहिल, गँवार या अर्थमानुष माने जाते रहे हैं । उनके संसाधनों का उपयोग कर समाज के ज़मींदारों, साहूकारों और उद्योगपतियों ने इन आदिवासियों का अमानवीय शोषण किया । आदिवासियों को उनकी जीविका के साधन – स्त्रोतों से दूर किया जा रहा है । उनसे उनकी आवास – भूमि छीनी जा रही हैं जिसे कई लोग, देशी उपनिवेशीकरण भी कहते हैं । भारत की ९० प्रतिशत कोयला खानें, ७२ प्रतिशत वन और अन्य प्राकृतिक संसाधन और ८० प्रतिशत अन्य खनिज पदार्थ आदिवासी – भूमि पर पाए जाते हैं । विकास – कार्यों के चलते जनजातियों को अपनी आजीविका के साधन – स्त्रोतों से हाथ धोना पड़ा ।

विस्थापन, वर्तमान भारत में आदिवासियों की मुख्य समस्या बन रही है । सदियों से उन्हें खदेड़ दिया जाता है बस रूप या तरीका बदल गया है । जंगल, जल, ज़मीन – इन तीनों महत्वपूर्ण मूल अधिकारों से वे वंचित हो रहे हैं । विडंबना यह है कि ये सब उनके विकास और उनकी स्थिति में सुधार लाने के नाम पर हो रहे हैं । योजनाबद्ध तरीके से विस्थापन और सरकार द्वारा पुनर्वास के खोखले वादों के बीच इतनी ज़्यादा उलझनें पैदा हो गई कि आदिवासी, अपनी ही ज़मीन में अजनबी बन गये । भूमंडलीकरण के युग में हर राष्ट्र को

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സാമൂഹികമാധ്യമവും കവിതയും

ഡോ.സിബു മോടയിൽ

അധ്യാപകൻ, മലയാളവിഭാഗം, യൂ.സി.കോളജ്, ആലുവ

സംഗ്രഹം

ഭാഷാവ്യവഹാരത്തിൽ എല്ലാ തലങ്ങളിലും അട്ടിമറി നടത്തിയ ഇടപെടലായി സാമൂഹികമാധ്യമങ്ങളുടെ പ്രവർത്തനങ്ങളെ വിലയിരുത്താം. ആധുനികാനന്തരതയ്ക്ക് ഉത്തരഘട്ടമുണ്ടായെന്നും അത് അതിവേഗത്തിൽ കലാസാഹിത്യമേഖലകളിൽ സിദ്ധാന്തവത്കരണത്തിനുപോലും നിന്നുകൊടുക്കാതെ അപ്രതീക്ഷിതവഴിത്തിരിവുകൾ ഉണ്ടാക്കുന്നുവെന്നും ഉള്ള തിരിച്ചറിവിന്റെ കാലമാണിത്. ആധുനികതയെ നമുക്ക് നിർവ്വചിക്കാൻ കഴിഞ്ഞു. ഉത്തരാധുനികതയേയും ഒരു പരിധിവരെ നിർവ്വചിച്ചു. എന്നാൽ സൈബർ കാലം അതിന്റെ സാഹിത്യത്തെ ഒരു വാക്യത്തിലോ ഒരു ഖണ്ഡികയിലോ ഒതുക്കി പരിചയപ്പെടുത്താൻ കഴിയാത്തവിധത്തിൽ ബഹുവിധമായ സംവേദനസാധ്യതകൾ നിരന്തരം തുറന്നുകൊണ്ടിരിക്കുന്നു. ആ സാധ്യതകളുടെയും അതിന്റെ ഫലങ്ങളുടെയും വിശകലനം സമകാലികമലയാളകവിതയെ മുൻനിർത്തി നിർവ്വഹിക്കാനാണ് ഈപ്രബന്ധത്തിൽ ശ്രമിച്ചിരിക്കുന്നത്. നവമാധ്യമകവിത ഹൈപ്പർലിങ്കുകളിലൂടെ വായനയുടെ പുതിയ സാധ്യത തുറക്കുന്നതിനെപ്പറ്റിയും സംവാദക്ഷമതയുള്ള പുതിയ കാവ്യഭാഷ നിർമ്മിക്കുന്നതിനെപ്പറ്റിയും പ്രത്യേകം സൂചിപ്പിച്ചിരിക്കുന്നു.

സാമൂഹികമാധ്യമങ്ങളാണ് ഇന്ന് ഭാഷാപരിണാമത്തിന്റെ ചരടുവലി നിർവ്വഹിക്കുന്നത്. ഭാഷ സാമൂഹികമാധ്യമത്തിലൂടെ കടക്കുമ്പോൾ കേവലം അർത്ഥപരിണാമത്തിനു മാത്രമല്ല പുതിയതരം അർത്ഥസംവേദനത്തിനും സാഹചര്യമുണ്ടാക്കുന്നു. ഇതിൽ ഏറ്റവും പ്രധാനപ്പെട്ടത് സംവാദക്ഷമത (Interacive Potentiality) യാണ്. ഇത്തരമൊരു സംവാദക്ഷമത ഭാഷയ്ക്കുണ്ടാകുന്നത് നവമാധ്യമങ്ങളുടെ സ്വാധീനത്താലാണ്. പഴയ സാഹിത്യനിരൂപകന്റെ പണി ഇന്ന് നാട്ടുകാർ മുഴുവനും ഏറ്റെടുത്തിരിക്കുകയാണ്. ഊള, കിടിലം, കിടുക്കാച്ചി, പൊളിസാനം തുടങ്ങിയ പ്രയോഗങ്ങളിലൂടെ അവർ ഖണ്ഡനവും മണ്ഡനവും നിർവ്വഹിക്കും. എന്നാൽ കോശാധിഷ്ഠിത ആശയകവിതയുടെ കാലത്ത് വായനയുടെ ഈ സ്വാതന്ത്ര്യം പ്രഖ്യാപിക്കപ്പെട്ടിരുന്നില്ല. ഭാഷയുടെ സംവേദനക്ഷമതയുടെ പരിധിയെപ്പറ്റിയുള്ള ധാരണയില്ലായ്മ അച്ചടിയുടെ പ്രഭാവകാലത്ത് ഉണ്ടായിരുന്നു. അതിന്റെ സംവാദസാധ്യതയും അതുകൊണ്ടുതന്നെ അടയ്ക്കപ്പെട്ടിരുന്നു.എന്നാൽ സാമൂഹികമാധ്യമങ്ങളുടെ

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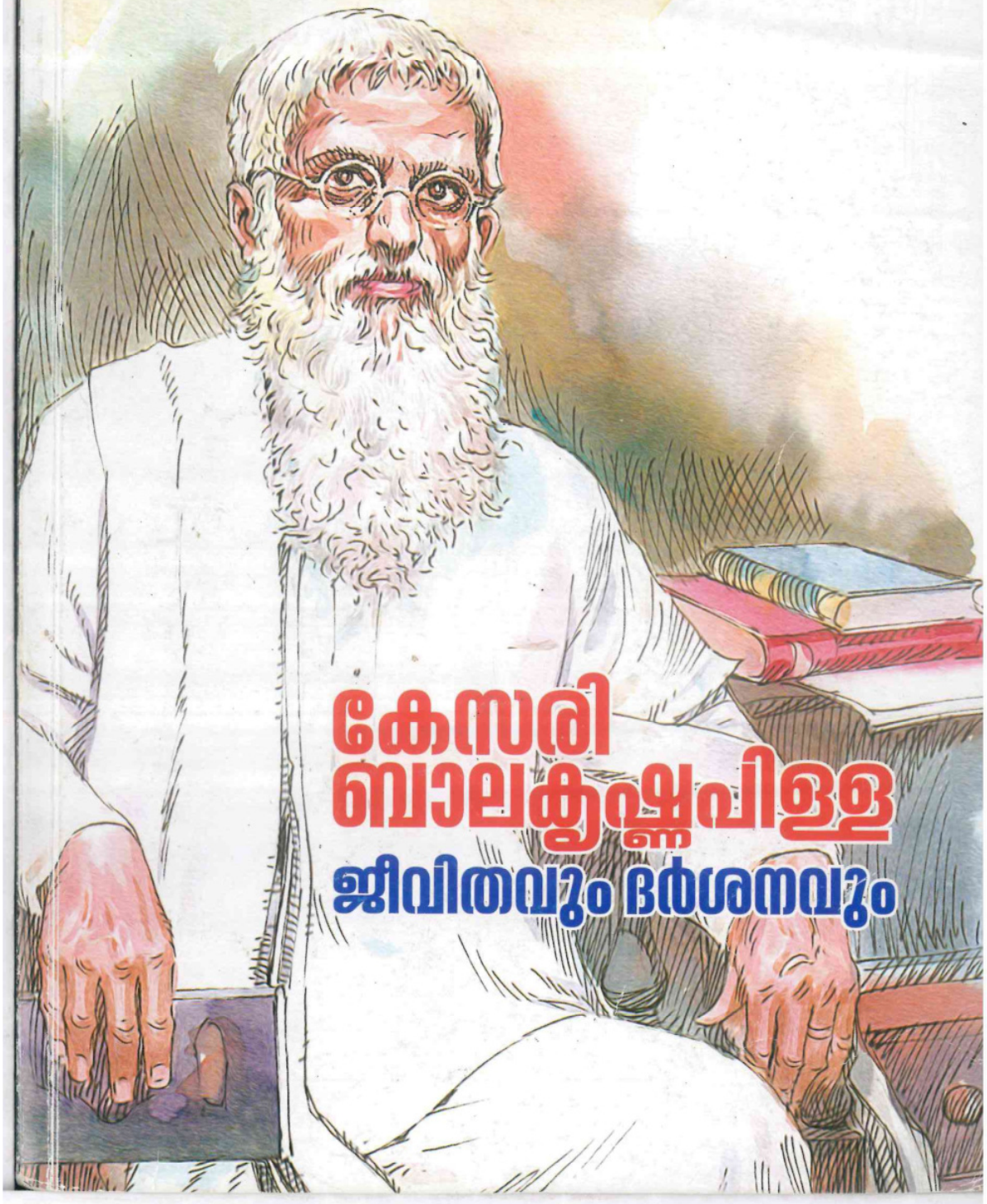

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ജീവിതവും ദർശനവും

ഉള്ളടക്കം

ഡോ.മിനി ആലീസ്

കരിയിലെഴുതിയ ദേശചരിത്രം

മുഖ്യധാരാചരിത്രത്തിന്റെ ഓരങ്ങളിലേക്കു വകഞ്ഞുമാറ്റപ്പെട്ടവരുടെ ജീവിതത്തെ അടയാളപ്പെടുത്തുന്ന കൃതികൾ ഉത്തരാധുനിക സാഹിത്യത്തിൽ കടന്നുവരുന്നു. എഴുതപ്പെട്ട ചരിത്രത്തിന്റെ പുനർവായനയും പുതുപാഠനിർമ്മിതിയും ഈ രചനകളുടെ സവിശേഷതയാണ്. കീഴാളത്തത്തെ സംബന്ധിച്ച ബൗദ്ധികമായ ഒരു ചരിത്രം ഉണ്ടായിട്ടില്ല. ഒരിക്കലും ഉണ്ടാവുകയുമില്ല. കാരണം, അദൃശ്യമായ വായനകളുടെ പ്രാദേശിക ഭൂമികയിലാണതു ജീവിക്കുന്നത്. (ഡേവിഡ് ലുഡൻ, 2007:27). ഒരു ദേശത്തിന്റെയോ ജനതയുടെയോ ഇതുവരെ എഴുതപ്പെടാത്ത ചരിത്രം മാത്രമല്ല, എഴുതപ്പെട്ട ചരിത്രത്തെ പൂർണ്ണമായും അപ്രസക്തമാക്കിക്കൊണ്ടു രചിക്കുന്ന പുതുചരിത്രനിർമ്മിതിയുടെ സാദ്ധ്യതകളും ഈ കൃതികൾ അനാവരണം ചെയ്യുന്നു.

ആധുനികതയുടെ സവിശേഷതയായ ബൃഹദാഖ്യാനങ്ങൾ ഉത്തരാധുനികകാലത്ത് തകർക്കപ്പെടുമെന്നാണ് ഴാങ് ഫ്രാങ്കോയ്ഡ് ലിയോട്ടേർഡ് വ്യക്തമാക്കുന്നത്. ഒട്ടനവധി ചെറുകഥകളാൽ ചുറ്റപ്പെട്ട ഒരു വലിയ കഥയെന്നാണ് ബൃഹദാഖ്യാനത്തിനു നല്കുന്ന വിശദീകര

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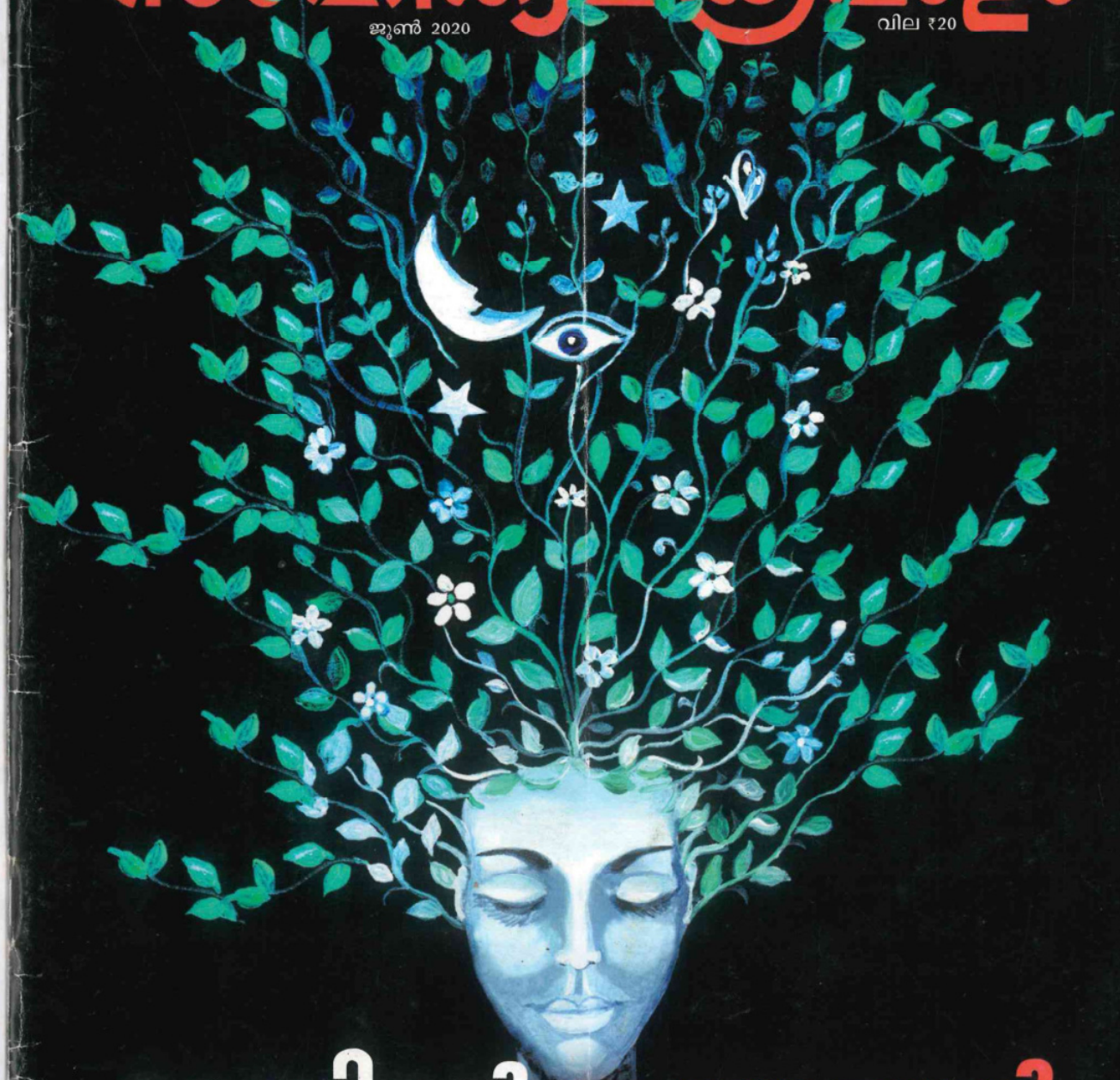

ഉറൂബിന്റെ പെണ്ണുങ്ങൾ

സ്വാതന്ത്ര്യേച്ഛുക്കളും സത്യസന്ധരും ജീവിതപ്രണയികളുമായ
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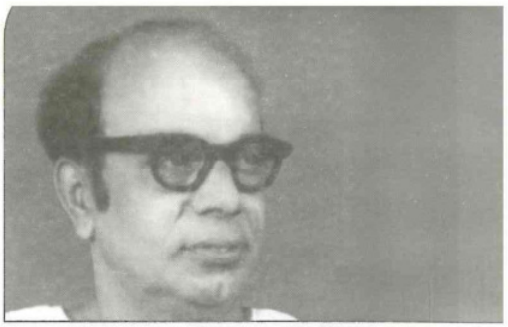

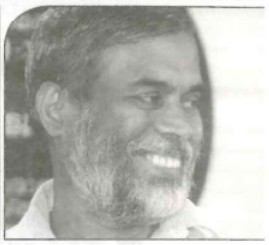

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അഗ്നിനാളങ്ങൾ

> സ്നേഹിക്കുവാനും സ്നേഹിക്കപ്പെടുവാനുമുള്ള തീവ്രമായ അഭിവാഞ്ഛ പ്രകടിപ്പിക്കുന്നവരാണ് ഉറൂബിന്റെ സ്ത്രീകഥാപാത്രങ്ങൾ. എല്ലാ മാനുഷികബന്ധങ്ങളിലും സ്ത്രീകളുടെ സ്വയം കർത്തൃത്വത്തെ മതിക്കാനും മാനിക്കാനും അദ്ദേഹം രചനകളിൽ തയ്യാറാകുന്നുമുണ്ട്

കർത്തൃത്വത്തെക്കുറിച്ചുള്ള വ്യക്തമായ ബോദ്ധ്യം പ്രത്യക്ഷമാകുന്നുണ്ട്. മിണ്ടാപ്പെണ്ണെന്ന ശീർഷകത്തിൽ സ്ത്രീവിരുദ്ധമായൊരു വീക്ഷണം ഉൾക്കൊള്ളുന്നതായി കേൾക്കുന്ന മാത്രയിൽ തോന്നാമെങ്കിലും മിണ്ടാപ്പെണ്ണായ കുഞ്ഞിലക്ഷ്മിയെ മിണ്ടുന്ന, സ്വയംപര്യാപ്തയായ പെണ്ണാക്കി മാറ്റുന്നതാണ് ഉറൂബിന്റെ നോവൽപ്രമേയമെന്നു തിരിച്ചറിയുമ്പോൾ ഈയൊരു വീക്ഷണത്തിനു വ്യതിയാനം സംഭവിക്കുന്നു.

സ്നേഹിക്കുവാനും സ്നേഹിക്കപ്പെടുവാനുമുള്ള തീവ്രമായ അഭിവാഞ്ഛ പ്രകടിപ്പിക്കുന്നവരാണ് ഉറൂബിന്റെ സ്ത്രീകഥാപാത്രങ്ങൾ. പ്രണയത്തിനു വേണ്ടി തീവ്രമായ സംഘർഷങ്ങളെ ഏറ്റുവാങ്ങിയ സ്ത്രീയാണ് ഉമ്മാച്ചു. മായനോടുള്ള പ്രേമം തീവ്രമായി സൂക്ഷിച്ചുകൊണ്ടുതന്നെ ഉമ്മാച്ചുവിന് വീട്ടുകാരുടെ സമ്മർദ്ദത്തിനു വഴങ്ങി ബീരാനെ വിവാഹം കഴിക്കേണ്ടി വന്നു. ഭർത്താവിന്റെ മരണത്തിനുത്തരവാദിയാണെന്നറിഞ്ഞിട്ടും മായനോടുള്ള പ്രണയത്തിന്റെ ആഴം തിരിച്ചറിഞ്ഞ് അയാളെ പുനർവ്വിവാഹം ചെയ്യുവാൻ ഉമ്മാച്ചു സമ്മതം മൂളുന്നു. അയാളോടൊപ്പം പരസ്പരബഹുമാനത്തിലൂന്നിയ തീവ്രമായ പ്രണയജീവിതത്തെ ആനന്ദപൂർവ്വം മുന്നോട്ടു കൊണ്ടുപോവുകയും ചെയ്യുന്നു. ഇതേ നോവലിൽത്തന്നെ അടുത്ത തലമുറയുടെ പ്രതിനിധിയായി കടന്നുവരുന്ന ചിന്നമ്മു വ്യക്തിസ്വാതന്ത്ര്യത്തെ തിരിച്ചറിയുന്നവളാണ്. ചിന്നമ്മുവിനെ കേന്ദ്രമാക്കുന്ന അദ്ധ്യായത്തിന്റെ ശീർഷകം 'വെളുത്ത ചീനിമുളക്' എന്നാണ്. ''പമ്പരം പോലത്തെ പെണ്ണ്, ചീനിപ്പടക്കത്തിന് തീ കൊളുത്തിയ പോലെ, അമർത്തിച്ചവിട്ടിയ നടത്തവും''(ഉറൂബ്, 1991: 115) എന്ന ചിന്നമ്മുവിന്റെ രൂപവും ഭാവവും പെണ്ണത്തത്തെക്കുറിച്ചുള്ള മുഖ്യധാരാസങ്കല്പ

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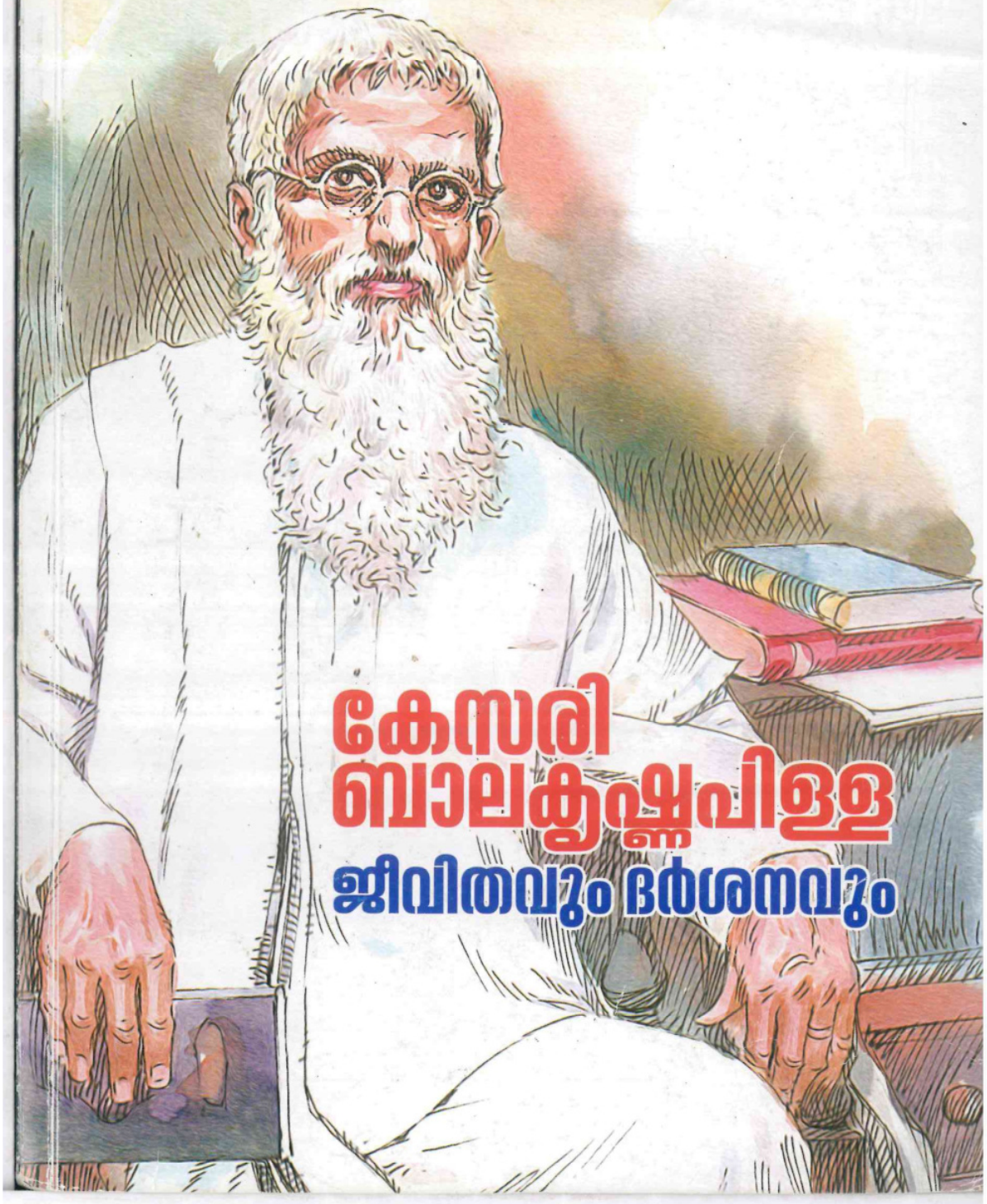

കേസരി ബാലകൃഷ്ണപിള്ള

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KERALA THE 'HAVEN' OF MIGRANT WORKERS : MYTH OR REALITY?

Dr. G. Geethika*

ABSTRACT

Migration in search of employment and social security is an age old practice. One third of the world population is always on the move. India is also actively involved in the international labour flow, supplying skilled and semi-skilled youth to different countries, especially the GCC. Internal migration is another significant dimension of this phenomenon. The paper intends to diagnose the dynamics of internal migration in India, with special reference to the conditions of migrant labourers in Kerala. Unskilled workers are lured into the Kerala labour force due to the lucrative wages and the acute demand for labourers because of the apathy of the state's youth towards manual labour. The last few decades has seen a boom in the labour flow and Kerala is being called the 'haven' or 'gulf' of internal migrant labourers, for obvious reasons. But the question is, are they being treated well by the state? Has the state succeeded in ensuring social and financial inclusion of the migrant labourers, who are often referred to as 'guest workers?' The paper shall delve into this aspect of the situation so as to understand the reality experienced by the migrant workers in Kerala.

Keywords : India, Internal migrant labourers, Kerala, Human Rights, Inclusion

I. Introduction

Human history is replete with episodes of mass exodus, voluntary and forced, seeking better opportunities of livelihood and standards of living. Today, one third of the world population is always on the move. Whether skilled professionals or unskilled labourers, the migrant community contribute immensely to the economy of both the destination and their place of origin, especially influencing the social and economic development of developing countries. The United Nations Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families defines a migrant worker as, "a person who is engaged or has been engaged in a remunerated activity in a State of which he or she is not a national." Georg Ravenstein (1885), who first elucidated the laws of migration in 1885, understood it as a short distance affair.

Historically, labour migration has been triggered by intensive agriculture and rapid industrialisation Britannica, 2018). Opportunities of higher wages (neoclassical economic theory) and higher living standards for the family through remittances (relative deprivation theory) are the key factors encouraging migration (Stahl, 1995). Environmental factors like famine, natural disasters, and political factors like violent conflict, persecution, or simply a lack of decent work in their home country also cause migration. At the same time, in major destination countries, increased demand for skilled workers, reluctance of local workers to accept certain low-skilled jobs, changing demographics like population decline and population ageing act as strong drivers or pull factors (Cohen, 1995). Whatever the stimulus, migration to more economically and educationally open societies is expected to improve their personal situation and professional opportunities.

India has a vivid tradition of migration, as a popular destination of traders, conquerors, missionaries and refugees, and later emerging to be a country of origin. More than a million Indians were transported to British and French colonies in the 19th century as indentured

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Original Article

Pharmacognostic and Phytochemical Evaluation of the bark of *Grewia tiliifolia* Vahl.

Jaya Kuruvilla[1], M. Anilkumar[2,*]

ABSTRACT

Introduction: *Grewia tiliifolia* Vahl. is an important ethnomedicinal tree widely distributed in the tropical and sub-tropical areas and has been used as a source of herbal shampoo by the local communities in many places of Kerala, India. It has been routinely used in the traditional Ayurvedic medicines against cough, ulcers, cancer, skin diseases, pruritus, wounds and urinary infections. **Objective:** The aim of this study was the pharmacognostical standardisation of *G. tiliifolia*. **Methods:** Pharmacognostic evaluation of *G.tiliifolia* bark was carried out by usual macroscopic and microscopic examinations and phytochemical screening. In addition, the quantification of major phytoconstituents such as alkaloids, flavonoids, phenols, tannins, saponins and carotenoids were carried out by standard procedures which can further throw light on the medicinal use of this ethnobotanically important plant. **Results:** Anatomical studies revealed the presence of prismatic crystals of calcium oxalate and druses in the stem and bark. Mucilage cavities were observed only in the stem. Histochemical studies revealed that the tissues of phloem parenchyma are the main localising region of various phytoconstituents. The physicochemical examinations along with the estimation of alkaloids, flavonoids, phenols, tannins, saponins and carotenoids will help in setting the pharmacopoeial standards of *G.tiliifolia*. **Conclusion:** The present study provides useful information that will help in the exact identification as well as assessment of purity of crude drugs of *G.tiliifoia*.

Key words: *Grewia tiliifolia*, Pharmacognostic studies, Physicochemical evaluation, Phytochemical screening, Quantification of phytoconstituents.

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INTRODUCTION

The search for natural compounds of medical importance has increased recently due to their minimal or no side effects, easy availability and affordable prize. However, in many instances natural drugs pose chances of adulteration or substitution. Thus, pharmacognosy is of great significance in the exact identification of raw drug samples and also to distinguish them from adulterants or substitutes. In pharmacognostic investigations, standardization and authentication of natural drugs through phytochemical, physicochemical and morphological studies are usually conducted to ensure their identity. Such investigations are relevant to the pharmaceutical industries for quality control and in the field of pharmacological evaluation and development of formulations for various diseases. This will help in maintaining the quality of herbal products and their therapeutic efficacy.[1]

Grewia tiliifolia Vahl. is an ethnomedicinally important plant belonging to the family Tiliaceae. The plant has potential medicinal uses and β-sitosterol and stigmasterol were identified from the stem bark.[2,3] The mucilage and hot water extract of *G. tiliifolia* bark can be used as an antidote for opium poisoning.[4] γ-lactones of hepatoprotective properties have been isolated from the stem bark of *G. tiliifolia* through bioassay-directed fractionation and chromatography of methanol extract.[5] Study on analgesic and anti-pyretic activities of *G. tiliifolia* leaves proved that the aqueous extract has an effect comparable to that of paracetamol.[6] Lupeol isolated from *G. tiliifolia* can cause apoptosis in many cancer cells.[7] The presence of lupeol and betulin were reported in three species of *Grewia* viz *G. bicolor* and *G. tiliifolia*.[4,8] The bark of this plant is used as a source of herbal shampoo by the local populations in many areas of Kerala, India, after pressing and softening. Hence the present study has been undertaken that describes its pharmacognostic standardisation *via* macroscopic and microscopic characterization, physicochemical analysis and phytochemical studies with special emphasis on the stem bark.

MATERIALS AND METHODS

Collection and authentication of plant material

Fresh stem and bark of *G. tiliifolia* was collected from Muvattupuzha region of Ernakulam District, Kerala, India. The taxonomic identification was done at the Silviculture Department, Kerala Forest Research Institute (KFRI), Peechi and voucher specimen was deposited with accession No. 13053.

Processing of plant material

The present study focused on the stem and bark of *G. tiliifolia* owing to its use as a source of herbal shampoo. The stem and bark of *G. tiliifolia* was washed well in running tap water followed by rinsing in

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Excavating Sources of a Great Flood: Travancore flood of 1924

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Abstract

This study engages with the Great Flood of 1924 occurred in the erstwhile native state of Travancore in colonial India, an important time marker in the popular memory of the people of India's south-west coast. Time markers in popular memory may not conform to the time markers of historians, although certain political events like wars or national liberation could be common to both. The popular time markers often operate at micro and intense levels: a local communal riot, for instance, or great devastations seen and suffered like a great fire. The significance of the flood was such that many old people in Travancore used to anchor their memories in relation to the flood. Events were reckoned as having occurred before, during or after the Great Flood. Autobiographies are rich with description of the flood. The flood significantly figures in many a work of fiction. The Great Flood of Travancore, 1924 has also been written into the history of India's national movement and the social history of Kerala. The flood coincided with a major social and political agitation in Travancore, the Vaikkom Satyagraha. The present study is inspired by the new mode of narrative history covering the larger scenes of flood in the Travancore using variety of archival sources.

Key words : Great Flood, Reports, Press Notes, Autobiographies, Memory

Introduction

Droughts and floods are as much social constructions as physical occurrences. In recent years, historians have begun to explore the ways natural disasters are in fact shaped by human actions[1] (Tejedo, 2004, p.199) Human intervention alters the basin ecology, contributing to increased flooding and changing flood patterns. The main human activities influencing basin ecology are filling or draining of wetlands, shrinking of water bodies, flood plain occupancy, embankment construction and changes in the land use and land cover patterns[2] (Chattopadhyaya and Franke, 2006, pp.142-146). Historical records indicate that an extremely high flood in 1341 AD in the Periyar river led to the silting up of the Cranganore port that had been a major trading centre for centuries. It also opened a new outlet to the sea at Cochin. Since there were low population densities, at that time, no loss of life or property was

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In vitro Anti inflammatory studies of the leaf extracts of *Litsea quinqueflora* (Dennst.) Suresh

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ABSTRACT

Drugs derived from plants have been used routinely in modern medicines, especially in the treatment of chronic disorders. Identification, isolation and characterization of active principles from plant derived drugs are of prime importance nowadays. It demands an extensive pharmaceutical study of the different extracts of medicinal plants to identify their biological properties. The present study was designed to assess the anti-inflammatory potential of *Litsea quinqueflora* (Dennst.) Suresh. Leaf paste of *L. quinqueflora* have been used by many traditional healers as a remedy for inflammatory disorders. But scientific validation of this practice still remains undone and hence an attempt has been made to evaluate the anti-inflammatory potential of different leaf extracts of *L. quinqueflora*. Dried powder of leaves was sequentially extracted with hexane, chloroform, ethyl acetate, methyl ethyl ketone, methanol and water. Preliminary phytochemical screening revealed the presence of flavonoids, steroids, terpenoids, phenols, alkaloids, resins, glycosides etc. in the various extracts. Ethyl acetate, methyl ethyl ketone and methanol extracts were selected for further studies due to the presence of most of the phytochemicals. Anti-inflammatory activity of the extracts was tested by inhibition of protein denaturation, proteinase inhibition and Human Red Blood Cell membrane stabilization assays. Percentage of inhibition and IC_{50} values were calculated. The assay concluded that ethyl acetate, methyl ethyl ketone and methanol extracts showed significant inhibition ($p \leq 0.05$) in a concentration dependent manner and there by the anti-inflammatory property. Among them methanolic extract (LM) showed highest activity. The results of this study supported the efficacy of *L. quinqueflora* as herbal anti-inflammatory agent.

KEY WORDS: LITSEA QUINQUEFLORA, PHYTOCHEMICALS, ANTI-INFLAMMATORY, PROTEIN DENATURATION, PROTEINASE INHIBITION, MEMBRANE STABILIZATION.

INTRODUCTION

The term inflammation springs out from a Latin word "inflammare" which means to burn. Inflammation is a defending process of body against noxious stimuli, infection or traumatic conditions. Inflammations can be acute or chronic with characteristic symptoms such as pain, heat, redness, swelling and loss of function (Raghavendra et al., 2015). It is an indication of injury or disease that occurs in living system and an alert to start healing process. Though it is a security measure of body, loss of proper control and its persistence in the tissues for a long time leads to various inflammatory disorders such as asthma, allergy, multiple sclerosis, systemic lupus erythematosus, arthritis, psoriasis, arthrosclerosis, diabetes, Crohn's disease, ulcerative colitis, etc.

Inflammatory responses are associated with changes in homeostatic balances of living body (Anilkumar, 2010; Raghavendra et al., 2015). Two types of anti-

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03

HOME ENVIRONMENT, SELF-EFFICACY AND ACHIEVEMENT MOTIVATION AMONG CHILDREN OF EMPLOYED AND UNEMPLOYED WOMEN

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Abstract

The present study intends to understand the comparison between children of employed women and unemployed women on home environment, self-efficacy and achievement motivation and to study whether there exist any gender difference in the groups. Study was conducted among 120 adolescent children who belong to the age group of 16-18 years, with 60 adolescent children of employed women and 60 of unemployed women. Each group consists of equal number of males and females. Measures used for collecting data included Home Environment Scale (HES) by Aaliya Akhtar and Shail Bala Saxena (2013), Self-Efficacy Scale (SES) by Mathur and Raj Kumari Bhatnagar (2012) and Achievement Motive Test (ACMT) by Bhargava (1994). Analysis of data was done using SPSS. Statistical procedures like t-test and correlation were done. Results of the study showed that there is significant difference between children of employed and unemployed women on their home environment and achievement motivation; with children of employed women having a better home environment and higher achievement motivation than children of unemployed women. Significant gender difference was also seen among children of employed women on home environment and achievement motivation. Significant positive correlation was found between the variables home environment and self-efficacy and also between self-efficacy and achievement motivation among the children of unemployed women.

Key words: Home environment, Self-efficacy, Achievement motivation

INTRODUCTION

Parents play a greater role in the life of children as parenting and parenting styles are important factors that can influence children's growth and development of characteristics in them. Parenting can be considered as both a biological and social process. Parenting interactions are crucial in providing the needed qualities in a growing child, such as self-efficacy, motivation, good academic performance, proper interpersonal interactions, assertiveness, moral values and many more. Parents act as the major role model for a child to follow the rules or norms and behaviour patterns that are acceptable. As children grow up, the importance of providing attention to them by their parents remains the same, especially when they reach the adolescence period. Adolescence is a period of rapid change that involves biological, cognitive, behavioural and neurological changes which have an important impact on the psychosocial functioning of the individual and relationship with others. During adolescence, parent–child relationships are thought to become more equal, interdependent, and reciprocal. Among parents, mothers have a greater role in the development of children and for centuries, mothers are considered as an important figure in the life of children. It might be due to certain social norms or cultural aspects that a mother is considered as the person who have to take care of the children

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Ecologies of Peace as Sites of Confrontation: The Crisis of Rationality in India

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Abstract

Ecologies are inextricably connected with life world that make sense of mental status that people develop in relation to the particular habitats that they create and sustain through a rationality that effectively communicate between themselves and the specific ecology. At a critical point of time, this life world rationality is challenged by the system world due to the prioritization of the state that build up its power through utilization of natural resources based on the system rationality that is in tune with industrial and commercial interests. The rationalization drive set in motion by the Capitalist networks of trade and commerce culminating in the notions of exactness in production and highly utilitarian oriented policy making cut at the very root of the life world rationality of the poor people like the tribals in India. As a historic continuum, this contestation between two rationalities make turns in the peaceful existence of the life world in the local specific ecologies which are converted as sites of extraction by the state, colonial as well as post colonial. In the post colonial nation state, the spatial dimension of this confrontation is oriented to happen inside the ecologies of the poor as well implicated in the cases of protest against the big dam making like Narmada Bachao Andolan, Chipko or regional movements. What sort of rationalization is labelled as normal and thereby make the people on the other side as riot makers? This question is invisibly related to the notions of Peace that come into confrontation with the notions of Development, making a social equation possible like, Development brings loss of Peaceful living for the poor in India. Historically rooted in colonial times, this rationality divide, make deeper inroads into the peaceful living of the poor that is neglected by the rationalization of the State and the affluent classes in India. Sites of Protest therefore emanate from sites of peaceful ecologies as a result of the subordination of the life world rationality as irrational.

Keywords: Life world, System world, Rationality, Ecology

INTRODUCTION

Peace is a mental state of mind that is innately related with the ideology and materialities of specified ecologies in which humans live, interact, work and survive. Ecologically defined communities have notions of peace developed through their interaction on different planes with their habitat and the resources that are essential for their cultural transactions and survival. When we look at this issue from the standpoint of an environmental historian changes that have occurred in the mode of resource use (Gadgil&Guha, 1992) the control regimes of that mode conceptualised and attributed definitive norms intending to configure and reconfigure resource use patterns and systems based on a rationality which often confront the life world rationality of large sections of people. We call the dominant rationality as the system rationality that is

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OPTIMISM AND GRIT AS PEDICTORS OF SUBJECTIVE HAPPINESS AMONG ADOLESCENTS

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ABSTRACT

The study aimed to examine, if optimism and grit predicts subjective happiness in adolescents and whether there is any gender difference in the above variables in the sample under study. Grit is defined as the perseverance and passion for long term goals. Optimism is the hopefulness and confidence about the future or the success of something. The experience of joy, contentment, or positive well-being, combined with a sense that one's life is good, meaningful, and worthwhile is known as subjective happiness. The sample consists of 150 students of a CBSE school, in Palakkad and Kottayam districts of Kerala. The tools used in the study consists of Short Grit Scale by Duckworth& Quinn (2009), Subjective Happiness Scale by Lyumbomirsky& Lepper (1999) and the Life Orientation Test-Revised developed by Schiener, Craver & Bridges (1994). The results indicate that females experience higher levels of grit and happiness than males and Optimism and grit significantly predict happiness. This indicate that high levels of perseverance and passion for long term goals and the hopefulness and optimism about the future plays a significant role in the individuals experience of happiness, contentment, sense that one's life is meaningful etc. And females have an upper hand in this.

***Keywords*— Subjective Happiness, Optimism, Grit, Adolescence, Gender**

I. INTRODUCTION

Adolescence is an important stage in human development. The most damaging effect of the transition into adulthood is the 'unhappiness', which is very prevalent among adolescents. Studies reveal that adolescence stands close to the top of the list of unhappy ages. Researchers have been studying the causes of unhappiness among adolescents the most common are failures in heterosexual relationships, idealism, feelings of inadequacy, lack of status, social pressures, problems of adjustment, failures in meeting needs etc. [Hurlock, 2001].

Happiness

Due to its relationship with life satisfaction, psychological well-being, and academic motivation and among others happiness is considered as important variable in positive psychology (Vela, Lu, Lenz & Hinojosa, 2015). Subjective happiness refers to individual perceptions of happiness that is related to higher self-esteem, greater career satisfaction higher academic motivation, and better self-perceived meaning in life (Vela, Lu, Lenz & Hinojosa, 2015). A study found that there are three distinct conceptions of happiness: the first equates it with a feeling of pleasure or well-being that is episodic and depends principally on fate, second is the satisfaction of having done something with one's life and is the consequence of both personal effort and good fortune and the third is a state of equanimity that depends on the cultivation of character and

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Native Labour and the Making of European Plantations in Colonial India: Perspectives from Travancore

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Abstract

This paper tries to locate the role of the Tamil labour in the plantation history of a region called Munnar Hills in the erstwhile Travancore State in Kerala. The labour migration has been a common aspect since the establishment of the plantation industry in the colonial times and the case of Munnar is no exception to this phenomenon. The coffee, tea plantations began in the early half of the 19th century required large number of labour force to work in the estates as coolies. After heavy clearing happened in the area it became imperative for the empire builder to make positive investment of labour and capital. As they faced acute shortage of labourers the planters searched for the availability of labour supply from the low country villages of Madras Presidency who were willing to work in the plantations. The planters relied upon the Kangani system by appointing the labour contractors, who later became gang bosses, to regulate the migrant labour recruitment. An advance system was also successfully employed in which the peasants of the villages under the Presidency who were in hard plight under their *Zamindars* found extremely helpful for running their life through shifting to the estates of the European planter. *Layams,* the cottages in line, for the laborers depicted the architecture of power of the colonizer planter which was a disciplining and surveillance mechanism enforced in typical conditions. It is argued in the paper that since the opening of plantations in the native state a new set of people emerged as plantation workers who were effectively utilized by the capitalist planter for the cause of industrial production of a new beverage, tea and the story of the tragedies of the labourers destined to work under contractual obligations for a living.

Keywords: Capital, Labour, Plantation, Industry, Labour Contractor (Kangani)

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RESEARCH ARTICLE OPEN ACCESS

Isolation, Identification and Characterisation of Endophytic Bacteria in *Biophytum sensitivum* (L.) DC

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Abstract

The harmless immigration of endophytic microflora in plants and their ability to synthesize various valuable compounds has attracted many researchers to work with plant-microbe interactions and also to exploit them for agricultural and medical applications. This investigation has been carried out to study endophytic bacteria in *Biophytum sensitivum* (L.) DC by the isolation, characterization and identification based on morphological features, cell characteristics, biochemical tests, plant growth promotion, 16S rDNA sequencing and phylogenetic analysis. Five different bacterial isolates were identified from this study using BLAST analysis of the 16S rDNA sequences and were submitted in GenBank followed by retrieval of accession numbers. The identified bacteria with their accession numbers are *Staphylococcus* sp. strain (MH050396); *Bacillus* sp. strain (MH050388); *Bacillus cereus* strain (MH050384); *Bacillus subtilis* strain (MH050389) and *Bacillus* sp. strain (MH050399). All isolates except *Bacillus* sp. strain (MH050399) produced Indole -3- acetic acid and the highest amount of 14.50µg/ml was obtained from *Bacillus subtilis* strain (MH050389). All bacterial endophytes reported in this study produced ammonia and siderophore thus indicating their role in plant growth promotion.

Keywords: Endophytic bacteria, Biochemical Characterization, Plant Growth activity, Phylogenetic analysis

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RESEARCH ARTICLE OPEN ACCESS

Diversity Analysis of Endophytic Bacterial Microflora in *Emilia sonchifolia* (Linn.) DC on Illumina Mi Seq Platforms

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Abstract

Bacterial endophytes inhabiting medicinal plants are less explored, but are diverse and play crucial roles in regulating growth and development of the host. Metagenomics using Illumina MiSeq platform facilitate whole community level characterization. The present study reports the diversity of bacterial endophytic microflora from the medicinal plant *Emilia sonchifolia* (Linn.) DC. Metagenomic analysis of medicinal plants leads to the identification of novel organisms or genes which will help the correlative elucidation of plant-microbe interactions. Effective sequences were amplified from 16S rRNA gene V3-V4 variable region. OTU analysis at different taxonomic level clearly catalogues two Phyla viz. *Proteobacteria* and *Firmicutes* which belonged to *Gammaproteobacteria* and *Bacilli*. In these classes five orders such as *Enterobacteriales, Pseudomonadales, Xanthomonadales, Bacillales* and *Betaproteobacteriales* were detected. Among these orders five families were identified in which the most predominant was *Enterobacteriaceae* and *Pseudomonadeaceae* while the other three families viz. *Xanthomanadaceae, Planococcaceae* and *Burkholderiaceae* were less represented. At genus level very less number of bacteria were identified while a bulk majority remained unclassified. Of the seven identified genus the most prominent one was *Pseudomonas* followed by *Stenotrophomonas, Cronobacter, Lysinibacillus, Pantoea, Kluyvera* and *Pseudorhodoferax.* At species level only two were identified vz. *Pseudomonas otitidis* and *P.geniculate.* Alpha diversity analysis using various statistical indices like Simpson and Shannon explains the diversity of microbiome. Next generation sequencing survey of DNA sample extracted from host plant through metagenomic data screening identified different endophytic bacteria which are difficult to grow in culture conditions.

Keywords: Illumina MiSeq, metagenomics, *E.sonchifolia*, medicinal plants, endophytic bacteria

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‘Imagined’ Flood as Historical Narrative:
Great Flood (1924) of Travancore

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Abstract

Literature is a reflection of life that represents the thought processes of the people and these thought processes are the outcomes of the some remarkable events that come from the experience realm of their life. Flood is an example for such a mirror image of the society that was presented by the literature, where authors blend both the imagination and reality. All the literature related to flood exhibits a multi dimensional presentation of the facts along with the interesting narrations and those narrations cannot be avoided from the novels, poems, dramas etc. The thread of the story moves only through these narrations and within these narrations they infuse the real occurrences that happened in the past. Here, the literary evidence about to act as a supplementary or supporting source along with the primary evidence in the process of reconstructing the history of Travancore flood of 1924.

Keywords: Flood, Literature, Novel, Memory

Introduction

Literature is the reflecting speculum of the society. The literature often perpetuates the memories of events and depicts the imitating picture of actions and reactions of the individuals who actually became a participant or witness of the event. These literatures tend to focus on the fascinating subjects, calamities, and adventures etc which were significant in the social and cultural context of a society of a specific period. These kinds of reflectional mentalities are observed in the writings of authors and they presented an imitating picture of the each society of different period. Therefore literature is a mirror image to identify the trends of the particular age, social evolutions, and cultural processes of the people. The authors began to enquire the multi dimensional issues of the events, their structural correlation between individual and their surroundings, and its implications on that period. Here literature emerged as a powerful tool to perceive the age in a narrative as well as in analytical way.

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THE ARCHIVED EMPIRE

Records Mirroring Planter Capitalism in Travancore

Dr. Sebastian Joseph*
Jijo Jayaraj**

ABSTRACT

The archival records on the high ranges of Munnar give not only the history of that region but also the nature and intend of the colonizer. The plantation industry became a land mark in the history of this remote region of the then princely state called Travancore. The region got transformed with the coming of the planters from Europe. It was through this process that a new record making and history making started in the area. The plantation records created by the plantation company and the British government reveals how they seen the landscape and natural resources of the region. Thus we can see that the records speak not only the government rationality but also points to a hidden meaning of imperializing a region for the sake of the European capitalists. The expectations of the European market was fulfilled by the returns from this tiny area. Department reports especially of the revenue and forest departments that figuratively project the exact utility of the land, the forested lands on the native hills. Thus the records itself become the manifestations of imperialism.

Keywords : Munnar, Plantation, Hill station, High ranges, Sources, Records, Archives, Colony, Concession, Resource, Tea, Crop

Introduction

Reconfiguration and conversion of lands under the control of the native government was an important priority of the British for making profit through the expansion of plantation system. Imperative was the demands of the colonial government and industrial capitalists, that led to the creation of a welter of records that attest the will of the Empire. A variety of documents like land surveys, travel accounts, departmental files especially revenue and forest, plantation files and files on infrastructural developments collectively implicate the urges of an industrially developed country on the native landscape. Tea, Cinchona and Coffee plantations opened and managed by the European planters produced records that on a parallel plane expose the exploitative nature of the colonial government and their hunger for land resources and its control.

Documents on the Forest Department and its Working

Right from the times of the creation of the Travancore Forest Department in 1860 a new genre of records were in the making that points to the control of the native state over its forest resources and the concomitant control exercised by the reformer regime under the Colonial tutelage. Following the creation of the department a series of forest regulations were enacted for regulating the use of the pasturage and the natural resources within the reserved forest. There is a plethora of records coming under this rubric of Regulations and Forest Rules. According to one such forest rules "the lands at the disposal of the Government may for the purpose of these rules be classed as follows; (a). lands of which the government has acquired the ownership or possession by purchase, lease or otherwise., (b). asessed unoccupied lands, unoccupied and un assessed lands, that is waste lands which are un assessed and un surveyed for

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11TH DEATH ANNIVERSARY TRIBUTE TO
MADHAVIKKUTTY/KAMALA DAS/DR. KAMALA SURAYYA

Twin-tongued Sorceress

Muse Mary George

1

The inimitable Mādhavikkuṭṭy, a writer who, for more than fifty years, lighted up (and still does) and provoked the imagination of the Malayali, was at the receiving end of a plethora of paradoxes: accolades and insults, acceptance and disgrace, adoration and rejection. She was Kamala, the daughter of the great poet Nālappaṭṭu Bālāmaṇiamma and V. M. Nair and the wife of Madhava Das. She inhabited the name "Madhavikkutty" as she emerged as the author of short stories in Malayalam. She was "Kamala Das" when she wrote poems in English. Her family indulged her with the pet name Aami. And she received the name Kamala Surrayya following her embracing the Islamic faith. It is thus that her personal-self and her writing-self got variedly represented under different names. To enquire as to how the writer-self of this writer who inhabits life/literature variedly as Aami/Kamala/Madhavikkutty/Kamala Das/Kamala Surrayya gets expressed, is also an enquiry and a realization as to how, in a patriarchal social order, a woman's experiments with/at self-expression is played out. It may be maintained that Madhavikkutty's self was one which was represented at differing/different self-levels in the public sphere.

Self is a construct. It gets shaped in accordance with the meanings construed from caste-religious-gender-social formations. Hence, selfhood as a construct emerges from a confluence of both bodily and social experience. As Raymond Williams opines, culture (and within it, the self) per se is a

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സാമൂഹികമാധ്യമവും കവിതയും

ഡോ.സിബു മോടയിൽ

അധ്യാപകൻ, മലയാളവിഭാഗം, യൂ.സി.കോളജ്, ആലുവ

സംഗ്രഹം

ഭാഷാവ്യവഹാരത്തിൽ എല്ലാ തലങ്ങളിലും അട്ടിമറി നടത്തിയ ഇടപെടലായി സാമൂഹികമാധ്യമങ്ങളുടെ പ്രവർത്തനങ്ങളെ വിലയിരുത്താം. ആധുനികാനന്തരതയ്ക്ക് ഉത്തരഘട്ടമുണ്ടായെന്നും അത് അതിവേഗത്തിൽ കലാസാഹിത്യമേഖലകളിൽ സിദ്ധാന്തവത്കരണത്തിനുപോലും നിന്നുകൊടുക്കാതെ അപ്രതീക്ഷിതവഴിത്തിരിവുകൾ ഉണ്ടാക്കുന്നുവെന്നും ഉള്ള തിരിച്ചറിവിന്റെ കാലമാണിത്. ആധുനികതയെ നമുക്ക് നിർവ്വചിക്കാൻ കഴിഞ്ഞു. ഉത്തരാധുനികതയേയും ഒരു പരിധിവരെ നിർവ്വചിച്ചു. എന്നാൽ സൈബർ കാലം അതിന്റെ സാഹിത്യത്തെ ഒരു വാക്യത്തിലോ ഒരു ഖണ്ഡികയിലോ ഒതുക്കി പരിചയപ്പെടുത്താൻ കഴിയാത്തവിധത്തിൽ ബഹുവിധമായ സംവേദനസാധ്യതകൾ നിരന്തരം തുറന്നുകൊണ്ടിരിക്കുന്നു. ആ സാധ്യതകളുടെയും അതിന്റെ ഫലങ്ങളുടെയും വിശകലനം സമകാലികമലയാളകവിതയെ മുൻനിർത്തി നിർവ്വഹിക്കാനാണ് ഈപ്രബന്ധത്തിൽ ശ്രമിച്ചിരിക്കുന്നത്. നവമാധ്യമകവിത ഹൈപ്പർലിങ്കുകളിലൂടെ വായനയുടെ പുതിയ സാധ്യത തുറക്കുന്നതിനെപ്പറ്റിയും സംവാദക്ഷമതയുള്ള പുതിയ കാവ്യഭാഷ നിർമ്മിക്കുന്നതിനെപ്പറ്റിയും പ്രത്യേകം സൂചിപ്പിച്ചിരിക്കുന്നു.

സാമൂഹികമാധ്യമങ്ങളാണ് ഇന്ന് ഭാഷാപരിണാമത്തിന്റെ ചരടുവലി നിർവ്വഹിക്കുന്നത്. ഭാഷ സാമൂഹികമാധ്യമത്തിലൂടെ കടക്കുമ്പോൾ കേവലം അർത്ഥപരിണാമത്തിനു മാത്രമല്ല പുതിയതരം അർത്ഥസംവേദനത്തിനും സാഹചര്യമുണ്ടാക്കുന്നു. ഇതിൽ ഏറ്റവും പ്രധാനപ്പെട്ടത് സംവാദക്ഷമത (Interacive Potentiality) യാണ്. ഇത്തരമൊരു സംവാദക്ഷമത ഭാഷയ്ക്കുണ്ടാകുന്നത് നവമാധ്യമങ്ങളുടെ സ്വാധീനത്താലാണ്. പഴയ സാഹിത്യനിരൂപകന്റെ പണി ഇന്ന് നാട്ടുകാർ മുഴുവനും ഏറ്റെടുത്തിരിക്കുകയാണ്. ഊള, കിടിലം, കിടുക്കാച്ചി, പൊളിസാനം തുടങ്ങിയ പ്രയോഗങ്ങളിലൂടെ അവർ ഖണ്ഡനവും മണ്ഡനവും നിർവ്വഹിക്കും. എന്നാൽ കോശാധിഷ്ഠിത ആശയകവിതയുടെ കാലത്ത് വായനയുടെ ഈ സ്വാതന്ത്ര്യം പ്രഖ്യാപിക്കപ്പെട്ടിരുന്നില്ല. ഭാഷയുടെ സംവേദനക്ഷമതയുടെ പരിധിയെപ്പറ്റിയുള്ള ധാരണയില്ലായ്മ അച്ചടിയുടെ പ്രഭാവകാലത്ത് ഉണ്ടായിരുന്നു. അതിന്റെ സംവാദസാധ്യതയും അതുകൊണ്ടുതന്നെ അടയ്ക്കപ്പെട്ടിരുന്നു.എന്നാൽ സാമൂഹികമാധ്യമങ്ങളുടെ

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Forests as the Material and the logic of Working Plans in British India : The case of Travancore and Cochin

❒ Dr. Lekha Pillai*
Dr. Sebastian Joseph**

ABSTRACT

Working Plans are considered as the major tool of scientific forestry for working of the forests. Scientific forestry was introduced for checking the ruthless felling of the forests. It along with working plans helps in the systematic exploitation of timber which was contended to provide timber in perpetuity. But Coming to practice it was clear that during high demand from market, working plans were totally neglected and working of timber becomes in tune with market demands. Working plans in that sense were used for the consolidation and expansion of the British empire in India and beyond.

Keywords : Scientific Forestry, Working Plan, Sylviculture, Timber, sustainable forestry

Introduction

Forests and forests resources are always a concern for any state that look at the material as well as ecological gains they provide. In British India, definitive steps were taken in the conservation and commercialization of forests in the last phase of the Company regime. It became an imperative agenda of the colonial state with the assumption of India and her vast vegetative spatial dimension. Apart from gaining rights over the forests, the British government carefully surveyed the forests, systematically calculated profitable gains in the form of good quality timber, monopolized its trade and use through certain apparatuses of management. Forest working plans were one such strategy, seemingly conservative in nature but extractive in application. Working plans for the effective management of the sylvan resources were extended into the political geography of the native states whose forest wealth was well documented by the reform/disciplining regime established in such regions through the Resident rule. In this paper we attempt a critical study of the forest working plans focusing on its application in the native regions under the rubric of scientific forestry of the Raj.

Scientific forestry

The expansion of commercial agriculture under the East Indian Company and later the construction of the railways seriously depleted timber resources on the Indian sub-continent. This led to the introduction of sustainable and scientific forestry. Sustainable forestry is defined as management of forested areas in order to provide wood products in perpetuity. (Morgenstern,2007, , Vol 83, No. 4,) In response the colonial authorities in India created the Indian Forestry Service and introduced modern scientific forestry from continental Europe in order to prevent further destruction of the forest resources.(Oosthoek,2007, p.1) Scientific forestry was imported from France and Germany, where it had developed since the late 18th century.(Oosthoek, 2007,p.1)Practical scientific forestry in India was first introduced by Dietrich Brandis , the first Inspector-General of British Indian forest who was a Botanist by practice. He carried out systematic surveys and drew up management plans based on growth statistics.

History of scientific forestry can be divided into three stages in south India: in the first stage focus was devoted to plantations of valuable timber trees from

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WTO @ 25 : GAUGING INDIA'S GAINS

Dr. G. Geethika*

ABSTRACT

India is a founding member of the World Trade Organisation (WTO) and has been actively engaged with the functions of the organization. India had signed the General Agreement on Tariffs and Trade (GATT), the predecessor of WTO and since then has been an active member of the International trading community. Since the 1990s, India's trade relations have changed significantly, owing to the end of the Cold War and the liberalization policies adopted by the Government of India. The membership in WTO has benefitted India in many ways, encouraging trade and innovation.But as a developing country it has also presented India with some trials, especially with respect to redrafting the domestic legislations in order to comply with WTO norms. Now, as WTO completes 25 years, this paper intends to briefly evaluate the opportunities and challenges it has offered to India.

Keywords : India, WTO, Trade, TRIPS, Agriculture, Services

I. Introduction

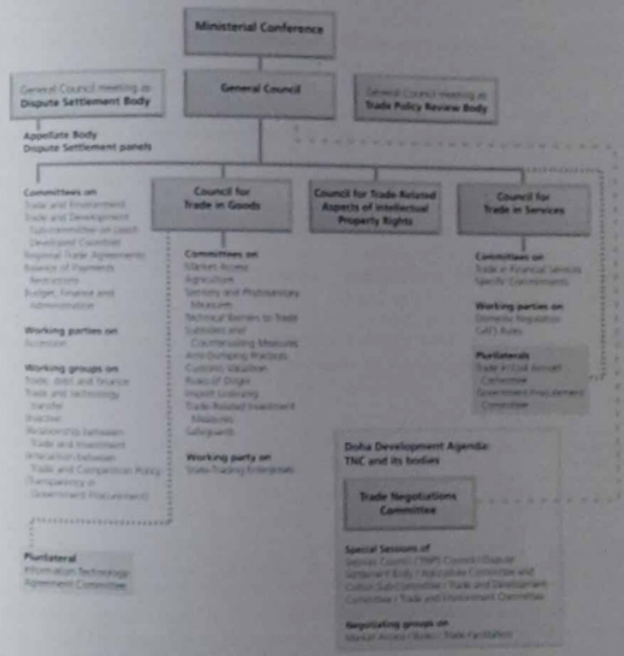
International trade has a very long history dating back to the early barter system. In the 16th and 17th centuries, it followed the principles of Mercantilism and gold standard. Conflict prevailed over cooperation and trade wars were commonplace. Liberalism in Western Europe in the 18th century saw a dramatic shift in favour of free trade.Countries preferred to remove restrictions and reduce customs duties, but the First World War brought about wartime controls. As a recourse to overcome the dire situation of Great Depression and Second World War, the World Economic Conference was held in 1927 and the General Agreement on Tariffs and Trade (GATT) was adopted in 1948. Gradually, the economies recovered and transformations in technology, rise of MNCs and the neo-liberal policies necessitated further modifications in trade policies. A new regime was envisaged in the Uruguay Negotiations (1986-1994) of GATT. The result was the setting up of the World Trade Organisation (WTO).

The WTO has been instrumental in making trade laws binding on all the member countries. It has also expanded the scope to services, intellectual property etc. Developing countries, like India, have found themselves in a perplexed situation where they could neither reject nor fully accept the new rules of trade. This paper proposes to briefly analyse the impact of 25 years of WTO membership on the Indian political economy.

II. From GATT to WTO: Institutionalising Trade

The WTO was established on 1 January 1995 as part of the Marrakesh Agreement concluding the Uruguay Round (1986-1994) of GATT negotiations. The main objectives of WTO are- regulate international trade; provide forum for negotiations on trade liberalisation; dispute settlement; increase transparency of decision-making; cooperate with other international institutions like IMF, World Bank; and be a centre of economic research. Towards this, the members are signatories of nearly 60 agreements. The most notable ones are Agreement on Agriculture (AoA), Agreement on the Application of Sanitary and Phytosanitary Measures (SPS), General Agreement on Trade in Services (GATS), Agreement on Trade Related Investment Measures (TRIMs) and Agreement on Trade Related Intellectual Property Rights (TRIPS)(Geethika, 2018).

The highest body within the organisation is the Ministerial Conference and each member country is represented by its Minister of Trade. The members have agreed to conduct the Ministerial Conference once every two years and the twelfth Ministerial Conference is scheduled to be hosted by Kazakhstan in June 2021 (WTO, 2020b). The other important bodies are the General Council, Dispute Settlement Body, Trade Policy Review Body and the three Councils of goods, intellectual property and service. It also serves to build trade capacity in developing countries through steps like the Aid for Trade Initiative, the Enhanced Integrated Framework etc.It also publishes review report of each country's trade policies(Geethika, 2018).



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WTO now has 164 members and 24 observer countries. It regulates 98% of world trade. Through principles of transparency, reciprocity and non-discrimination it assimilates countries into global trade, affecting the lives of more and more people every day.

III. India in WTO: Early Years

India is a founding member of WTO. During the Uruguay negotiations, strong reservations were

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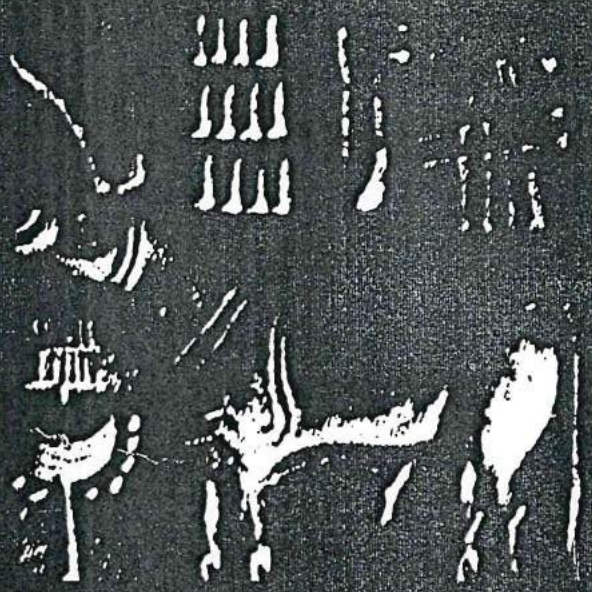

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ഉള്ളടക്കം

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എം.ഐ. പുന്നൂസ്

പാരമ്പര്യ ക്രൈസ്തവകലകൾ: സ്വത്വനിർമിതിയും സാംസ്കാരികസമന്വയവും

സംഗ്രഹം

നാട്ടുക്രൈസ്തവ സമൂഹത്തിന്റെ ആത്മീയഐക്യവും സാസ്കാരിക സജീവതയും ഊട്ടിയുറപ്പിക്കുന്നതിൽ പാരമ്പര്യ ക്രൈസ്തവ കലകൾ വഹിച്ച പങ്ക് വിശകലന വിധേയമാക്കുന്ന പഠനപ്രബന്ധമാണ് 'പാരമ്പര്യ ക്രൈസ്തവ കലകൾ: സ്വത്വനിർമിതിയും സാസ്കാരിക സമന്വയവും' എന്ന ലേഖനം. ഗോത്രകാലംമുതലുള്ള സാമൂഹികജീവിതത്തിൽ ആട്ടവും പാട്ടും ചെലുത്തിയിട്ടുള്ള സ്വാധീനതകളെക്കുറിച്ച് സൂചിപ്പിച്ച് കലകളുടെ ഏകോപന ശക്തിയും സിദ്ധാന്തവും സമർഥിച്ചിരിക്കുകയാണ് ആദ്യഭാഗത്ത്. പാരമ്പര്യ കേരളക്രൈസ്തവസമൂഹത്തിന്റെ ആത്മീയ ഐക്യം സ്ഥിരപ്പെടുത്തിയിരുന്നതിൽ ക്രൈസ്തവകലകൾ വഹിച്ച പങ്ക് ചർച്ച ചെയ്യുകയും കലോപാസനകളുടെ ഈ പാരമ്പര്യോർജശക്തി തിരിച്ചറിഞ്ഞ ബിഷപ്പ് മെനസിസ് ഉദയം പേരൂർ സുനഹദോസ് കാനോനകളിലൂടെ കലാനിരോധനത്തിനു

എം.ഐ. പുന്നൂസ്, മലയാളവിഭാഗം, യു.സി. കോളജ്, ആലുവ.

തിരുവോണം വർത്തമാനകാല സമസ്യയിൽ

സെപ്റ്റംബർ 2020

വില ₹ 25

വിജ്ഞാനകൈരളി

കേരള ഭാഷാ ഇൻസ്റ്റിറ്റ്യൂട്ട് പ്രസിദ്ധീകരണം

കലിഗ്രഫിയുടെ നാട്ടുവഴികൾ

ഇലക്ട്രോൺ : സർവവ്യാപിയും സർവശക്തിയും

അമ്മ കഥാവിഷയമാകുമ്പോൾ

മാധവിക്കുട്ടി

അമ്മ കഥാവിഷയമാകുമ്പോൾ

ഡോ. മ്യൂസ് മേരി ജോർജ്

മാതൃത്വത്തിന്റെ ഭിന്നമുഖങ്ങൾ മാധവിക്കുട്ടിയുടെ കഥകളിൽ പ്രകടമാണ്. 'കോലാട്', 'നെയ്പായസം', 'അമ്മ', 'കിറിപ്പൊളിഞ്ഞ ചകലാസ്', 'സ്വയംവരം', 'സുന്ദരിയായ മകൾ', 'ചന്ദനച്ചിത', 'രോഹിണി' തുടങ്ങിയ കഥകളിൽ മാതൃത്വത്തിന്റെ വ്യത്യസ്ത ചിത്രങ്ങൾ കാണാവുന്നതാണ്. നിലവിലുള്ള സാമൂഹ്യവ്യവസ്ഥയെ തനിക്ക് അഭിമുഖമായി നിർത്തിക്കൊണ്ടാണ് ഈ കഥകളുടെ രചനകൾ അവർ നിർവഹിച്ചിരിക്കുന്നത്. മാതൃത്വത്തിന്റെ ഉദാത്തീകരണമോ, ആദർശവൽക്കരണമോ ഈ കഥകളിൽ പ്രകടമായി വരുന്നില്ലെങ്കിലും പരമ്പരാഗതമായ മാതൃചിത്രങ്ങളിൽ കാണുന്ന യാതനയും കഷ്ടപ്പാടും നിരന്തര സഹനവുമൊക്കെ ഈ കഥകളിൽ ഉള്ളടങ്ങിയിട്ടുണ്ട്.

മാധവിക്കുട്ടിയുടെ കഥകളിൽ വളരെ ചർച്ച ചെയ്യപ്പെട്ടിട്ടുള്ള കഥയാണ് 'കോലാട്'. "അമ്മേ നിങ്ങളെ കണ്ടാൽ കോലാടിനെയാണ് ഓർമവരുന്നത്" എന്ന പുരുഭാഷണത്തിൽ നിന്നാണ് തലക്കെട്ടിന് വേണ്ടുന്ന പദം കണ്ടെടുത്തിരിക്കുന്നത്. മെലിഞ്ഞും മൊരിഞ്ഞും തേഞ്ഞുപോയ കട്ടംചീന്തുകളുടുത്തുകൊണ്ട് സ്ത്രീയുടെ സ്വതന്ത്രമായ ആവിഷ്കരിക്കാനാണ് ഇവർ ശ്രമിക്കുന്നത്. ഇതേ പേരിൽ ഒരു കവിതയും അവർ എഴുതിയിട്ടുണ്ട്. "അവളുടെ ഒട്ടിയ കവിളുകളും മെലിഞ്ഞ കാലുകളും നോക്കി മക്കൾപറയുമായിരുന്നു, അമ്മേ, അമ്മ ഒരു കോലാടുപോലെ."

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ഭൂമി മലയാളം

വിദ്വാൻ പി. ജി. നായർ സ്മാരക ഗവേഷണകേന്ദ്രം
മലയാളവിഭാഗം, യു.സി. കോളേജ്, ആലുവ

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സിനിമ
കലയും രാഷ്ട്രീയവും

എഡിറ്റർ
ഡോ. സിബു മോടയിൽ

പുന്നപ്ര-വയലാർ: അനുകൽപ്പനത്തിലെ വീക്ഷണഭേദങ്ങൾ

ഡോ. എം.ഐ. പുന്നൂസ്

ചരിത്രം ഓർമ്മകളുടെ വീണ്ടെടുപ്പാണ്. ഓർമ്മകളുണ്ടായിരിക്കണമെന്ന വാക്യം ചരിത്രബോധ്യങ്ങളുടെ പ്രസക്തി വ്യക്തമാക്കുന്ന സൂചനാവാക്യമാണെന്നു പറയാം. ചരിത്രസംഭവങ്ങളെ കഥകളുടെയും പാട്ടുകളുടെയും വാങ്മയ പായ്ച്ചുരുളുകളിലാക്കിയാണ് പഴമനസ്സുകൾ കൊണ്ടുനടന്നിട്ടുള്ളത്. സന്ദർഭാനുസരണം വാങ്മയച്ചുരുളുകൾ നിവർത്തിയിട്ടും അല്ലാത്തപ്പോൾ ഭദ്രമായി ഓർമ്മയുടെ അടരുകളിൽ തെറുത്തുകേറ്റിയും ചരിത്രഗതികളെ സമൂഹമനസ്സ് ഭദ്രമായി സംരക്ഷിച്ചു പോന്നു. ചരിത്രസംഭവങ്ങളെ അതിന്റെ വസ്തുനിഷ്ഠതയോടെയും കൃത്യമായ നാൾവഴിക്കണക്കുകളോടെയും ഓർമ്മയിൽ സൂക്ഷിക്കാൻ സമൂഹമനസ്സിന് കഴിയില്ലെന്നതാണ് സത്യം. സാമൂഹിക ചിന്തകനായ മിർഷ്യഎലിയഡ് ഇങ്ങനെ എഴുതുന്നു.: 'The recollection of a historical event or real passage survives in popular memory for two or three centuries at the utmost. This is because popular memory finds difficulty in retaining individual events and real figures.'[1] ഇത് ലിഖിതവൃത്തി വൈഭവങ്ങളുടെ അഭാവം കൊണ്ടു മാത്രം സംഭവിക്കുന്നതല്ല. ചരിത്രസംഭവങ്ങളെ നാൾവഴികൃത്യതയോടെ രേഖീയനിലയിൽ ഓർത്തുവെയ്ക്കാൻ സമഷ്ട്യബോധത്തിന് കഴിയില്ലെന്നതാണ് യാഥാർത്ഥ്യം.

വാങ്മയ ചരിത്രാഖ്യാനങ്ങളെ സമാന്തരചരിത്രം (Para history) എന്ന് മൈക്കിൾ ഗ്രാന്റ് (Michael Grant) വിശേഷിപ്പിക്കുന്നതിന്റെ അടിസ്ഥാനമിതാണ്. ചരിത്രത്തിൽ എന്തു സംഭവിച്ചു എന്നല്ല, എന്തെല്ലാം സംഭവിച്ചിരിക്കാനിടയുണ്ടെന്ന മനുഷ്യന്റെ ജിജ്ഞാസാഭരിതമായ അന്വേഷണങ്ങളാണ് ഈ സമാന്തരചരിത്രം സൃഷ്ടിക്കുന്നതെന്ന് അദ്ദേഹം നിരീക്ഷിക്കുന്നുണ്ട്.[2] ചരിത്രം ആവശ്യമായിരിക്കുന്നതുപോലെ തന്നെ ഒരാൾക്ക് മിത്തുകളുടെ സമാന്തരചരിത്രവും ആവശ്യമാണെന്ന് അദ്ദേഹം സമർത്ഥിക്കുന്നുണ്ട്.

ഡോ. എം.ഐ. പുന്നൂസ്: അസോസിയേറ്റ് പ്രൊഫസർ, മലയാള വിഭാഗം, യു.സി. കോളേജ്, ആലുവ

വൈകാരികാംശമുള്ള ഏതു ചരിത്രസംഭവത്തെയും മിത്തുകളായി മാറ്റാനുള്ള വാസനയാണ് സമൂഹത്തിന്റെ അബോധമനസ്സിനുള്ളത്. ചരിത്രാംശങ്ങൾക്ക് ഭാവനയുടെയും ദിവ്യതയുടെയും പരിവേഷം പകർന്ന് പുരാവൃത്തങ്ങളായി പുനഃസൃഷ്ടിക്കുന്ന പ്രക്രിയയാണ് ചരിത്രത്തിന്റെ പുരാവൃത്തവത്കരണം(Mythification of history) എന്നു പറയുന്നത്. ഉദാഹരണത്തിന് അടുത്ത വർഷങ്ങളിലുണ്ടായ ഒരു പ്രകൃതി പ്രതിഭാസമായിരുന്നു സുനാമി. ദക്ഷിണതീരങ്ങളിൽ സർവ്വനാശം വിതച്ച ആ പ്രകൃതി പ്രതിഭാസത്തെക്കുറിച്ച് ഇതിനോടകം ഒട്ടേറെ നാടോടി ആഖ്യാനങ്ങളും അത്ഭുതകഥകളും പ്രചരിച്ചു കഴിഞ്ഞിട്ടുണ്ട്. കേരളം നേരിട്ട മഹാപ്രളയങ്ങളെക്കുറിച്ചും ഇത്തരത്തിൽ പുരാവൃത്തവാങ്മയാഖ്യാനങ്ങൾ സമൂഹമനസ്സ് സൃഷ്ടിക്കുമെന്നതിൽ സംശയമില്ല. ഏഴു പതിറ്റാണ്ടുകൾക്കു മുമ്പുനടന്ന പുന്നപ്ര-വയലാർ സമരചരിത്രവും പുരാവൃത്തവത്കരണത്തിന് വിധേയമായിക്കൊണ്ടിരിക്കുന്ന ചരിത്രേതിഹാസമാണ്.

പുന്നപ്ര-വയലാർ: കരപ്പുറത്തിന്റെ സമരേതിഹാസം

സാമൂഹികനീതി നിഷേധത്തിനും തൊഴിലാളി ചൂഷണത്തിനുമെതിരെ നടന്നിട്ടുള്ള ജനകീയ സമരങ്ങളുടെ ചരിത്രത്തിൽ ഐതിഹാസികമായ ഒരേടാണ് പുന്നപ്ര-വയലാർ സമരം. 1946 ഒക്ടോബറിൽ നടന്ന രക്തരൂക്ഷിതമായ സമരത്തിലും വെടിവെപ്പിലും നൂറുകണക്കിനാളുകളാണ് കൊല്ലപ്പെട്ടത്. മരണസംഖ്യ സംബന്ധിച്ചു വളരെ അന്തരമുള്ള ചരിത്രനിലപാടുകളാണുള്ളത്. നിറതോക്കേന്തി നിന്ന സർ സി.പി.യുടെ പട്ടാളത്തിനു മുന്നിലേക്ക് വാരിക്കുന്തങ്ങളുമായി തൊഴിലാളിനേതാക്കളെ നയിച്ച സമരനേതാക്കളെ പരിഹസിക്കുന്ന ചരിത്രപക്ഷങ്ങളുണ്ട്. നിഷ്കളങ്കരായ കർഷകത്തൊഴിലാളികളുടെ യുദ്ധതന്ത്രജ്ഞതയെ അധിക്ഷേപിക്കുന്ന ചരിത്രകാരന്മാർ പക്ഷേ, ഇത്തരമൊരു കലാപം അനിവാര്യമാക്കിയ ചരിത്രസന്ദർഭങ്ങളെക്കുറിച്ച് മൗനം പാലിക്കുകയാണ് ചെയ്തു കാണുന്നത്. മനുഷ്യാവകാശങ്ങളെയും തൊഴിലാളികളുടെ അന്തസ്സിനെയും അത്രമേൽ അപമാനിച്ച മുതലാളിത്ത മനോഭാവവും കിരാതമായ ദിവാൻവാഴ്ചയും ഇത്തരമൊരു കലാപം ക്ഷണിച്ചു വരുത്തുകയായിരുന്നു എന്നതാണ് യാഥാർത്ഥ്യം. ഇത്തരമൊരു സമരം ഉണ്ടായിരുന്നില്ലെങ്കിൽ മാത്രമേ അത്ഭുതപ്പെടേണ്ടിയിരുന്നുള്ളുവെന്നാണ് തകഴി അഭിപ്രായപ്പെടുന്നത്. പുന്നപ്ര-വയലാർ സമരചരിത്ര ഗ്രന്ഥത്തിനെഴുതിയ അവതാരികയിൽ തകഴി ഇങ്ങനെ എഴുതുന്നു. "ഈ സമരത്തിൽ വെടിയേറ്റു മരിച്ചുപോകും. മരിച്ചു പോകുന്നെങ്കിൽ മരിച്ചുകൊള്ളട്ടെ എന്ന ബോധ്യമായിരുന്നു. മരിച്ചുപോകുമെന്ന് അറിഞ്ഞു കൊണ്ടുതന്നെ മരണത്തെ നേരിടുവാൻ പരസഹസ്രം ആളുകൾക്ക് കഴിഞ്ഞു എന്ന വസ്തുത ചിന്താർഹമായ കാര്യമാണ്. ജനങ്ങളുടെ ഈ ആവേശത്തെ ബഹുമാനിച്ചേ കഴിയുകയുള്ളൂ."[3]

പോലീസ് തേർവാഴ്ചയിലും ജന്മിമാരുടെ ഗുണ്ടാമർദ്ദനങ്ങളിലും പൊറുതി മുട്ടിയ തൊഴിലാളി വർഗ്ഗത്തിന് കയ്യിൽ കിട്ടുന്നതെന്തും; അത് വാരിക്കുന്തമോ കത്തിയോ, കല്ലോ എന്തായാലും അതെടുത്ത് പ്രതിരോധിക്കാൻ

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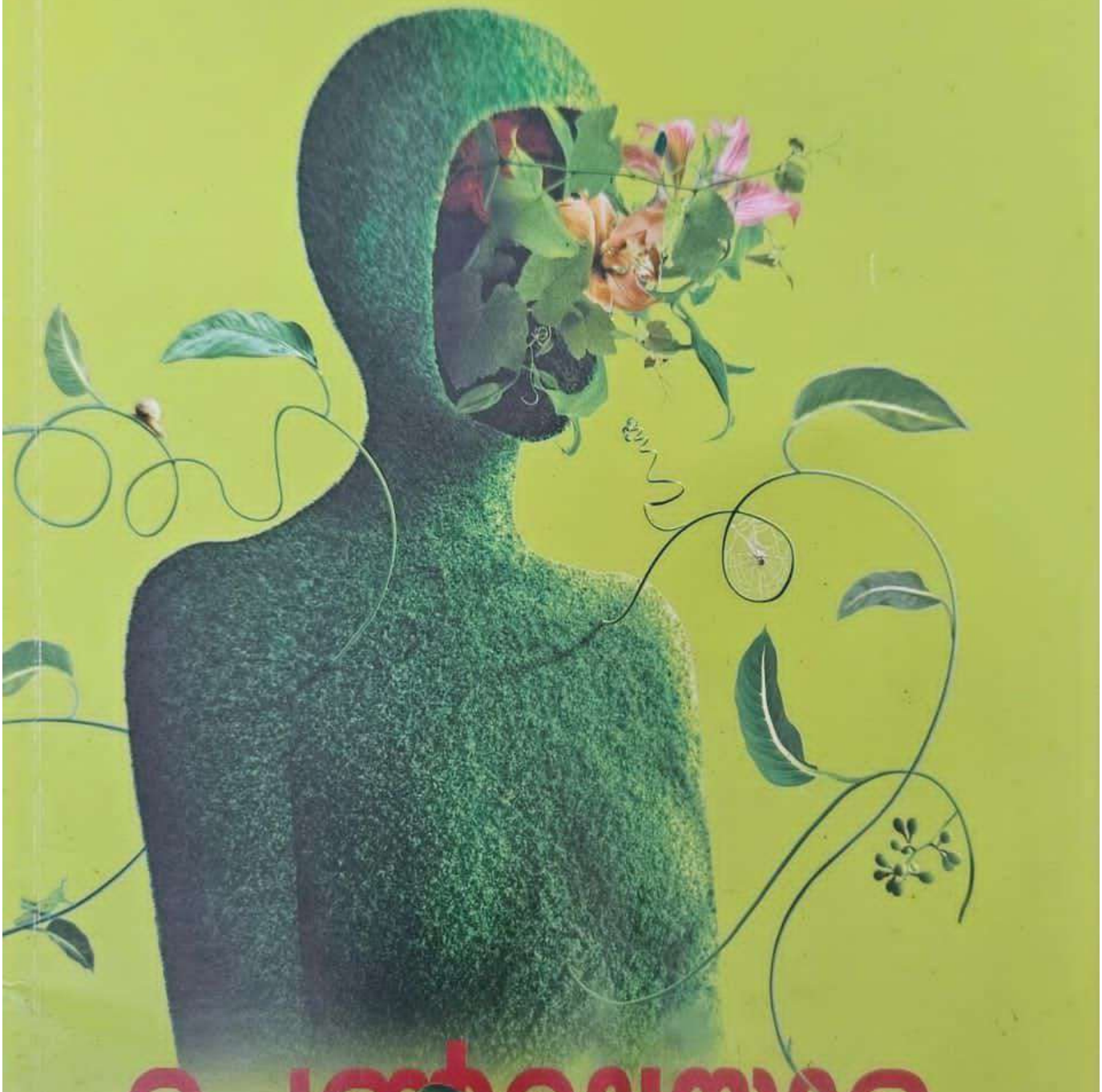
സാഹിത്യ ലോകം

കേരള സാഹിത്യ അക്കാദമി

വാള്യം 49 | ലക്കം 2 2020 മാർച്ച്-ഏപ്രിൽ



പെൺമലയാളം

ജീവിതത്തിന്റെ സ്ത്രീപക്ഷവായനകൾ

■ ഡോ. മ്യൂസ് മേരി ജോർജ്

പ്രണയത്തിന്റെ ഇരട്ടമുഖം

മാധവിക്കുട്ടിയുടെ കഥകളിലെ പ്രണയലോകം

പാരമ്പരാഗതമായ സ്ത്രീ റോളുകളും പാരമ്പര്യവുമായുള്ള പൊരുത്തപ്പെടായ്കയും ചേർന്നതാണ് മാധവിക്കുട്ടിയുടെ കഥാലോകം. ഈ പൊരുത്തക്കേട് കഥകൾക്ക് അനുരഞ്ജനത്തിന്റെയും അമർഷത്തിന്റെയും നിരാസത്തിന്റേതുമായ സങ്കീർണ്ണമുഖം നൽകുന്നു. ''പാരമ്പര്യവുമായി എനിക്കു പൊരുത്തപ്പെടാനാവുന്നില്ല. ഇല്ലുമുത്തശ്ശി, ഞാനൊരിക്കലും ഈ സമൂഹത്തിന് വേണ്ടപ്പെട്ടവളാകില്ല'' (*ഭയം എന്റെ നിശാവസ്ത്രം*) എന്ന് അവർ തുറന്നു സമ്മതിക്കുന്നു.

സ്നേഹപരാജയങ്ങളുടെയും അവഗണിക്കപ്പെട്ട സ്ത്രീത്വത്തിന്റെയും ശാപമാകുന്ന സ്ത്രീയവസ്ഥയുടെയും വിഫലദാമ്പത്യത്തിന്റെയും കഥകൾ മാധവിക്കുട്ടി എഴുതിയിട്ടുണ്ട്. സ്ഥാപനസ്വഭാവിയായ വീടകങ്ങൾക്കുള്ളിൽ നിന്ന് വിടുതിക്കായി ശ്രമിക്കുന്ന നായികമാർ അവരുടെ കഥാലോകത്ത് ആവർത്തിച്ചു പ്രത്യക്ഷപ്പെടുന്നു. വിവാഹവ്യവസ്ഥയ്ക്കുള്ളിൽ നിൽക്കുന്ന സ്ത്രീകൾ നടത്തുന്ന പ്രണയങ്ങളാണ് ഇത്തരം കഥകൾ വിഷയമായി സ്വീകരിക്കുന്നത്. ഭാര്യ എന്നും കാമുകിയെന്നും അവരുടെ പ്രണയസ്വത്വം രണ്ടായി പിളർന്ന് ഒരു സ്വത്വപരമായ ദ്വന്ദ്വാത്മകത നിലനിൽക്കുന്നു. മറ്റൊരു വിഭാഗം കഥകളിൽ സ്വത്വപരമായ ദ്വന്ദ്വാത്മകതയെ നിർദ്ധാരണം ചെയ്യാൻ ശ്രമിക്കുന്ന നായികമാരെയും അവർ ആവിഷ്കരിച്ചിരിക്കുന്നു.

RELATIONSHIP BETWEEN OPTIMISM AND STRESS TOLERANCE AMONG FLOOD VICTIMS

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ABSTRACT

Disasters like flood can result in creating phobia, depression, anxiety etc. in victims, the psychological distress may also affect their optimism, stress tolerance, resilience etc. and thereby their overall psychological wellbeing. Optimism enables an individual to set goals, make commitments, tolerate with adversity and pain and recover from trauma and stress (Schneider &Leitenberg, 1989).Stress tolerance refers to a person's ability to withstand stress without becoming seriously impaired (Carson, Butcher &Mineka, 1996). ***Objectives of the study:*** *to find out whether there is any difference among flood victims on the basis of age on optimism and stress tolerance, whether there is any gender difference on optimism and stress tolerance among*

threegroups (primary, secondary and both) of flood victims, whether there is any difference between the three groups of victims on optimism and stress tolerance, and also to explore the relationship between optimism and stress tolerance among flood victims. ***Method: (a).participants-*** *the study was conducted on 115 flood victims, from Ernakulam district in Kerala; in the age range 18-50 years.* ***(b).materials-****Life Orientation Test – Revised (Scheier&Carver ,1994), Stress Tolerance Scale (Reshmy&Sanandaraj,1999).* ***Results and conclusion:*** *the results reveal that there is any difference among flood victims on the basis of age on optimism, gender difference among primary victims on optimism among primary victims who engaged in volunteering and/recue activities on stress tolerance and a significant positive correlation between optimism and stress tolerance among flood victims. It is implied that inculcating optimistic view at home and at school, providing optimism based training sessions at school from very early years of age can result in generations that will be able to tolerate stressful events in life, whether it is personal issues, manmade or natural disasters.*

KEYWORDS*:* Optimism, stress tolerance

INTRODUCTION

Disasters affect millions of people around the globe every year. There is, on average, at least one disaster every day worldwide, and the frequency and human impact of disasters have been increasing owing to climate change and growing population density. The American Psychological Association (2013) defines trauma as "an emotional response to a terrible event like an accident, rape or natural disaster". Even if people are not hurt physically, disasters can take an emotional toll. A variety of psychological issues like depression, substance abuse, suicide ideation, post-traumatic stress disorder, phobias, interpersonal or in group conflict, anxiety may

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