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RESEARCH ARTICLE

Production of Organic Liquid Biofertilizer from Fish Waste and Study of its Plant Growth Promoting Effect

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Abstract Fish processing generates substantial amount of biological waste. Processing of fish involves stunning, grading, slime removal, deheading, washing, scaling, gutting, cutting of fins, meat bone separation and steaks and fillets. During these steps significant amount of waste is generated. The accumulated wastes without appropriate utilization have resulted in problems related to waste disposal and environmental pollution.

Fish waste (skin and scales) previously utilized for 'collagen' recovery, was converted into nutrient rich fish hydrolysate by combined actions of isolated *Bacillus subtilis* strain MPK and *Bacillus thuringiensis* strain MCJ18. The plant growth promoting effect of fish waste hydrolysate was evaluated. Fish hydrolysate, 5% and 10% found to be effective in *Capsicum annum* (chilli) and *Vigna unguiculata* (cow pea), respectively. Improvement in plant traits like shoot length, root length, number of leaves, pods, root nodules, fruits, fresh and dry weight was observed. Similarly, free proteins, amino acids, total phenolics, flavonoid and chlorophyll content were recorded and found higher than control plants. Additionally, fish hydrolysate also helped in elevating soil micro and macronutrients status. Thus, conversion of fish waste into organic biofertilizer could be an efficient, novel, eco-friendly approach to overcome environmental issues as well as adverse agricultural problems associated with the use of chemical fertilizers.

Significance statement Conversion of fish waste into organic liquid biofertilizer as an efficient, novel, eco-friendly approach to overcome adverse environmental and agricultural issues.

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Keywords Fish hydrolysate · Cow pea seedlings · *Bacillus thuringiensis* MCJ18 · Liquid fertilizer · Secondary screening

Introduction

Recent development in aquaculture and fisheries steadily increased during last decade and this trend is expected to continue. Majority of the fishery products used for human consumption were processed by fish processing industries. Hence, significant amount of waste and by-products are generated from it [1]. Moreover, abandoned, discarded fishery waste and its inappropriate disposal in sea or land is a major cause of marine and land pollution [2]. Such organic waste has impact on environment which negatively affects the aquatic and terrestrial habitat. Hence, waste management methods must include appropriate biodegradation strategies to reduce load of pollutants.

According to the literature, fish waste contains oils, amino acids, gelatin, collagen, pigments, bioactive peptides, vitamins, lectin and leather. Several researchers conducted experiments to recover most of them [3–5]. Simultaneously, by products are also processed for low market potential products like fish meal, fish silage, animal feed, oil, and fertilizer. However, the method of fish meal and silage production is costly [6]. Direct utilization of processing waste as animal feed develops fishy smell in meat and increases the mortality rate by perforating small pieces in throat, stomach and intestine [7]. Similarly, fertilizer application of it attracts mice and flies producing unusual smell [8]. To overcome this problem, enzymatic hydrolysis was the best option to avoid such kind of hurdles. So the degradation of fish waste using microbial source solves waste disposal problem and

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ORIGINAL ARTICLE

Subtype diversity and emergence of drug resistance in HIV-1 in solapur district of Maharashtra, India

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ABSTRACT

Background and Objectives: Even after four decades, HIV infection remains a global challenge and a leading cause of mortality in adults across the world. Anti-retroviral therapy (ART) that controls HIV viremia, is now available through public health facilities in India but drug resistance, which is likely to develop among these individuals remains poorly studied in India. The objectives of present study are to find out the HIV-1 virus subtypes, drug resistance mutations and HIV-1 drug resistance to NRTI, NNRTI and protease inhibitors in the Solapur district, India.

Materials and Methods: In a cross sectional study, forty two ART-experienced HIV-1-infected patients with CD4+ count < 200 cells ml-1 and viral load (VL) > 3, 000 copies ml-1 were recruited. All patients belonged to Maharashtra State of India near Barshi Solapur and had been on ART treatment for over 5 years. EDTA whole blood from HIV-1-infected patients was centrifuged and the viral nucleic acid was purified from the plasma. Viral nucleic acid was amplified by PCR using protease and reverse transcriptase specific primers. The resulting amplicons were sequenced and studied for mutations. The tools from Stanford University website were used for subtyping of HIV-1 and identification of mutations conferring drug resistance.

Results: In present investigation, HIV-1 subtypes were subtype C in 37 (88.09%), subtype CRF01_AE in 2 (4.76%), and subtype A in 3 patients (7.14%). Drug resistance mutations of NRTI, NNRTI and protease were observed in 15 (37.71%) of 42 patients tested. Drug resistance for NRTI was observed in 12 (28.57%) and for NNRTI in 13 (30.95%) patients. No drug resistance was observed for protease inhibitors.

Conclusion: Considerable HIV-1 drug resistance exists among patients receiving ART from a rural areas of India, suggesting more studies from rural region are required to prevent development of resistance to ART.

Keywords: HIV-1; Antiretroviral therapy; CD4+ count; Viral load; Drug resistance

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Evaluation of antioxidant capacity and phytochemical investigation of eleven Clusiaceae members from Western Ghats, India

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Highlights

- Clusiaceae are known for producing a wide range of phytochemicals like isoprenylated xanthones, biflavonoids and anthraquinones.
- Investigation attempts to find out suitable source other than fruits to get optimum yield of total phenolic, flavonoids with significant antioxidant activities.

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A STUDY OF ECOCRITICAL PERSPECTIVES IN INDIAN ENGLISH NOVELS

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Abstract:

We all are human beings and live in the environment. We are all using the environmental resources like air, land, water to fulfill our needs. The term 'development' also means fulfilling our needs. Environment includes all the living and non-living objects. While fulfilling our never-lasting needs, we are putting pressure on environment. It creates a serious problem of environmental degradation. If we use any of environmental sources beyond its limit of replacement, we may lose it forever. Many rules and regulations are made at national and international level for protection of environment. It is also the responsibility of everyone to use our environmental resources with care. Unplanned human activities is the main cause of environmental degradation. We must protect them from degradation for our next generations. Therefore, there is a need to create awareness about environmental protection, otherwise soon there will be nothing like beautiful will remain in the environment to be proud of. Through the research paper entitled "A Study Of Ecocritical Perspectives In Indian English Novels", we will study ecocritical perspectives through select Indian English novels. The concept of human development is causing threats to the beautiful nature and environment. The novels selected for study are 'Softly Dies A Lake' by author Akkineni Kutumba Rao and the other one is 'The Hungry Tide' by Amitav Ghosh.

Keywords : *environment, environmental degradation, ecocriticism, ridge, seedlings etc.*

Introduction :

Nature has been a sole witness of human civilization. It is the fact that literature and art mirrors the society in it's realistic form. It helps us in the revelation that there has been a long tradition of study of nature and human relationships with it. Ecocriticism or environmental criticism studies the writings that explore the relations between literature and biological and physical environment. It is the study of literature and the environment from an interdisciplinary point of view. We all are living in a world increasingly lost to pollution. This research paper studies the relationship between human beings and environment– animals and plants. People need to think about environmental and cultural problems together. One of the significant features of Ecocriticism is that it looks at human and nature, culture as one entity rather than two separate things. It looks at cultural and ecological issues in nature which are important in the social and natural sciences. There is close association between environment and literature in ecocriticism. Environmental criticism has gained a lot of attention during past few years due to higher social emphasis on environmental destructions and increased technology.

The theory ecocriticism puts nature at the center and studies human activities with relation to nature. Ecocriticism enables the critic to examine and do the environmental study of text in literary discourse and to develop an earth centered approach to literary studies. Ecocriticism is a study of the interdependence of the human relation with nature. So, making use of ecocritical approaches and applying it on literary aspects is an attempt to gain remind of

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Chemical synthesis, spectral characterization and biological activities of new diphenylsulphone derived Schiff base ligand and their Ni(II) complexes

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Keywords:
Schiff base
Ni(II) complex
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Antimicrobial
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ABSTRACT

This work presents the preparation and spectral characterization of five diphenylsulphone derived Schiff base ligands (L_1–L_5). Using the aforementioned ligands, Ni(II) complexes were synthesized in 1:1 stoichiometric ratio. The synthesized ligands and their complexes were characterized by elemental analysis, ^{1}H NMR, UV–Visible, FT-IR, ESI-MS, TGA analysis and magnetic susceptibility measurements.The results from the above analytical techniques revealed that the complexes are in an octahedral geometry. The antimicrobial activity of the synthesized Schiff base ligands and their metal complexes under study was carried out by using the agar well diffusion method. Further, the anticancer properties of the synthesized compounds are performed against MCF-7 cell line and human lung cancer cell line A-549 using Adriamycin as standard drug. The biological potency of the metal complexes were significant than their respective ligands.

Introduction

Schiff base ligand plays a pivotal role in coordination chemistry, as it is one of the most important chemical compounds in medicinal inorganic chemistry with several pharmacological activities [1]. The ease of synthesis, donor capacity, and its stability make it a more prominent organic ligand [2]. 4, 4′-diaminodiphenylsulphone (Dapsone), a sulphone analog, has been proved to be a powerful antimicrobial agent [3].

Dapsone is an important pharmaceutical drug, mostly used in combination with rifampicin and clofazimine as multidrug therapy (MDT) for the treatment of leprosy infections [4]. It also shows pharmacological activity against mycobacterium leprea that occurs as cross activity in HIV infected patients [5]. Hence, 4, 4′-diaminodiphenylsulphone (Dapsone) is used for the synthesis of various aromatic Schiff bases with biological properties. Salicylaldehyde and its derivatives are useful carbonyl precursors for the synthesis of a large variety of Schiff bases. Additional coordinating groups attached to salicylaldehyde increase the denticity of the Schiff bases and their ability to generate polynuclear complexes. Salicylaldehyde derivative is 3-methoxysalicylaldehyde (*o*-vanilin), which was largely employed for the synthesis of compartmental ligands [6].

Nickel complexes are extensively studied in coordination chemistry because of their stability and wide applications. Ni(II) ion forms complexes with Schiff bases, in different geometries such as octahedral, tetrahedral, square planar, etc. Particularly, the octahedral and square planar geometries are most usual, however, tetrahedral, trigonal bipyramidal and square-based pyramidal geometries are not usual [7]. Due to different oxidation states, Nickel complexes have a strong role in

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Analytical optimization of liquid–liquid extractive spectrophotometric assessment protocol for tetravalent platinum: Analysis of environmental samples and cisplatin

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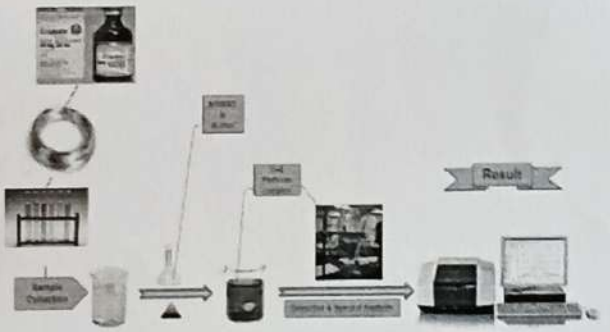
HIGHLIGHTS

- 4-(4′-nitrobenzylideneimino)-3-methyl-5-mercapto-1,2,4-triazole is used as extrahent.
- The chromogenic reagent is selective and sensitive to platinum(IV).
- The method is applicable to the analysis of alloys, catalysts and pharmaceuticals.
- The developed method is simple, highly sensitive and precise.

GRAPHICAL ABSTRACT



ARTICLE INFO

Keywords:
Alloy samples
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platinum(IV)
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Spectrophotometric determination

ABSTRACT

An easy and reliable method is optimized for extractive spectrophotometric assessment of platinum(IV) with 4-(4′-nitrobenzylideneimino)-3-methyl-5-mercapto-1,2,4-triazole as an extractant. The basis of this method is the formation of red platinum(IV) complex with the above reagent in acetate buffer medium (pH 5.0) and extraction in chloroform. Good linearity with regression equation as $y = 1.011 \times 10^4 \times + 0.002$ having correlation coefficient (R^2) of 0.998 over concentration up to 17.5 μg mL^{-1} of platinum(IV) was achieved with apparent molar absorptivity of 1.011×10^4 L mol^{-1} cm^{-1}. The limit of detection (0.22 μg mL^{-1}), limit of quantification (0.73 μg mL^{-1}) and Sandell's sensitivity (0.0193 μg cm^{-2}) were also estimated. The interference of various cations was removed by using proper masking agents and consequently by using EDTA and citrate to mask certain transition metals, the method becomes highly specific for platinum(IV), including the effects of platinum group metals. The

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LETTERS

In silico study of phytochemicals for anticholinesterase activity as a potential drug target against Alzheimer's disease

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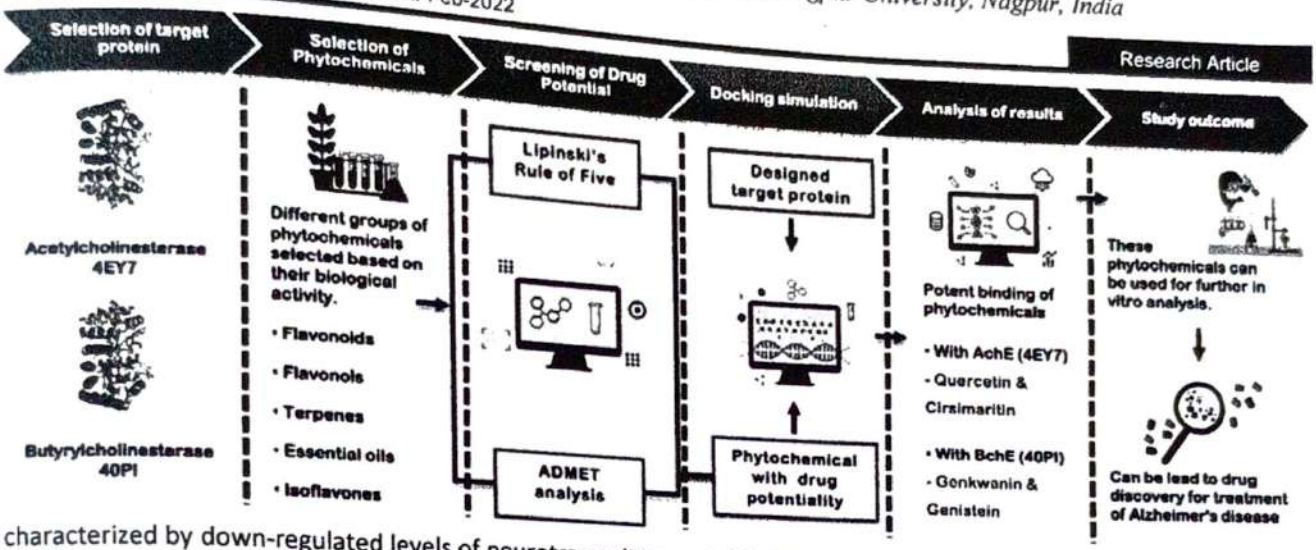

ABSTRACT

Alzheimer's disease (AD) is characterized by down-regulated levels of neurotransmitter acetylcholinesterase (AchE) and butyrylcholinesterase (BchE) in the neocortex and hippocampus; and aberrant processing and polymerization of Amyloid Precursor Protein (APP). Inhibition of cholinesterase (ChE) activity will effectively measure in AD treatment. In the present study, in silico analysis of anticholinesterase activity by 18 plant phytochemicals revealed four phytochemicals Quercetin, Cirsimaritin, Genkwanin and Genistein could be potential drugs candidates as they showed high binding affinity and interaction with the target protein AchE and BchE. These phytochemicals may play an essential role in regulating ChE activity in AD patients. Also, they are previously reported to play a vital role in altering other AD contributing factors. Thus, the present study reports potential drug targets that can be used to develop a drug against AD after experimental validation.

Keywords: Alzheimer's disease, Anticholinesterase activity, Drug development, Molecular docking, Phytochemicals.

INTRODUCTION

Alzheimer's disease (AD) is a neurodegenerative age-linked disease of the Central Nervous System (CNS), in which neurons in the neocortex and hippocampus are affected. AD is associated with dementia-like symptoms, including mental decline, irritability, depression, emotional stress, agitation.[1,2] According to World Alzheimer Report, 46.8 million people, suffered from dementia worldwide in 2015; this number is expected almost to double every 20 years. In 2020, India reported 2 million AD cases and it is forecasted to be 4.6 million in the year 2050.

AD is eventually fatal; age, traumatic brain injury, family genetics, inappropriate diet, and cardiovascular disease are risk-causing factors.[3] AD is a neurodegenerative age-linked disease of the Central Nervous System (CNS), wherein neurons in the neocortex and hippocampus are affected. AD pathology is characterized by down-regulated levels of neurotransmitter AchE in the neocortex and hippocampus known as the 'Cholinergic hypothesis' (Figure 1)[4,5] and aberrant processing and polymerization of an APP known as 'Amyloid hypothesis' (Figure 1).[3,5] The neurotransmitter AchE and BchE play a central role in the cholinergic functioning of the brain. AchE is the serine hydrolase family neurotransmitter that hydrolyzes acetylcholine (Ach) to acetate and choline, terminating neurotransmission in synapses. BchE is similar to AchE, but it counter-measures against organophosphate nerve agents and hydrolyzes butyrylcholine. The deregulated levels of AchE accelerate the assembly of Aβ peptides to form an Amyloid-AchE complex which contributes to AD pathogenesis.[3,5] Currently, there is no clinical treatment or therapy available for AD. However, anticholinesterase drugs are being used to regulate levels of ChE activity.[6] The inhibition of ChE activity increases both levels and duration of neurotransmitter action by decreasing the breakdown rate.[6] Therefore, they boost cholinergic transmission and compensate for the loss of neurons and brain cells.[7] ChE inhibitors are effective against AD and they exert three main

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Chemical Biology Letters

डॉ.बाबासाहेब आंबेडकर यांचा समताधिष्ठित समाजनिर्मितीचा लढा

श्री समाधान विठ्ठल लोंढे
सहाय्यक प्राध्यापक
श्री शिवाजी महाविद्यालय, बार्शी, जि. सोलापूर

गोषवारा :

आधुनिक काळातील राजकीय आणि सामाजिक व्यवस्थेमध्ये समतेच्या तत्त्वाचा आग्रह धरला जातो. समता म्हणजे सर्वांना समान पातळीवर आणण्याची प्रक्रिया नव्हे, तर विविध पातळीवरील व्यक्तिसमुहात समतोल प्रस्थापित करणारी प्रक्रिया आहे. मानवी समाजाच्या इतिहासात खऱ्या अर्थाने संपूर्ण समता प्रस्थापित झालेली आढळून येत नाही. जगाची आधुनिकतेकडे वाटचाल करण्याच्या पार्श्वभुमीवर मानवी हक्कांचा इतिहास १३ व्या शतकापासून प्रारंभ होतो. इ.स. १२२५ची मॅग्राकार्टा हा सनद त्याचे पहिले उदाहण आहे. १६८८ व्या वैभवशाली राज्यक्रांतीचे मात्र मानवी हक्कांच्या संकल्पनेस गतीमान केले. दि.४ जुलै १७७६ मध्ये तर अमेरिकेने मानवी हक्कांचा जाहिरनामाच घोषित केला आणि त्यामध्ये तर अमेरिकेने मानवी हक्कांचा जाहिरनामाच घोषित केला आणि त्यामध्ये मानव जन्मत: स्वतंत्र आणि समान आहे अशी ग्वाही दिली. मानव हा निसर्गत: स्वतंत्र आणि समान आहे. या विधानाचा अर्थ नैसर्गिक हक्काच्या संदर्भात लावला जातो. निसर्गने सर्वांना मानवी गुणांची देणगी दिली आहे. प्रत्येकाला बुध्दी, विचारशक्ती आणि भावना आहे म्हणून सर्व व्यक्तीत्वाचे अमोल मूल्य समानता मान्य करणे आवश्यक आहे. तो आजच्या सामाजिक आणि राजकीय परिवर्तनाच्या चळवळीला मार्गदर्शक तर आहेच शिवाय तो चिंतन करायला लावणारा आहे. सध्याच्या समाजवादी समाजनिर्मिती करण्यासाठी जी आव्हाने उभी ठाकली आहेत त्यासंदर्भात आणि तिला दिशा देण्याच्या संदर्भात या शोदानिबंधात विश्लेषण केले आहे.

प्रस्तावना :

भारतीय समाजव्यवस्था ही विषमताधिष्ठित शोषणाधारित अशा वैविध्यावर आधारलेली आहे अशी ऐतिहासिक साक्ष आहे. ही विषमता सामाजिक-सांस्कृतिक, आर्थिक आणि मानसिक स्वरुपाच्या चार वेद, सहा धर्मशास्त्रे, अठरा उपनिषदे, बारा ब्राह्मण्यके, सोळा पुराणे आणि त्रेसष्ठ स्मृती या धर्मग्रंथामधून आलेल्या विचारावर आणि वैदिक धर्म परंपरदेशी संबंधित आहे. अशा परिस्थितीत समतावादाची चळवळ निर्माण होण्याची पार्श्वभूमीच तयार झाली.

उद्देश :

१. डॉ.आंबेडकरांची समता विचाराचे विश्लेषणात्मक अध्यय करणे.
२. डॉ.आंबेडकरांच्या समतावादी विचाराने राजकाणात झालेले बदल किंवा झालेला प्रभाव अभ्यासणे.
३. डॉ.आंबेडकरांच्या समतावादी विचाराचे तत्व व भारतीय लोकशाही यांचा संबंध अभ्यासणे.

गृहीतके :

१. डॉ.आंबेडकरांच्या समतावादी विचाराचा प्रभाव भारतीय समाज, अर्थव्यवस्था व राजकीय व्यवस्थेवर पडलेला दिसून येतो.
२. डॉ.आंबेडकरांची समताविषय विचारामुळे सामाजिक लोकशाही प्रस्थापित होवू शकली.
३. २१ व्या शतकातील जागतिकीकरणाच्या युगात सुध्दा डॉ.आंबेडकरांचा समतेचा विचाराची गरज व प्रभाव दिसून येतो.

संशोधन पध्दती :

सदर संशोधन हे उपलब्ध माहितीच्या आधारे विषयाची मांडणी करण्यासाठी प्रस्तुतीकरण करुन विश्लेषण पध्दतीचा वापर करण्यात येणार आहे. डॉ.आंबेडकरांनी समतावादी विचाराची स्थापना करण्यासाठी दिलेला लढा अभ्यासण्यासाठी प्रस्तुत लधुशोध निबंधासाठी व्दितीयक तथ्य सामुग्रीचा आधार घेण्यात येणार आहे. प्रामुख्याने विविध संदर्भ ग्रंथांच्या आधार घेवून निष्कर्षापर्यंत पोहचण्याचा प्रयत्न करण्यात केला जाणार आहे.

डॉ.बाबासाहेब आंबेडकर यांचा समताविषयक विचार :

विषमता ही नैसर्गिक गोष्ट आहे, असे मानणाऱ्या आणि समतेच्या तत्त्वाला विरोध असलेल्याचे पाहिला मिळते. समता स्वातंत्र्य आणि बंधुता ही आधुनिक समाजाने जीवनपध्दती म्हणून स्वीकारलेल्या लोकशाही प्रणालीची आधारभूत मूल्ये आहेत. ती इतकी एकसंध आहेत, की त्यांचा वेगवेगळा विचारच करता येणार नाही. फ्रेंच राज्यक्रांतीमुळे पूर्वी प्रचलित असलेल्या लोकशाहीला एक नैतिक अधिष्ठान प्राप्त झाले. भारतीय राज्यघटनेच्या

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ORIGINAL RESEARCH ARTICLE

Mn-Incorporated α-Fe_2O_3 Nanostructured Thin Films: Facile Synthesis and Application as a High-Performance Supercapacitor

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Abstract

Among all the transition metal oxides, iron oxide-based materials are excellent for supercapacitor performance. Here, Mn-incorporated α-Fe_2O_3 (Mn:α-Fe_2O_3) nanostructured thin films (with 3%, 5%, and 7% Mn) are prepared via spray pyrolysis. All the synthesized nanostructured thin films are characterized by x-ray diffraction (XRD), optical study, Fourier transform infrared spectroscopy (FTIR), field emission scanning electron microscopy (FESEM), transmission electron microscopy (TEM), and contact angle for the structural, optical, morphological and wettability analysis, respectively. The band gap of Mn:α-Fe_2O_3 nanostructured thin films is tuned by changing Mn concentration. The increasing Mn concentration shifts the valance band edge towards the conduction band edge, reducing the band gap. The linear band gap decrease of 0.44 eV with the addition of Mn concentration, along with the band gap reduction, affects supercapacitive performance. The prepared 7% Mn:α-Fe_2O_3 nanostructured electrode exhibits excellent specific capacitance of 688.6 F g^{-1} at a scan rate of 5 mV s^{-1} in 1 M Na_2SO_4 electrolyte, energy density (6 Wh kg^{-1}), and power density (12 kW kg^{-1}) at a current density of 5 mA g^{-1}.

Keywords Spray pyrolysis technique · Mn:α-Fe_2O_3 nanostructure · contact angle · electrochemical analysis · supercapacitor

Introduction

In recent years, a multiplicity of energy storage devices, viz. capacitors, supercapacitors, and batteries, are accessible in daily life. However, the consequences of such energy storage devices primarily depends not only on the effectiveness but also on the stability of the electrode resources.[1] In pursuit of more advanced storage devices, highly requested research efforts are being made in modern society for effecting large-scale employability in the area of durable energy storage devices. The currently available supercapacitors are the best devices since they act as a bridge between the traditional capacitor and secondary batteries. The supercapacitors are characterized by a high energy density, a long life cycle, excellent rate capabilities, a wide operating temperature range, enhanced safety, efficiency, and good endurance.[2,3] The charge storage mechanisms in supercapacitors are based on two principles: one is the pseudeocapacitor mechanism which relies on reversible redox reaction. The other is the electrostatic adsorption ions at the electrode/electrolyte interface and it possesses low energy density.[1–4] A supercapacitor stores charge at the electrodes; it can be charged and discharged at a higher rate and can undergo longer cycles than a battery.[5] Supercapacitors have the potential to be used in portable electronic devices and power hybrid cars.

A transition metal oxide-based supercapacitor electrode exhibits a specific capacitance that is 10–100 times higher than carbon-based materials.[6] Electrode materials with a large surface area have a high specific capacitance, while nanoscale materials tend to have higher surface area which increases electrode–electrolyte contact and enhances charge transfer reactions. A metal oxide such as iron oxide has been widely used in pigments, catalysts, sensors, environmental pollutant agents, biomedical materials and electrode

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Hydrothermally engineered WO_3 nanoflowers: A selective detection towards toxic NO_2 gas

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ABSTRACT

Nanoflowers (NFs) of WO_3 is decorated on glass substrate by inexpensive hydrothermal method at very low temperatures (80 and 100 °C). The structural investigations are studied through X- ray diffraction and surface morphological study of WO_3 NFs were examined using transmission electron microscopy, field emission scanning electron microscopy, Brunauer- Emmett- Teller, and X- ray photoelectron spectroscopy technique. WO_3 NFs exhibited hexagonal crystal structure. The porous structure of WO_3 NFs possessing a specific surface area of 38.13 m^2/g. WO_3 NFs (W_6 sample) shows remarkable gas sensing towards toxic NO_2 gas (225% response for 100 ppm at operating temperature 200 °C). WO_3 NFs exhibits excellent reproducibility and stability (80%). An interaction mechanism of gas and WO_3 NFs studied using an impedance spectroscopy.

1. Introduction

WO_3 is a highly versatile n-type transition metal oxide semiconductor. Noteworthy physico-chemical properties as the advantages related with the field emission, high sensitivity towards gas sensor, or negative values of capacitance in the advancement of novel signal amplifying devices and complex phases (hexagonal and monoclinic) greatly attracted researchers. The WO_3 can be nanostructured into variety of arrangements as one dimensional (1D), two dimensional (2D) and three dimensional (3D) [1–5].

The 3D hierarchical architectures can also be derived from nanostructures, which are built with small-scale nano-blocks, plates, rods or cubes. Due to large specific surface area of 3D hierarchical architecture provides plentiful active sites for the gas sensing. Therefore, 3D hierarchical architecture improves gas sensing, compared to other structures, the example of 3D architecture is nano flowers [2,6–9].

The present work was aimed to prepare WO_3 NFs by inexpensive and one step hydrothermal method without any surfactants, catalysts and reducing agents at temperature 80 and 100 °C. The WO_3 NFs were analyzed by physico-chemical methods. The gas sensing performance of WO_3 NFs were tested from 50 to 300 °C for NO_2, CO, H_2S, SO_2 and NH_3 gas. The results showed excellent sensing performance to NO_2 gas (225%). interaction mechanism of gas and WO_3 NFs was elucidated using an impedance spectroscopy.

2. Experimental details

2.1. Synthesis of WO_3 NFs

Analytical reagents were used in our experiment are with 99.9% purity and used as received. WO_3 NFs has been synthesized by a simple, economical hydrothermal method. 2.31 g of Na_2WO_4 was dissolved in distilled water (DW) and magnetically stirred for 30 min, to get the transparent solution. 3 M HCl was added dropwise in the prepared solution, to adjust pH ~1. Subsequently, with the addition of 3 M HCl, the solution turns in to transparent yellow. The resultant solution was moderately stirred for half hour. Simultaneously, the glass substrates of dimensions $3cm \times 1cm$ were cleaned by standard procedure and was placed inclined in hydrothermal teflon reactor. The resultant solution was transferred to hydrothermal teflon reactor of volume 100 ml, which contained the glass substrates and was sealed in autoclave. The autoclave was heated for 2 h at 80 °C, say the sample W_1. The hydrothermal reactions parameters are given in Table 1.

Subsequently, at the reaction completion, the autoclave cooled to ambient temperature. White films formed on glass substrates. The films were rinsed in DW and dried for 1 h at 100 °C. The synthesized films

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Promotion of Indian Languages and Culture in Amitav Ghosh's The Sea of Poppies

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Abstract:

Amitav Ghosh, the Jnanpith awardee and winner of Sahitya Akademi Award, has dealt about different topics in the areas of languages, arts, culture, history, environment etc. in his novels. For this research study, the researcher has selected Amitav novel Sea of Poppies which is the first novel in the Ibis trilogy. The novel was shortlisted for the Man Booker Prize in 2008 and it the finalist of the Man Booker International Prize 2015.The novelist revels in the mischievous inventiveness of a bawdy polyglot lingo favoured by sailors on Eastern seas. Amitav Ghosh has used different languages in his novels like Creole, Cantonese, and Bhojpuri in the Ibis trilogy.

Key Words: Language, Culture, Bhojpuri, Lascar, Trilogy, Ahir, Gali etc.

Amitav Ghosh is an experimental writer. He experiments with languages, uses different styles and techniques to deal about the different aspects of life. In Sea of Poppies, the tradition of linguistic variety continues the same. Deeti is the central character in the novel. She speaks with other characters in Bhojpuri language. Her conversation with Kalua in Bhojpuri language is as is follows:

There is conversation in stilted Hindis when an English agent glancing from Hukum Singh's prone body to Deeti, asked Deeti quietly, Tumhara mard hai? Is he your husband?)(Ghosh. 98).Neel replies Elokeshi after she asks so many questions –bap- re-bap! Enough for now…

There is a dialogue between Ransaran-ji and Kalua about his address. At first they were too frightened to speak and it was Ramsaranji who broke the silence: Where've you come from? He said to Kalua. Kahwãa se áwela? From a nearby village, malik; parosé ka gaõ se áwat bani.

Serang Ali speaks in Hindi. Tera nam kya? What's your name? Said the Serang. (p.142)H speaks with an unaccustomed ease.The conversation between Zachary and him makes it clear.Zacher asked him his hometown and then he replied as the following:

'Serang Ali blongi Rohingya – from Arakan-side.'(p.16)

Ghosh has also given the agricultural winter crops wheat, masoor dal and vegetables in the novel. Farmers would keep opium a little of their homemade opium for their families and weddings. The novelist also mentions the houseboats belonged to the estate of Raskhali and Ibis.

There is depiction of Indian festivals, prayers, songs in the Ibis trilogy. Deeti and her daughter Kabutari shout an invocation to the river-Jai Ganga Mayya ki…Deeti began to chant the prayer-song at the end of the day :

Sãjh bhailé
Sãjha ghar ghar ghumé
Ke mora sãjh
manayo ji

Twilight whispers at every door: it's time to mark my coming.

There is also a group of singers from Ahir community. Ghosh has given the reference of Id festival in *Sea of Poppies*. Jodu would see the half-siblings twice a year, during the 'Id festivals, when he was made to pay reluctant visits to Naskarpara.

The novel presents the tradition of locality when Deeti listens to women singing a song.

Sakhiyã-ho, saiyã morė pisė masàla
Sakhiyã-ho, barà mítha lagė masala

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बिजापूर डायरी आणि आदिवासी स्त्री : एक चिकित्सा

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सारांश

आपल्याच देशातील छत्तीसगड हे राज्य आजही आदिवासींसाठी व त्यांच्या विकासासाठी इतर राज्यांच्या तुलनेत खूपच मागे आहे. आदिवासींची जीवनशैली स्वच्छंद असते. एका विशिष्ट परिस्थितीत सामाजिक व सांस्कृतिक मूल्ये जपत आदिवासींचे जगणे मार्गक्रमण करताना दिसते. निसर्गाच्या मदतीने दैनंदिन जीवनशैली असलेले आदिवासी डोंगर, आकाश, जमीन, नद्या, पशूपक्षी, वृक्षवल्ली यांच्या आधाराने जीवन व्यतीत करताना दिसतात. आदिवासींचा जीवनक्रम, मानवी वृत्ती-प्रवृत्तींचे दर्शन, तत्कालीन परिस्थिती, सामाजिक, सांस्कृतिक पर्यावरण दर्शन इ. विविध घटकांच्या आधारे आदिवासी साहित्यनिर्मिती झाली आहे. आदिवासी जीवनाभिव्यक्तींच्या अनुषंगाने कविता, कथा, कादंबरी ललित गद्य, चरित्रलेखन इ. विविध प्रकारातून आदिवासी साहित्यातील विविध कलाकृती निर्मिती झाली आहे. याच अनुषंगाने 'बिजापूर डायरी' या ललित गद्याचे लेखन स्त्रीरोग तज्ञ डॉ. ऐश्वर्या रेवडकर यांनी केले आहे. महाराष्ट्रतील डॉ. ऐश्वर्या छत्तिसगडमध्ये स्त्रीरोगतज्ञाच्या भूमिकेतून शासकीय हॉस्पिटलमध्ये चार वर्षापासून कार्यरत आहेत. त्यांनी या नक्षली व आदिवासी भागातील विविध क्षेत्रांचे अवलोकन करुन वास्तव अनुभवांच्या आधारे बिजापूर डायरीचे लेखन केले आहे. यामध्ये स्त्रीआरोग्याशी त्यांचा जास्त संबंध आल्याने त्यांनी विविध अनुभव लेखनामधून नोंदविले आहेत.

छत्तीसगडमधील बस्तर भाग सर्वात दुर्गम आणि आदिवासीबहुल आहे. त्यात नारायणपूर, दंतेवाडा, बिजापूर आणि सुकमा हे जिल्हे सर्वात जास्त नक्षलग्रस्त आणि प्रशासनाकडूनही दुर्लक्षित राहिलेले आहेत, असे सर्व सांगत लेखिका बिजापूर डायरीमधून याबद्दल लिहितात, "अनेक समस्यांनी ग्रस्त आणि विकासापासून कोसोदूर अशा भागात जेव्हा सकारात्मक बदल घडू लागतात तेव्हा ते समाजाला पुन्हा स्वप्ने पाहण्याची प्रेरणा देऊ लागतात. मी या भागात पोहोचले, तेव्हा नुकतीच बदलांची सुरवात झाली होती आणि ती सर्व प्रक्रिया जेव्हा मी अनुभवत होते, तेव्हा आपोआपच मी लिहू लागले."[१] सर्वात जास्त गरज असलेल्या दुर्गम आणि आदिवासी भागात सकारात्मक बदल होत असताना लेखिकेने याच भागात राहून स्त्रीरोगतज्ञाच्या भूमिकेतून आनंदाने काम करण्याचे ठरविले. विविध ठिकाणी विविध संस्थांच्या माध्यमातून भरपूर भ्रमंती करून स्त्रीरुग्णांच्या समस्यांची जाणीव असल्याने आदिवासी स्त्रीच्या आरोग्यसेवेसाठी लेखिका छत्तिसगडमध्ये कार्यरत आहे. या माध्यमातून काम करत असताना आदिवासी स्त्रीजीवनाशी परिचय होवून त्यांच्या सामाजिक, सांस्कृतिक व आर्थिक तसेच शारीरिक घटकांच्या अनुषंगाने विविध आयामांना अधोरेखित करता आले. "येथे काम करणे हे महाराष्ट्रतील कामापेक्षा खूप वेगळे आहे. कुपोषण, गंभीर रक्तशय, घरात होणाऱ्या प्रसूती, नक्षलप्रभाव, अतिदुर्गम भाग, निकडीच्या सुविधांचा अभाव आणि आरोग्याबाबतचे अज्ञान या सर्वांचा आरोग्यव्यवस्थेवर ताण येतो. पुस्तकात वाचलेले अतिगंभीर आजार, दुर्मिळ गोष्टी येथे प्रत्यक्ष पहायला मिळतात. रुग्ण अगदी टोकाच्या परिस्थितीत रुग्णालयात पोहचतो आणि त्यात सर्व जबाबदारी डॉक्टर म्हणून तुमच्या खांद्यावर असते. अशा वेळी कमी संसाधनांत डगमगून न जाता, शांत डोक्याने, स्वतःच्या कौशल्यांचा पुरेपूर व अचूकपणे वापर करत उपचार करावे लागतात आणि हे डॉक्टरकीचा कस पाहणारे ठरते. स्त्रीरोगतज्ञ, सर्जन या विशेषतज्ञांना २४ तास अलर्ट राहावे लागते. अशा स्थितीमुळे कित्येकवेळा डॉक्टर्स शारीरिकरीत्या आणि मानसिकरीत्या थकून जातात.[२] एकूण आदिवासी भागातील वैद्यकीय क्षेत्रातील कामाची असलेली गरज अपरिहार्य आहे. या भागातील

कोव्हिड-१९'चा मानवी जीवनशैली व अर्थव्यवस्थेवर झालेले बदल

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प्रस्तावना:-

मानवी संस्कृतीच्या इतिहासामध्ये निसर्गाने आपली भूमिका व अस्तित्व नेहमी सजीवांना जाणवून दिले आहे सजीसृष्टीच्या अस्तित्वापासूनच निसर्गाने नैसर्गिक आपत्ती व वेगवेगळ्या स्वरूपाचे रोग यांच्या मार्फत निसर्गातील मानवी हस्तक्षेपाला प्रतिउत्तर देण्याचा प्रयत्न केलेला दिसून येतो प्रागैतिहासिक कालखंडापासून निसर्गाने सजीव व विशेषत:हा मानवावर आपले नियंत्रण अप्रत्यक्ष पणे प्रस्थापित केलेलं दिसून येते, मानवी इतिहासाचा आढावा घेतला असे दिसून येते की प्रत्येक शतकामध्ये कोणती ना कोणती महामारी ही मानवाला प्रभावित करून गेलेली दिसून येते, यात विशेषत:हा साथीच्या रोगाने मानवी संस्कृती , जीवनशैली व अर्थव्यवस्था यावर मोठ्या प्रमाणात दुष्परिणाम व विघातक बदल घडवून आणलेले दिसून येतात , या साथीच्या रोगानी मानवी लोकसंख्येचा होणारा विस्फोट ही नियंत्रित करण्याचे कार्य नैसर्गिक पद्धतीने केलेले दिसून येते.

परंतु 20 व्या व 21व्या शतकात विज्ञान व तंत्रज्ञानाच्या प्रगतीमुळे या साथीच्या रोगांवर प्रभावी औषध उपचार शोधले गेल्याने या शतकांच्या पुर्वी जेवढे दुष्परिणाम मानवी जीवनावर होत होते त्याची दाहकता कमी झाल्याचे दिसून येते,आधुनिक कालखंडात मानवी जीवन हे अर्थव्यस्था व पैसा याच्याशी केंद्रीत झाल्याचे दिसून येते.सर्व मानव जातीच्या जीवनाचे व जगण्याचे साधन म्हणून पैसा व संपत्तीयाला सर्वाधिक मूल्य प्राप्त झालेले आहे त्यामुळे मानवी जीवन हे अर्थव्यवस्थेच्या भोवताली फिरताना दिसून येते, परंतु या अर्थव्यवस्थेच्या हव्यासापोठीच मानवाने निसर्गाचे अतोनात नुकसान केले. औद्योगिक क्रांती, विज्ञान व त्यातून निर्माण झालेले तंत्रज्ञान यातून त्याचा विनियोग योग्य पद्धतीने न लावल्याने वायू, ध्वनी, जल प्रदूषणाच्या समस्या मोठया प्रमाणात निर्माण झाल्या . निसर्गाचा समतोल बिघडल्याने वेगवेगळ्या प्रकारचे साथीच्या रोगाचा प्रादुर्भाव झाला, व त्याचा प्रभाव हा मानवनिर्मित अर्थव्यवस्थेवर व जीवनशैली वर पडून मानवाला याचे दुष्परिणाम भोगावे लागत आहेत.

२०१९ मध्ये चीनमधून फैलाव झालेला कोविड (कोरोना) चा विषाणू जगभर पसरला व आज २ वर्षे होत आली तरी तो आटोक्यात येताना दिसत नाही,तो ठराविक कालावधी व प्रदेशानुसार आपल्या प्रारूपामध्ये बदल घडवून आणत असल्याचे दिसून येत आहे. या विषाणू ने ज्या- ज्या वेळेस आपल्या प्रारूपात बदल घडवून आणला त्या- त्या वेळेस तो अधिक प्रभावी व मानवास घातक होत असल्याचे दिसून येत आहे. या विषाणू ने जागतिक व भारतीय यांची जीवनशैली व अर्थव्यवस्था पुर्णपणे बदलून टाकलेली दिसून येते

संशोधन विषयाचे महत्त्व:-

जगाच्या कानाकोपऱ्यात कोणत्या ना कोणत्या स्वरुपाच्या रोगराईचा प्रभाव दिसून येतो, परंतु कोविड १९ याने सर्व जग व्यापून टाकले आहे. जागतिक

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माणकेश्वर शिवमंदिर – हेमाडपंतीय मंदिर शैली – एक अभ्यास

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ता. वाशी, जि. उस्मानाबाद

प्रस्तावना :

मंदिरांचा अभ्यास हा तत्कालीन कला संस्कृती व समाजजीवनाचा समग्र अभ्यास असतो. कारण मंदिर ही प्राचीन भारतातील जीवन व्यवहाराची एक प्रभावी सामाजिक संस्था होती. त्यामुळे त्यातील कला व प्रतिके ही तत्कालीन नित्य जीवनाचा एक प्रभावी आविष्कार होती. माणकेश्वर येथील हेमाडपंथीय शिवमंदिर ही याला अपवाद ठरत नाहीत.

यादव कालखंडात यादव सम्राट महादेवचा मंत्री हेमाद्रीच्या कार्यकाळात पश्चिम भारतात अनेक मंदिरे निर्माण केली, ती हेमाडपंतीय म्हणून ओळखली जातात. वास्तविक यादवपूर्व काळातही अशाच स्वरुपाची मंदिर बांधकाम शैली ही या परिसरात अस्तित्वात असल्याचे दिसून येते. यादव व पूर्व कालखंडातील मंदिरे ही उस्मानाबाद जिल्ह्यात मोठया प्रमाणत दिसून येतात.अशा या उस्मानाबाद जिल्ह्यात असणाऱ्या हेमाडपंती मंदिरांच्या उगम व विकास याचा स्थानिक व प्रादेशिक पातळीवर अभ्यास अतिशय कमी प्रमाणात झालेला दिसून येतो. यातील बहुसंख्य हेमाडपंती मंदिरात शिव किंवा महादेवाच्या प्रतिमांचे दर्शन घडते. त्यांचा संबध सत्य, शिव व सुंदर या कल्पनेशी निगडीत आहे.

संशोधन विषयाचे महत्त्व:

माणकेश्वर शिवमंदिर ऐतिहासिक स्थापत्य कलेचे वैभव जगासमोर आणणे महत्त्वाचे आहे. ऐतिहासिक व तीर्थस्थानांच्या माहिती बरोबरच स्थापत्य कलेच्या क्षेत्रातील हेमाडपंतीय मंदिर शैलीचे अस्तित्व वाचकांना व पर्यटकांना करून देणे महत्त्वाचे आहे. की त्यातून जिल्यातील पर्यटन क्षेत्राचा विकास होण्यास चालना मिळेल.

माणकेश्वर शिवमंदिर परिसरात विविध प्रकारच्या बांधकामशैलीची मंदिरे आहेत विशेषत: हेमाडपंतीय शैलीची मंदिरे, किल्ले, मठ,लेण्या, उस्मानाबाद जिल्ह्या परिसरात दिसून येतात. या परिसरातील काही स्थळे ऐतिहासिकदृष्ट्या अज्ञात ही आहेत. म्हणून माणकेश्वर येथील हेमाडपंतीय शिवमंदिर शैलीचा अभ्यास करणे महत्त्वाचे आहे

संशोधनाची उद्दिष्टे :

कोणतेही सामाजिक संशोधन हे निश्चित उद्धीष्टांवर अवलंबून असते. सुनिश्चित उद्धीष्टांमुळे आपणास नवनवे अभ्यासाचे विषय काळजीपूर्वक अभ्यासात येतात.कोणत्याही शास्त्रीय संशोधनामध्ये सुस्पष्ट उद्दिष्टे सुनिश्चित करावी लागतात. सदर संशोधनाची दिशा स्पष्ट करताना पुढील उद्दिष्टे समोर ठेवली आहेत.

माणकेश्वर परिसरातील प्राचीन व मध्ययुगीन कालखंडातील धार्मिक तीर्थस्थळांचा ऐतिहासिक अभ्यास करणे.

माणकेश्वर हेमाडपंथीय मंदिरांचा अभ्यास करणे.

माणकेश्वर येथील हेमाडपंथीय मंदिर शैलीचा अभ्यास करणे.

उस्मानाबाद जिल्हयातील कला व स्थापत्य याचा आढावा घेणे.

माणकेश्वर येथील पुरातत्वीय अवशेष व भौतिक साधनावर प्रकाश टाकणे.

या सर्व उद्धीष्टांची पडताळणी केली असता प्रस्तुत विषय परिपुर्तीच्या दृष्टीने किती व्यापक व परस्परांशी सुसंगत आहे याची प्रचिती येते.

संशोधनाची गृहीतके :

संशोधन कार्य यशस्वी पद्धतीने पूर्ण करण्यासाठी संशोधनामध्ये विधाने मांडवी लागतात.या विधानाच्या आधारे संशोधनाचे अनुमान काढता येते. या संशोधनाची काही गृहीतके पुढीलप्रमाणे होत.

माणकेश्वर परिसरात प्राचीनकाळी मौर्य,

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Preparation, Characterization and In Vitro Biological Activities of New Diphenylsulphone Derived Schiff Base Ligands and Their Co(II) Complexes

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Abstract: The present work describes the chemical preparation of Schiff bases derived from 4,4′-diaminodiphenyl sulfone (L_1–L_5) and their Co(II) metal complexes. The evaluation of antimicrobial and anticancer activities against MCF-7 cell line and human lung cancer cell line A-549 was performed. The aforementioned synthesized compounds are characterized by spectroscopic techniques and elemental analysis confirms successful synthesis. The results from the above analytical techniques revealed that the complexes are in an octahedral geometry. The antimicrobial activity of the synthesized Schiff base ligands and their metal complexes under study was carried out by using the agar well diffusion method. The ligand and complex interactions for biological targets were predicted using molecular docking and high binding affinities. Further, the anticancer properties of the synthesized compounds are performed against the MCF-7 cell line and human lung cancer cell line A-549 using adriamycin as the standard drug.

Keywords: 4,4′-diaminodiphenyl sulfone; Schiff base; Co(II) complex; antimicrobial; anticancer activity

1. Introduction

Coordination compounds play an important role in our daily lives, with applications ranging from biology to industry. Because of their high selectivity and target specificity in

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Development of new efficient and cost effective liquid-liquid extractive determination method for cobalt(II): Analysis of water, alloys and nano powder

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ARTICLE INFO

Keywords:
2-chlorobenzaldehyde thiocarbohydrazone
Cobalt(II)
Water samples
Spectrophotometric determination
Nano powder

ABSTRACT

Background: The renowned biological role of cobalt is it is main component of vitamin B12, however other cobalt compounds have been listed as toxic for the environment as well as to human.
Methods: Various samples from different sources are analyzed for their cobalt(II) content by extraction followed by UV–visible spectrophotometry and compared with atomic absorption spectrophotometry.
Results: In this article, the chromogenic reagent 2-chlorobenzaldehyde thiocarbohydrazone is introduced for extractive spectrophotometric determination of cobalt(II) from various samples. This reagent forms yellow colored 1:2:2 [Co(II)–2CBTCH–iodide] complex in dichloromethane which was extracted from an acetate buffer having pH of 4.2 in presence of potassium iodide solution which was stable up to 48 h. The absorbance of the complex exhibit peak absorbance at 400 nm. The present technique was optimized for numerous influences and the interference of other ion has also been cautiously studied. The calculated values of molar absorptivity and Sandell's sensitivity of the complex are found to be 0.3006×10^4 mol^{-1} cm^{-1} and 0.0196 μg cm^{-2} respectively. The technique conforms Beer's law up to 13 μg mL^{-1} with 0.999 correlation coefficient of the [Co(II)–2CBTCH–iodide] complex, which specifies linearity between the two variables. For five replicate determinations ($n = 5$), the relative standard deviation was 1.18 with the regression equations as $y = 0.0672\,x + 0.01$ with $R^2 = 0.999$ as the correlation coefficient. The recovery percentages were warranted the accuracy and found around 99.0%.
Conclusion: The technique was successfully used to the determination of cobalt(II) in water, alloy and nano powders with acceptable results and was evaluated its performance in terms of Student 't' test and Variance 'f' test, which indicates the significance of the present method as an inter comparison of the experimental values using AAS. The technique was also useful for analysis of alloys and synthetic mixtures.

1. Introduction

Cobalt is a hard, silvery gray in colour and ductile metallic element, of which the chemical properties are highly similar to iron and nickel. The compounds of cobalt mainly occur in two different oxidation states such as Co^{2+} and Co^{3+}, the former being most commercially and environmentally available [1,2]. Furthermore, cobalt metal ions are trace elements widely distributed in nature. The trace elements in precise quantities are vital for regular physiological purpose as they play a key part in the anticipation of some deficiencies, the working of our immune system, control of gene expression and the prevention of chronic diseases as well. The well-known biological role of cobalt is its role as metal component of vitamin B12, also named cyanocobalamin [3,4], however other cobalt compounds have been listed as poisonous for the environment and the human body following excessive exposure.

The toxic potential of Co was first discovered in the 1960s when heavy beer drinkers presented with symptoms of cardiomyopathy, which was attributed to the use of cobalt chloride ($CoCl_2$) or cobalt sulfate ($CoSO_4$) as foam stabilizer in beer [5–7]. Cobalt-related neurotoxicity may cause peripheral as well as central deficits. The latter presumably result from the ability of Co to cross the very restrictive blood-brain barrier and deposit in the brain [8]. Recent research showed that leather goods can also contain cobalt and may subsequently cause Co allergy [9]. Furthermore, the Co gastro-intestinal absorption involves mecha-

Abbreviations: 2-CBTCH, 2-Chlorobenzaldehydethiocarbohydrazone; RSD, Relative standard deviation; UV–Vis, Ultraviolet visible.

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In Vitro Anticancer Screening, Molecular Docking and Antimicrobial Studies of Triazole-Based Nickel(II) Metal Complexes

Sachin A. Deodware [1,2], Umesh B. Barache [3], Pratibha C. Dhale [2], Kundalkesha D. Gaikwad [2], Chandan Shivamallu [4], Panchsheela A. Ubale [5], Ali A. Shati [6], Mohammad Y. Alfaifi [6], Serag Eldin I. Elbehairi [6,7], Raghu Ram Achar [8], Ekaterina Silina [9], Victor Stupin [9], Juan Frau [10], Norma Flores-Holguín [11], Shashikant H. Gaikwad [2,*], Shiva Prasad Kollur [12,*] and Daniel Glossman-Mitnik [11]

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Abstract: Herein we describe the synthesis of a series of nickel(II) complexes (C1–C3) with Schiff bases (HL1–HL3) derived from 4-amino-5-mercapto-3-methyl-1,2,4-triazole and ortho/meta/para-nitrobenzaldehyde having composition $[Ni(L)_2(H_2O)_2]$. The obtained ligands and their complexes were characterized using physico-chemical techniques viz., elemental analysis, magnetic moment study, spectral (electronic, FT-IR, 1H-NMR) and thermal analysis. The elemental analysis and spectral analysis revealed that Schiff bases behave as monoanionic bidentate ligands towards the Ni(II) ion. Whereas, the magnetic moment study suggested the octahedral geometry of all the Ni(II) complexes. The thermal behavior of the complexes has been studied by thermogravimetric analysis and agrees well with the composition of complexes. Further, the biological activities such as antimicrobial and antifungal studies of the Schiff bases and Ni(II) complexes have been screened against bacterial species (*Staphylococcus aureus* and *Pseudomonas aeruginosa*) and fungal species (*Aspergillus niger* and *Candida albicans*) activity by MIC method, the results of which revealed that metal complexes exhibited significant antimicrobial activities than their respective ligands against the tested microbial species. Furthermore, the molecular docking technique was employed to investigate the active sites of the selected protein, which indeed helped us to screen the potential anticancer agents among the synthesized ligand and complexes. Further, these compounds have been screened for their in vitro anticancer activity using OVCAR-3 cell line. The results revealed that the complexes are more active than the ligands.

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Extraction of Th(IV) and U(VI) with 4-methyl-N–n-octylaniline as an extracting agent

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Abstract
The liquid–liquid extraction of Th(IV) and U(VI) with 4-methyl-N–n-octylaniline as an extracting agent are presented in detail. The optimum conditions for the distribution of Th(IV) and U(VI) between aqueous H_2SO_4 acid and 4-methyl-N–n-octylaniline in xylene are performed. The effect of acidity and extracting agent concentration on the metal extraction are also studied. The range of H_2SO_4 concentration investigated for quantitative evoking of Th(IV) was 0.7–0.9 mol L^{-1} using 2.0% of the reagent. The 0.1 mol L^{-1} nitric acid was used as strippant for Th(IV) loaded organic phase. Similarly, the range of H_2SO_4 concentration investigated was 0.8 to 1.8 mol L^{-1} for quantitative evoking of U(VI) with 4.0% reagent concentration. Acetate buffer having pH of 4.5 was employed for stripping of U(VI) from the organic phase. Hence 4-methyl-N–n-octylaniline in xylene was found to be suitable reagent for extraction of Th(IV) and U(VI). The recovery percentages were warranted the accuracy and found around 99.2%. In addition, relative SD values were below 3%. The selective stripping was found to be useful for their mutual separation and determination.

Keywords Liquid–liquid extraction · Th(IV) · U(VI) · 4-methyl-N–n-octylaniline · Organic phase · Distribution

Introduction

Uranium is relatively highly abundant naturally occurring radioactive element present in the earth crust as well as in sea water. Thorium is a radioactive metal mostly associated with uranium and rare earths. Thorium as well as uranium are used in nuclear power generation and military weapons. Phosphate rock contains appreciable and recoverable amount of thorium and uranium in the ppm range [1–3]. Monazite is the most important rare earth phosphate containing thorium associated with uranium [4, 5]. Many analytical methods has been invented for the determination of U and Th in the phosphate rocks and in the aqueous solution obtained by their decomposition using mineral acids [6, 7]. Acid or alkaline leaching [8], ion exchange [9], solvent extraction, precipitation [10] are some common techniques used for the preconcentration, recovery and purification of these metals.

Various ion exchange resins comprising amidoximes and related compounds [11, 12] modified chitosan (CTS) i.e. non-acetylated chitin and related compounds [13], impregnated resins were employed in solid phase extraction of uranium. In solvent extraction technique the extractant plays key role. Many phosphorus based extractants, number of sulphur based extractants, schiff's bases and heterocyclic compounds enclosing isoxazolones, pyrazolones, crown ethers used as an extractant in solvent extraction systems of uranium have been published in the literature [14–16].

Several aromatic and aliphatic long chain amines such as Amberlite LA-1 / LA-2 [17], 2-Octylamino pyridine [18], N–n-octylaniline [19], Tri-n-octylamine (Tri-n-octylamine Thorium [20], Tri-n-octylamine Uranium [21, 22], Tri-iso-octylamine [23], synergism of N–n-octylaniline and trioctylamine [24], alamine 310 and alamine 336 [25–27]

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ARTICLES

A Green Chemosensing Approach for Direct and Liquid-liquid Extractive Spectrophotometric Determination of Platinum

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Abstract—In this study, a highly selective colorimetric chemosensing behavior of 4-(2'-furalideneimino)-3-methyl-5-mercapto-1,2,4-triazole (FIMMT) was used for the determination of platinum ions. The developed method is simple, cheap, and rapid. It obeys the principle of green chemistry since *n*-butanol used as an extraction solvent for platinum determination in aqueous solutions was further recycled and did not release toxic wastes. Platinum forms a red-colored soluble complex with FIMMT at pH 5.4 on heating. Platinum(II)–FIMMT complex was instantly extracted into *n*-butanol. The complex absorbance in aqueous and *n*-butanol solutions was found at λ_{max} of 510 nm. The complex was stable for more than 24 h in the presence of other ions with the extinction coefficient of 11686 L/mol · cm and Sandell's sensitivity of 0.017 μg/cm^2. The effect of pH, excess of reagent, and foreign ions on the determination of platinum as well as the influence of heating time, stability, and solubility of the complex in various solvents were studied. The system obeyed Beer's law up to 17.5 μg/mL, and the optimum range was evaluated by Ringbom method. The developed method showed excellent linearity and a correlation coefficient of 0.999. The method is precise, and it was applied for platinum determination in synthetic matrices, real samples such as *cis*-platin injection and platinum–rhodium thermocouple wire. The chromogenic reagent FIMMT selectively reacts with nickel, palladium, and platinum, which helps to separate them quantitatively.

Keywords: platinum(IV), chemosensor, group separation, green determination, liquid–liquid extraction, spectrophotometry

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Platinum is a precious metal that occurs along with other platinum group metals and base metals in the Earth's crust in trace amounts ranging from ppb to ppm levels [1]. It is a metal of electronic, industrial, and environmental interest. This metal is a good catalyst and is widely used for hydrogenation reactions. Owing to its corrosion resistant nature and alloying ability, platinum and its alloy are used in dental and medicinal devices as well as in manufacture of jewelry. Platinum plays an important role in the pharmaceutical industry, e.g., Oncoplatin AQ, a commonly used cytotoxic anticancer drug, contains *cis*-platin [2]. The development of selective extractants for the separation and concentration of precious metals at trace levels reflects an increasing need for these metals to be recovered and determined. Chelating extractants have been found to be more selective than solvating reagents and anion exchangers, and, in accordance with Pearson's theory [3], better performance is obtained with sulfur containing compounds in the case of platinum(IV). Therefore, a sensitive and selective method for its determination is required to detect the metal in synthetic mixtures, catalysts, and drugs. Various sulfur containing reagents have been recommended for the determination of platinum. Thiosemicarbazones are important organic analytical reagents which act as good chelating agents forming stable complexes with platinum(IV). A number of spectrophotometric reagents have been used for the determination of platinum(IV). The literature survey has revealed that N-(3,5-dimethylphenyl)-N'-(4-aminobenzenesulfonate)-thiourea [4], N-alkylacetamide [5], anisaldehyde-4-phenyl-3-thiosemicarbazone [6], *o*-phenylenediamine [7], mercaptocarboxylic acids [8], dimethyl sulfoxides [9], 5-(4-nitrophenylazo)-8-(*p*-toluenesulfonamido)-quinoline [10], 2-acetylpyri-

Investigation of Structural, Morphological and Elastic Properties of Ni–Zn Ferrite Grown with an Oxalate Precursor

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Abstract

We report structural, morphological and elastic properties of $Ni_xZn_{1-x}Fe_2O_4$ (x = 0.28, 0.30, 0.32, 0.34, 0.36, 0.38, 0.40) ferrimagnetic oxides prepared using oxalate chemistry. The Rietveld refinement of the X-ray diffraction patterns confirm the formation of spinel cubic structure. The experimental and theoretical lattice constant is found to decrease with increasing Ni^{2+} content. The FTIR spectra exhibit two main fundamental absorption bands, one for the tetrahedral site around 575 to 580 cm^{-1} and the other for the octahedral site around 411–413 cm^{-1}. The magnitude of elastic moduli is found to be independent with increasing Ni^{2+} content. The morphological analysis showed the formation of small and homogeneous particles, which is possible using an oxalate precursor. The elemental analysis confirmed the presence of Ni, Zn, Fe, and O as per their stoichiometric amounts. The structural, morphological and elastic properties are described with an interplay of oxalate precursor synthesis route of the ferrite development.

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Data Article

Statistically designed extractive spectrophotometric determination scheme for bismuth(III) with 2-chlorobenzaldehyde thiocarbohydrazone: Analysis of environmental and real resources

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2-chlorobenzaldehyde thiocarbohydrazone
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Environmental samples
Spectrophotometric determination
Real samples

ABSTRACT

The principle of liquid-liquid extraction followed by spectrophotometric determination of bismuth(III) was elaborated. The yellow complex of bismuth(III) with 2-chlorobenzaldehyde thiocarbohydrazone in presence of potassium iodide is soluble in chloroform and was extracted from HCl-KCl buffer having pH 1.2. The concentration of 2-chlorobenzaldehyde thiocarbohydrazone and potassium iodide ensuring maximum absorbance were optimized well. The effect of foreign ions was also thoroughly elucidated. The maximum absorbance of the complex is witnessed at 420 nm having the values of molar absorptivity and Sandell's sensitivity as 1.086×10^4 L mol^{-1} cm^{-1} and 0.01923 μg cm^{-2}, respectively. The Beer's law is obeyed for bismuth(III) concentrations over the range of 4.80 to 16.0 μg mL^{-1}. The composition of [Bi(III)-2CBTCH-iodide] complex was found to be 1:1:1.

The scheme has been applied for the determination of bismuth(III) in environmental and real resources.

Specifications table

Subject area	Separation and analytical chemistry, spectroscopy.
Compounds	2-Chlorobenzaldehydethiocarbohydrazone
Data category	Solvent extraction, synthesis, spectral data, environmental samples.
Data acquisition format	UV–visible spectrophotometer and atomic absorption spectrophotometer for data analysis.
Data type	Separated and analyzed.
Procedure	Synthesis, liquid-liquid extraction, separation, determination and application.
Data accessibility	Data is with this article.

Abbreviations: 2-CBTCH, 2-Chlorobenzaldehydethiocarbohydrazone; RSD, Relative standard deviation; UV–Vis, Ultraviolet visible; LOD, Limit of detection; LOQ, Limit of quantification.

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ARTICLE

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Experimentally validated extractive spectrophotometric determination method of osmium(VIII) from environmental samples: sequential separation of osmium(VIII), rhodium(III) and ruthenium(III)

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ABSTRACT

An ethanolic solution of 1, 3–bis(hydroxymethyl) benzimidazole–2-thione (BHMBT), in the presence of hydrochloric and perchloric acid (1 mol L^{-1}), reacts with osmium(VIII) to give pink-coloured complex instantly at room temperature. The coloured species formed is extracted into methyl isobutyl ketone and shows maximum absorbance at 520 nm (hydrochloric acid) and 540 nm (perchloric acid). Excellent linearity with regression equation as y = 0.025x + 0.005 having correlation coefficient R^2 = 0.999 over concentration range of 5.5–30.0 µg mL^{-1} of osmium(VIII) is achieved with notable molar absorptivity of 4.907×10^4 L mol^{-1} cm^{-1}. The optimum concentration range is 5.62–29.99 µg mL^{-1} which is deduced by Ringbom's plot. Further other features like limit of detection (LOD = 0.15 µg mL^{-1}), limit of quantification (LOQ = 0.48 µg mL^{-1}) and Sandell's sensitivity (SS = of 0.038 µg cm^{-2}) are determined as well. The stoichiometry of [Os(VIII)–BHMBT] (1:1) complex is confirmed by applying log-log plot scheme. The specificity headed for osmium(VIII) is well studied and proper masking reagents are used where required to improve it. The intra-day and inter-day precision values are found to be brilliant with % relative standard deviation of 0.84 and 0.87 respectively with % accuracy within the range of 99.00–100. The method is effectively used for determination of osmium(VIII) from water samples, binary and ternary synthetic mixtures, simultaneous spectrophotometric determination of palladium(II) and osmium(VIII) and sequential separation of it from other associated metal ions. The method is sensitive and free from interference of associated ions commonly found with osmium(VIII).

KEYWORDS

1,3–Bis (hydroxymethyl) benzimidazole-2-thione; extractive spectrophotometry; sequential separation; osmium(VIII); simultaneous determination

1. Introduction

In the view of platinum group metals (PGMs), osmium is very rare and expensive. Large amount of osmium is produced in the form of metallic osmium and osmium tetraoxide. It is used in chemical synthesis of steroids, hydrogenation catalytic reactions, alloying

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India and European Union Trade (2016-2021)

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Abstract: *The paper examines the potential for trade shift between India and Europe and the possibility for each economy to develop the following liberalization. India is Europe's biggest cooperation partner, and it serves as the foundation for a variety of collaborations. This article examines the evolution of trade flows between the economies of the two nations in a world where they are fully competitive. This research looks at cross-border European and Indian industries to see how easy it is to conduct business in another nation. The flow of commerce between India and Europe following liberalization is discussed in this research. As can be seen, both India and Europe offer a plethora of possibilities for each other that are still to be explored. There is a lot of mutual advantage in expanding on their relationship. This assessment was undertaken to determine the tone of these discussions. It aims to create the groundwork for a long-term relationship between these two dynamic or promising economies by highlighting the desirability of both nations for investment and business via various channels. This also demonstrates support for the growth of bilateral ties between India and Europe in various areas and the establishment of a laissez-faire economy following the new global economic order.*

Keywords: India and European Union Trade

I. Introduction

INDIA and European Union seem to have much to offer each other in the shape of trade complementarities, investment opportunities and political influence. In 1960, As far as global issues were concerned, both India and the EU were deemed, natural partners. But after the 1990s, the cooperation between India and the EU was enlarged, and the relation was institutionalized.

Traditionally, we go back to the early 1962 India-EU diplomatic relations; among the developing nation, India was the first country to establish diplomatic ties with the EEC (EEC). India's trade reforms, implemented in 1991, have resulted in large increases in bilateral trade between the two countries. Policymakers in India realized that opening up the economy was critical to achieving quicker and more sustainable growth. In reality, rising exports of goods and services have increased India's foreign trade volume faster than GDP. Indians saw the EU as an economic superpower and a tough trade negotiator in global trade discussions, largely accepted in India. Most of Europe is a mysterious continent to Indians, a tourist destination only available to a select few in society. (Chaudhari et al., 2012).

Since India is the world's most populous democracy, the European Union (EU) has selected it as one of its ten strategic partners in the worldwide community. There can be no denying the significance of this Asian superpower to the EU, both economically and politically. With a total trade volume of 72.7 million euros in 2013, India ranked as the country's 10th most important trading partner. It's also a valuable ally when it comes to cutting-edge concerns like energy or science. The fact that all 28 EU member states have embassies in Delhi is no accident.

Indian-EU strategic cooperation has not lived up to expectations despite lofty promises. For example, the most important subject on the bilateral agenda, the India-EU Free Trade Agreement (FTA), has been negotiated for seven years and 12 rounds. Still, an agreement has yet to be reached. However, the relationship has not yet been produced as planned in other areas of cooperation where it bears enormous potential (Winand et al., 2015).

1.1 India's – Eu Trade Agreements

Through the holding of leadership summits, many protocols have been established to promote commerce b/w the European Union and India. Mechanical engineering, Telecommunications, computer technology, biotechnology, food

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IN VITRO EVALUATION OF MDR IN *ACINETOBACTER BAUMANNII MJ121*: AN EMERGING HEALTH THREAT

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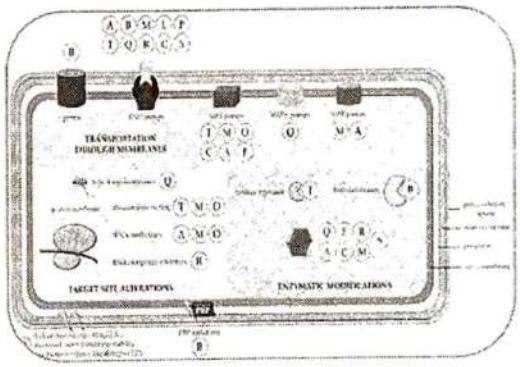
ABSTRACTS



In the present study, the antibiotics susceptibility of multi-drug resistant species of Acinetobacter baumannii MJ121 from clinical samples was done. The strain was identified on the basis of cultural, morphological characterizations, by 16s rRNA gene sequencing analysis. With the intention of determining the sensitivity of this isolate of Acinetobacter to 13 antibiotics, standard methods according to CLSI guidelines were performed. In the present study, resistance to three or more of three classes of antibiotics was regarded as multidrug resistance. Multidrug resistance (MDR) is a common occurrence among A. baumannii and it complicates the eradication and treatment of serious infections caused by them. Acinetobacter baumannii MJ121 has now emerged as one of the most troublesome pathogens for health care institutions globally. In the present study, the antibiotic susceptibility of Acinetobacter baumannii MJ-121 was shown. The present isolate 121 of Acinetobacter showed the highest resistance to almost all the antibiotics used Viz. Meropenem (10µg), Cefepime (30µg), Amoxycillin(10µg), Gentamicin(10µg), Nitrofurantoin(300µg), Nalidixic acid(30µg), Tigecycline(15µg), Ampicillin(10µg), Imipenem(10µg), Amikacin(30µg), Ertapenem(10µg), Colistin(10µg) and Piperacillin(100µg). The present study was done to find out the resistant pattern in this geographical area which can help to formulate an antibiotic policy in the hospital.

KEY WORDS : *Acinetobacter, In Vitro, multi-drug resistance (MDR), nosocomial infection.*

INTRODUCTION

In the general parlance, infections among inpatients acquired from hospital milieu, termed nosocomial infections are the major concern for the clinicians globally (Peleg *et al.*, 2008). Nosocomial infections are more challenging to treat as they are usually caused by the drug resistant bacteria (Peleg *et al.*, 2008). Further, most common nosocomial bacteria have been categorized as ESKAPE pathogens, which include Enterococcus faecium, Staphylococcus aureus, Klebsiella pneumoniae, Acinetobacter baumannii, Pseudomonas aeruginosa and Enterobacter spp. encompassing both gram positive and gram negative bacteria.

छत्रपती शिवाजी महाराज एक साहसी व्यक्तिमत्त्व - एक ऐतिहासिक अवलोकन

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'छत्रपती शिवाजी महाराज व्यक्तित्व आणि कर्तृत्व' या विषयाचा अभ्यास करताना आपणास छत्रपती शिवाजी महाराज यांच्या व्यक्तिमत्त्वाची प्रकर्षाने जाणीव होते. त्यांचे व्यक्तिमत्त्व हे अतिशय उत्साही, आकाशाला गवसणी घालणारे होते. भारतातील राजे व राजघराण्यांचा इतिहास पाहता आपणास दिसून येते की, या भूमीत छत्रपती शिवाजी महाराज हे स्वयंभू व एक आदर्श असे व्यक्तिमत्त्व दिसून येते. त्यांच्या कर्तृत्वातूनच महाराष्ट्रात १७ व्या शतकात हिंदवी स्वराज्याची स्थापना झाली, हे सर्वश्रुतच आहे; मात्र त्यांचे व्यक्तित्व आणि कर्तृत्व एवढे मोठे होते की, त्यांच्या शत्रूलाही त्यांच्यापुढे नमते घ्यावे लागले. तेव्हा आजच्या काळात त्यांनी निर्माण केलेल्या स्वराज्यातून आपण प्रत्येकाने एक प्रेरणा घेऊन आपण पुढील वाटचाल केली पाहिजे. अवघ्या महाराष्ट्राचे आराध्य दैवत आणि हिंदुस्थानचा स्वाभिमान ज्यांनी शेवटपर्यंत उराशी बाळगून आपल्या स्वराज्याची पताका सात समुद्राच्या पार फडकविली. अशा थोर यशस्वी व्यक्तिमत्त्वाचा आढावा घेऊन आपण एक आदर्श समाज घडविण्यासाठी प्रत्येकाने छत्रपती शिवाजी महाराजांच्या व्यक्तिमत्त्वाची ओळख करून घेणे महत्त्वाचे ठरते.

प्रस्तावना -

छत्रपती शिवाजी महाराज म्हणजे एक कर्तृत्वाचा आणि नेतृत्वाचा महामेरू होते. एक आदर्श, धर्मनिष्ठ, न्यायप्रिय, धर्मनिरपेक्ष, खुंदर एक मानवतावादी राष्ट्रपुरुष म्हणून छत्रपती शिवाजी महाराजांची ओळख आहे. १७ व्या शतकात छत्रपती शिवाजी महाराजांच्या रूपाने एक स्वयंभू आदर्श असे रयतेचे राज्य मिळाले. त्यांच्या व्यक्तिमत्त्वाची छाप इतकी जबरदस्त होती की, त्यांचे धार्मिक धोरण युगानयुगे चालणारे होते. त्यांची धर्माबाबतची मते, त्यांची मानवता, नीतिमत्ता इतकी प्रचंड होती की, शत्रूच्या दरबारी लेखकांनीदेखील महाराजांच्या मानवतावादाची प्रशंसा केलेली दिसून येते. यातच महाराजांचे एक प्रभावी व्यक्तिमत्त्व दिसून येते. त्यांच्या अंगी असलेले गुण पाहता त्यांनी इथल्या शत्रूवरदेखील आपल्या व्यक्तिमत्त्वाची छाप सोडली होती, त्यांची स्त्रीविषयक भूमिका, त्यांचा मानवतावाद, त्यांची न्यायदानातील भूमिका, धर्मनिरपेक्ष धार्मिक धोरण, हे वाखाणण्यासारखे होते. म्हणूनच छत्रपती शिवाजी महाराजांचे साहसी व्यक्तिमत्त्व समजून घेण्याची आज गरज आहे. प्रत्येकाने छत्रपती शिवाजी महाराजांच्या व्यक्तिमत्त्वाचा अभ्यास करून प्रत्येक क्षेत्रात पुढे जाण्यासाठी त्यांच्या कर्तृत्वाचा अभ्यास करणे ही काळाची गरज आहे. याकरिता आपणास एक आदर्श, स्वयंभू स्वराज्य मिळवून दिलेले आहे. हे स्वराज्य पुढे नेण्यासाठी या महाराष्ट्रातील महाराष्ट्र धर्माचा विचार करून वारकरी संप्रदायाची एकीची भावना निर्माण करून त्यांच्या व्यक्तित्वाची ओळख करून घेणे ही काळाची गरज आहे. हाच या शोधनिबंधामागचा मुख्य हेतू आहे.

छत्रपती शिवाजी महाराजांचे व्यक्तिमत्त्व -

छत्रपती शिवाजी महाराजांच्या व्यक्तिमत्त्वाचा आढावा घेतल्यास आपणास दिसून येते की, बऱ्याच सुप्रसिद्ध युरोपियन वकिलांनी शिवाजीराजांची भेट घेतली होती. त्यांनी राजांच्या व्यक्तिमत्त्वाबाबत लिहून ठेवलेले नसले तरी इंग्रजांचा राजदूत म्हणून स्टीफन उस्टिक (१६७४) मध्ये गेला होता. शिवाय थॉमस निकोलस (१६७३), ऑग्झिडेन (१६७४) सॅम्युअर ऑस्टिन, आर. जोन्स व एडवर्ड ऑस्टिन ले. ॲडम्स (१६७५) अशा अनेकांनी राजांची भेट घेतली होती. छत्रपती शिवाजीराजांचे व्यक्तिगत जीवन पाहताना ज्यांनी शिवाजी महाराजांना पाहिले त्यांच्या हवाल्यावर एस्केलियट या राजाचे वर्णन मध्यम उंची आणि प्रमाणबद्ध शरीर असे करतो. राजा हा कामात क्रियाशील, नजरेत तीक्ष्ण आणि वर्णात इतरांपेक्षा

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परधान आदिवासी जमात : एक ऐतिहासिक अभ्यास

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प्रस्तावना :-

भारतात प्रदेशनिहाय विभिन्न जमाती आढळतात, त्यांच्या भाषा, रूढी, परंपरा, वेशभूषा, आचरण पध्दती इ. मध्ये वेगळेपण आढळते. त्याच प्रमाणे महाराष्ट्रात सुध्दा आपणास एकूण 46 आदिवासी जमाती आढळतात. उदा. गोंड, परधान, भिल्ल, कोलाम, आंध, महादेव कोळी, कोरकू, ठाकर, हल्बा, कातकरी, पारधी, गावीत, तडवी इ. या आदिवासी जमाती मध्ये जमातनिहाय स्वतंत्र चालिरिती, प्रथा, परंपरा रूढ झालेली आढळते. एवढेच नव्हे तर प्रत्येक जमात एका विशिष्ट भूप्रदेशात वास्तव्यास असलेली आढळते. उदा. सातपूडा पर्वत रांगांमध्ये आपणास महादेव कोळी, भिल्ल, कोकणा, गावीत, तडवी ही जमात आढळते तर सह्याद्रीच्या पर्वत रांगांमध्ये व कोकणात कातकरी, वारली, ठाकर, कोकणा, कोकणी, जमाती व विदर्भ – मराठवाडा या भागात गोंड, परधान, आंध, कोलाम, हया जमाती आढळतात. या पार्श्वभूमीवर महाराष्ट्रातील परधान जमातीचे निरीक्षण केले असता, आपणास ही जमात भारतात मुख्यत्वे चार प्रदेशात आढळते. उदा. 1) मध्यप्रदेश (सेवनी, मांडला, छिन्दवाडा, होशींगाबाद, बेतूल, बालाघाट आणि जवलपूर जिल्हा) 2) छत्तीसगढ (रायपूर व बिलासपूर जिल्हा) 3) तेलंगणा (आदिलाबाद जिल्हा) 4) महाराष्ट्र (विदर्भ, मराठवाडासह इतर प्रदेशात अल्प प्रमाणात). रसेल – हिरालाल यांच्या " The Tribes and castes of the central provinces of India" या ग्रंथात तसेच स्टेफन फक्स, व्हॅरियर एल्विन, रेव्ह – हिस्लॉप, रिचर्ड टेंपल व ग्रिगसेन या सारख्या पाश्चात्य संशोधक – अभ्यासकांनी या जमातीचा सर्वांगीण अभ्यास करून ग्रंथ निर्मीती करून ठेवली आहे. तसेच डॉ. वी.एच.मेहता, इरावती कर्वे, डॉ. एस. आर. मुरकूटे, डॉ. गोविंद गारे, व्यंकटेश आत्राम व इतर काही अभ्यासक – संशोधकांनी लिहीलेल्या ग्रंथांमधून व शासकीय गॅझेटियर्स, वेगवेगळया आयोगांनी सादर केलेले रिपोर्टस इत्यादी मधून परधान जमाती विषयीचा तपशील प्रसिध्द झालेला आहे. भारत सरकारच्या 1981 च्या जनगणनेनुसार या जमातीची लोकसंख्या 11,16,919 तर महाराष्ट्रात 1981 मध्ये 98685 ऐवढी होती, तेव्हा या जमाती संदर्भात विविधांगी अभ्यास होणे अपेक्षित आहे.

उध्दिष्टे :-

1) परधान जमातीची उत्पत्ती व विकास – ऐतिहासीक आढावा घेणे.
2) परधान जमातीच्या सामाजिक व धार्मिक जीवनाचा आढावा घेणे.
3) परधान जमातीच्या आर्थिक व सांस्कृतीक जीवनाचा आढावा घेणे.

गृहितके :-

1) भारतातील आदिवासी या प्रचीन व मूळ समाजातील परधान ही एक जमात आहे.
2) आदिवासी समाजातील गोंड जमातीशी यांचा सहसंबंध आहे.
3) स्वातंत्र्य नंतरच्या कालखंडात या जमातीचा अध्यापही व्हावा तसा विकास झाला नाही.

संशोधन पध्दती:-

प्रस्तूत संशोधनासाठी ऐतिहासिक संशोधन पध्दतीचा वापर केला गेला आहे, त्यासाठी प्राथमिक साधने, मुलाखती, सर्वेक्षण, सरकारचे विविध अहवाल, गॅझेटेअर, वृत्तपत्रातील विविध लेख इ. साधनांचा आधार घेण्यात आला आहे.

परधान – उत्पत्ती व विकास :-

परधान ही मुलत: गोंड जमातीची उप -शाखा आहे. परधान हा शब्द संस्कृतमधील "प्रधान" या शब्दाचे अपभ्रष्ट रूप असल्याचे मत रसेल – हिरालाल यांनी त्यांच्या "The Tribes and castes of the central provinces

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भारतातील शेंद्रिय शेतीचे महत्व

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प्रस्तावना :-

सेंद्रिय शेतीलाच जैविक तंत्रज्ञान असे नांव वैज्ञानिकांनी दिले आहे. या शेतीला भविष्यातील शेती म्हटले जाते. भारताचा विचार केला तर भारतात स्वातंत्र्यापूर्वी सर्व ठिकाणी सेंद्रिय शेती केली जात होती सेंद्रिय शेती म्हणजे सजीव पर्यावरणीय रचना आणि जीवनचक्रास समजून घेऊन व रसायनांचा वापर टाळून केलेली एकात्मिक शेती पध्दती होय. सेंद्रिय शेतीची गरज का आहे याचे कारण आर्थिक व आरोग्य रासायनिक खतांच्या वापराने शेतातल्या गांडूळाची संख्या कमी होते. रासायनिक औषधांचा वापर कमी करणे या सर्व गोष्टींचा विचार करुन सेंद्रिय शेतीचे महत्व जाणून घेण्यासाठी या सेंद्रिय शेतीचे महत्व हा शोध निबंधातून जनजागृती करण्याचा प्रयत्न आहे.

उद्दिष्ट्ये :-

१. सेंद्रिय शेतीचा अभ्यास करणे.
२. सेंद्रिय शेतीचे महत्व जाणून घेणे.
३. सेंद्रिय शेतीच्या वैशिष्ट्यांचा अभ्यास करणे

संशोधन पध्दती :-

प्रस्तुत शोध निबंधाचा अभ्यास करण्यासाठी दुय्यम स्त्रोताचा आधार घेण्यात आला आहे. यात विषयाशी संबंधीत अनेक पुस्तके, संदर्भग्रंथ, संशोधन पेपर, राष्ट्रीय व आंतरराष्ट्रीय स्तरावरून प्रकाशित होणारी माहिती संकलीत करुन शोध निबंध तयार करण्यात आला आहे.

विषय विवेचन :-

रासायनिक खतांच्या अतिवापरामुळे जमिनीचा कस कमी होऊ लागला आहे. शेती उत्पन्नात घट आणि शेती उत्पादन खर्च वाढू लागला. आधुनिक बियाणांमुळे पारंपारिक बियाण्यांच्या जाती नष्ट होऊ लागल्या. शेतकऱ्यांनी स्वत:च्या तसेच राष्ट्राच्या हिताचा विचार करुन सेंद्रिय शेती पध्दतीचा अवलंब करणे गरजेचे आणि सर्वांच्याच फायद्याचे आहे.

भारतीय शेती ही भारतीय लोकांच्या उपजिविकेचे प्रमुख साधन असल्यामुळे शेती हा भारताचा आत्मा आहे. असे महात्मा गांधीनी सांगितले होते. सध्या शेती क्षेत्रावरील वाढता भार, रासायनिक खतांचा अतिरेकी वापर आणि

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Research Article

FRUIT ROT IN TOMATO-A SERIOUS THREAT TO TOMATO PRODUCTION

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Tomatoes assign to healthy and proportional balanced diet. They are affluent in essential amino acids, vitamins, minerals, iron, phosphorus and sugars. Numerous microorganisms such as bacteria, fungi, viruses, nematodes, abiotic factors and inadequate fertilization have been determined to reduce the quality and yield of tomato crop. Fruit rot of Tomato is one of the dreadful fungal diseases caused by *Fusarium oxysporum f. sp. Lycopersici* LSS11. Is commonly occurring disease in storage condition as well as in the field. The antifungal activity of several locally available plants leaf extracts, which are frequently found in the surrounding fields on which some fungi were tested in the lab conditions. Three different plants Viz. *Polyalthia longifolia*, *Lantana camera* and *Eucalyptus citriodora* were selected for testing. All these plants showed antifungal activity against the *Fusarium oxysporum f. sp. lycopersici*LSS11. Of which *Lantana camera* and *Eucalyptus citriodora* crude extracts of leaves showed excellent inhibition activity against *Fusarium oxysporum f. sp. Lycopersici* LSS11 and suppressed the mycelial growth of above mentioned pathogen. It is investigated in present study that *Polyalthia longifolia*, *Lantana camera* and *Eucalyptus citriodora* can be utilized against the management of fungal diseases like fruit rot disease of Tomato (*Lycopersicon esculentum* Mill) caused particularly by *Fusarium oxysporum f. sp. Lycopersici* LSS11.

INTRODUCTION

Tomato (*Lycopersicon esculentum* Mill) belonging to Solanaceae family and genus *Lycopersicon* is considered to be the most important vegetable and popular horticultural crop grown worldwide [1]. Tomato appropriately called as "Super food" is one of the primeval crop popular since the mid 19th century because of its variegated climatic adaptability and appreciative nutritive significance. Medicinal plants have forever been considered as a source for the healthy life for people. Therapeutically properties of medicinal plants are very valuable in healing various diseases and the advantages of these medicinal plants are natural. In many parts of the world, medicinal plants have been utilized for its antibacterial, antifungal and antiviral activities for hundreds of years [2, 3]. Nowadays, there is a renewed interest in the traditional medicine and a growing demand for more drugs of plant origin. This revival of interest in plant-derived drugs is mostly due to the current widespread belief that "Green Medicine" is safe and more dependable than the costly synthetic drugs, several of which possess adverse side effects [4].Secondary metabolites produced by the plants constitute a chiefsource of bioactive substances. A plant disease is any abnormal condition that alters the morphology (appearance) or function of a plant. It is a physiological process affecting some or all functions of plant. Disease may as well reduce the yield and quality of harvested product. Disease is a change that occurs over time. It does not occur instantly like injury. Plant disease can drastically abate the crop yields as the degree of disease outbreaks is getting severe around the world. Emerging infectious diseases caused by the plant pathogens that can develop into unexpected and very vital epidemics, due to the influence of different characteristics of the pathogen, host and environment. Worldwide crop harvest losses due to plant diseases may amount to 12% or even higher in developing countries [5]. The bacterial, fungal as well as viral infections along with infestations by insects results in plant diseases and damage. A plant develops symptoms which appear on several parts of the plants causing a significant agronomic influence. Hence to improve the crop productivity and control the disease epidemics, myriad variety of synthetic chemicals are used in the form of pesticides. Plant diseases are caused by pathogens such as bacteria, fungi, viruses and nematodes. Plant diseases are therefore significant as they affect every one directly or indirectly by causing damage to plants and plant product. Control or management of plant disease is most important

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राज्य-समाजवादाबाबत डॉ. बाबासाहेब आंबेडकर यांचे विचार

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प्रस्तावना :

राज्य-समाजवाद ही पाश्चात्य संकल्पना आहे. उत्पादन साधनाच्या मालकीमध्येव वापरामध्ये आणि अर्थव्यवस्थेवरील नियंत्रणामध्ये राज्यसंस्थेचा मोठया प्रमाणावरील सहभाग. राज्याचा समाजवादात राज्याच्या भांडवलशाही प्रमाणेच अर्थव्यवस्थेत राज्यसंस्थेचा मोठया प्रमाणातील हस्तक्षेप असतो. या प्रकारच्या व्यवस्थेत खाजगी मालकीच्या तत्वाऐवजी सामाजिक मालकीच्या तत्वाचा पुरस्कार केलेला असतो. एकोणिसाव्या शतकातील फेबीयन समाजवादी व इतर समाजवादी हा शब्दप्रयोग करतात. त्याचबरोबर साम्यवादी राज्य हे प्रमूख नियंत्रण असणारी भांडवलशाही अर्थव्यवस्था व राज्य सर्वोच्य असणारी समाजवादी व्यवस्था यांच्यात काटेकोर फरक करताना हा शब्दप्रयोग केला जातो.[१]

डॉ.बाबासाहेब आंबेडकरांनी संसदीय लोकशाहीचा पुरस्कार केला होता. संसदीय लोकशाहीच्या पुरस्काराबरोबरच डॉ.आंबेडकर यांनी समाजवादाचा पुरस्कार केलेला आढळून येतो. त्यामुळे डॉ.आंबेडकर यांना समाजवादाचे पुरस्कर्ते होते असे म्हटले जाते. डॉ.आंबेडकराची समाजवादी विचारसरणी राज्यसमाजवादी विचारसरणीशी जूळणारी आहे असे दिसून येते. राज्यसमाजवादी विचारसरणी नविन समाजव्यवस्था आणि नविन अर्थव्यवस्था स्थापन करण्यासाठी क्रांतिकारक अगर अत्याचारी उपाय योजनाची आवश्यकता नसते असे मानते. राज्यसमाजवाद्यांच्या मते असा बदल शांततापुर्व आणि घटणात्मक मार्गाने हळूहळू आणि क्रमाक्रमाने घडवून आणला पाहिजे असे राज्यसमाजवादी विचारप्रणाली सुचविते. राज्यसमाजवाद्यांच्या मते समाजामध्ये या प्रकारच्या तत्वज्ञानाबद्दल व सुधारणांबद्दल आवड व श्रध्दा निर्माण करण्यासाठी शिक्षण व प्रचार या मार्गाचा वापर केला पाहिजे. राज्यसमाजवादी विचारप्रणाली मान्य असणारे प्रतिनिधी निवडून गेले म्हणजे कायदे आणि शासनव्यवस्था यांच्या साहाय्याने योग्य तो बदल घडवून आणता येईल असे राज्यसमाजवादी मानतात. डॉ.बाबासाहेब आंबेडकर यांनीही सामाजिक व आर्थिक उद्दिष्टे सनदशीर मार्गानी साध्य केली पाहिजेत असे मत मांडले होते. डॉ.आंबेडकराच्या मते घटणात्मक मार्ग उपलब्द असताना बेसनदशीर मार्गाचा अवलंब करणे आपणास सोडून दिले पाहिजे असे त्यांनी स्पष्ट केले होते. आपणास संसदीय लोकशाहीच्या विचारविनिमयाच्या मार्गाने मूलभूत स्वरूपाचे सामाजिक व आर्थिक बदल घडवून आणता येतिल.[२]

राज्यसमाजवाद्यांच्या मते सद्दकालीन समाजरचनेमलळे आणि अर्थव्यवस्थेमुळे समाजातिल फारच थोड्या व्यक्तींना सुखात व समाधानी राहता येते आणि सर्वसामान्य जनता दु:खी असते हे विदारक सत्य आहे. नैसर्गिक साधन संपत्तीचा उपयोग समाजाच्या हिताकरिता केला जात नाही तर फक्त थोड्या लोकांच्या हिताकरिता ही नैसर्गिक साधनसंपत्ती वापरली जाते. थोडया व्यक्तींना संपत्तीचा वाटा मिळतो. कमालीच्या आर्थिक आणि सामाजिक विषमतेमुळे सामाजिक प्रगती व समाज हित साध्य होत नाही. राज्यसमाजवाद्यांच्या मते ह्यासाठी सामाजिक अगर शासनाच्या नियंत्रणाची आवश्यकता असते. तसेच सामाजिक हित व सामाजिक कल्याण हे उद्दिष्ट साध्य करण्यासाठी समाजाची पुर्नरचणा करणे आवश्यक होत असते. राज्यसमाजवाद्यांच्या मते त्यासाठी ज्या उपायांचा अवलंब करावा लागतो ते असे :

(१) जमीन, खाणी, कारखाने इत्यादी उत्पादन साधनाचे व इतर प्रमुख व्यवसायाचे राष्ट्रीयीकरण करावे म्हणजेच समाजाची मालकी प्रस्थापित करावी.
(२) विमा व्यवसाय, बँका इत्यादी व्यवसाय सरकारकडून चालवले जावे खाजगी उद्योगाला यात वाव असू नये.
(३) उत्पादनाचे ध्येय हे व्यक्तिगत नफा या ऐवजी समाज हित हे असावे.
(४) नफा मिळविण्यापेक्षा समाज सेवा या तत्वाला महत्व दयावे.

राज्यसमाजवाद्यांच्या मते, असा प्रकारच्या सुधारणा घडवून आणल्या म्हणजे भांडवदार वर्गाला मिळणारा नफा सर्व लोकांना मिळू शकेल. हा मिळणारा नफा समाजाच्या हितासाठी वापरता येईल. त्याचबरोबर काही लोकांची संपत्ती मिळविण्याची इच्छा नाहीशी होऊ लागेल. त्यामुळे अन्याय,

The Color Purple: A Tale of Women's Suffering and Violence

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Abstract: The Color Purple is one of the finest and critically acclaimed novels written by Alice Walker, (1944-) a post-modern prominent Afro- American woman novelist. The novel was published in 1982. The novel was awarded the prestigious Pulitzer Prize in 1983 and National Book Award as well. This is probably the first novel to be awarded both the prestigious awards. She became the first Afro-American woman writer to receive both awards. The novel is set in the southern American States in the early 1900s narrating the heart touching and shocking story of its fourteen year old female protagonist Celie. A teenager female protagonist's story is told in the epistolary form. Alice Walker uses the epistolary narrative technique to delineate the plot of the novel. The novel is a journey of its all women characters full of sufferings, humiliation disrespect and violence. The characters of Celie and her younger sister Nettie's sufferings and fight form the plot of the novel. The other female characters are also observed suffering at the hands of their counterpart male. The behavior of the male characters especially Alphonso and Mister is very typical that causes the suffering and humiliation of the female characters.

Research Methodology:

The research methodology used in this research paper is applicative and analytical. Since this a research paper on the literary text, a typical perspective of violence and suffering has been applied while bringing out the treatment given to the female characters in the novel *The Color Purple*. The tools of analysis and application have been mainly used in the research.

Alice Walker, one of the greatest post-modern Afro- American women novelists wrote a good deal of novels and non-fictions. Her themes range from color discrimination, exploitation, injustice, domestic violence and the depiction of the sufferings of the Negros in general and the black women in particular. It is rightly pointed out that" The Color Purple celebrates black people as indeed a people that has been continuously abused by the white people in the United States". (Williams, 202). The present novel under research is a masterpiece in terms of the suffering and the violence meekly put up with by the leading and subsidiary characters in the novel entitled *The Color Purple*. The novel is set in the southern American states where most of the dwellers are of black race. The female protagonist of the novel named Celie is major character after whose character the novel takes its title. She is merely fourteen years old. She has lost her biological

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REGULAR ARTICLE

L-Proline catalyzed one-pot three-component synthesis and evaluation for biological activities of tetrahydrobenzo[b]pyran: evaluation by green chemistry metrics

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Abstract. A series of tetrahydrobenzo[b]pyrans derivatives were synthesized with substituted pyrazole carbaldehydes, malononitrile and dimedone by ecofriendly L-proline catalyst in aqueous ethanol. The synthesized compounds were characterized using FTIR, ^{1}H NMR, ^{13}C NMR and Mass spectral techniques. This method holds the advantages of one-pot multicomponent, simple synthetic route, mild reaction conditions, high yield, use of less toxic chemicals and use of eco-friendly catalyst. We also report the study of the synthetic protocol by green chemistry metrics indicates a green relevance. Also, synthesized compounds were screened for their anti-inflammatory and antioxidant activity. Most of the tetrahydrobenzo[b]pyrans derivatives exhibit excellent activity.

Keywords. Green chemistry; L-Proline; Multicomponent; Tetrahydrobenzo[b]pyran.

1. Introduction

Oxygen and sulfur-containing six-membered heterocyclic compounds extensively occur in nature. The heterocyclic compounds including benzopyran, pyran and benzothiopyran ring systems exhibit fascinating biological properties, which provoke the chemists towards the synthesis, isolation, reactivity, and structure.[1] Nowadays it is a challenge among researchers to develop an eco-friendly and cost-effective synthetic route for sustainable development. For the last couple of decades, benzothiopyrans have gained importance due to the recognition of the wide biological properties of compounds containing such moiety.[2]

Recently, the interest has been exalted in the synthesis and evaluation of 4H pyran derivatives for biological activities due to their remarkable biological as well as pharmacological applications. Moreover, many natural products contain 4H pyran nucleus.[1] Particularly, many researchers are attracted to 4H-benzo[b]pyrans because of their pharmacological properties[2] such as spasmolytic, anticoagulant, diuretic, and anticancer activity.[3] Furthermore, 4H-benzo[b] pyrans and their derivatives have been extensively used as cognitive enlargers for the treatment of neurodegenerative diseases like Huntington's disease, Alzheimer's disease and Down's syndrome also for the treatment of myoclonus and schizophrenia.[4] 4H-Pyrans are also used as building blocks of many natural products.[5]

The derivative of pyrazole plays a significant role as biologically potent compounds and hence exhibit a fascinating pattern in medicinal chemistry most of these possess antimicrobial[6] insecticidal[7] and anti-inflammatory[8] properties. Recent research revealed that there are various methods for the synthesis of

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सत्याग्रहाचे शास्त्र

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विसाव्या शतकात जागतिक स्तरावर अनेक महत्वपूर्ण घटना घडल्या, अनेक राष्ट्रे स्वतंत्र झाली. अनेक राष्ट्रांनी लोकशाही शासनप्रणाली स्वीकारली, दोन महायुद्धे झाली, टोकाची शस्त्रस्पर्धा वाढली, नक्षलवाद, दहशतवाद, स्त्रीवाद, पर्यावरणवाद यातून मानवतावादाचा संकोच होत असलेला दिसत आहे. विज्ञान तंत्रज्ञानाने जशी विधायक क्रांती घडवून आणली तशी विध्वंसक प्रवृत्तीलाही गती दिली असे दिसते. शस्त्रास्त्राच्या युगात आणि अनेक देशातील वाढत्या हिसांचाराच्या संदर्भात गांधीजीच्या सत्याग्रहाचे महत्व आहे का? असा प्रश्न अनेक अभ्यासकांना पडतो; त्याप्रमाणेच सर्वसामान्य माणसास आजच्या भयानक स्थितीतून बाहेर पडण्यासाठी पून्हा अंहिसा, सत्याग्रह, लोकशाही हिचं मूल्य दिशादर्शक वाटतात. कुठलेही राष्ट्रीय, आंतरराष्ट्रीय, राजकीय, सामाजिक, आर्थिक प्रश्न सोडवण्याच्या दृष्टिने हिंसा वा शस्त्रशक्ती आता निरुपयोगी ठरली आहे. चंगळवाद, नैराश्य, आगतिकता, अविश्वास, असुरक्षितता यापासून भयमूक्त करणे आणि माणवास निरागस शांती व समाधान मिळवुण देणे ही मूलभूत गरज बनली आहे. याचा मार्ग गांधी विचारात सापडतो हे पुन्हा सिद्ध होत आहे. प्रस्तुत शोध निबंधात गांधीच्या तत्वज्ञानातील 'सत्याग्रह' हे शस्त्र मानवतेचे शास्त्र म्हणून किती प्रस्तुत ठरते आहे याचा समकालीन आढावा घेतला आहे.

गांधीजीनी आपल्या सार्वजनिक जीवनात प्रथम दक्षिण अफ्रिकेत हिन्दी लोकांसाठी आठ वर्ष सत्याग्रहाची लढाई लढली. 'सत्याग्रहाचे' अस्त्राचा प्रयोग प्रथम या लढयात केला गेला. त्यानंतर त्यांनी अन्यायाविरुद्ध न्याय मिळवण्याचा न्याय मार्ग म्हणून विविध प्रसंगी सत्याग्रहाच्या मार्गाने लढा दिला.

सत्य आणि अंहिसा ही दोन गांधी विचाराची मूल्य आहेत. ती समजून घेणे गांधीजीचे तत्वज्ञान आत्मसात करणे आवश्यक ठरते. गांधी म्हणत मी सत्यरुपी परमेश्वराचा पूजक आहे. तोच एक सत्य आहे. बाकी सर्व मिथ्या आहे. ते सत्य मला सापडलेले नाही, पण मी त्याचा शोधक आहे. सत्याच्या मार्गावरचा मी एक वाटसरु आहे. भक्तीयुक्त अंतकरणाने केलेल्या शोधाअंती 'ईश्वर सत्यआहे' या प्रचलीत सुत्राऐवजी 'सत्य हेच ईश्वर आहे.' हे वस्तुस्थिती सांगणारे सुत्र मला सापडले. तेव्हापासून मी माझ्या व्यक्तीगत व सार्वजनिक जीवनात सत्यासाठी आग्रह धरणे आवश्यक मानू लागलो. सत्य हे साध्य असून अंहिसा हे ते प्राप्त करण्याचे साधन आहे. अंहिसेवाचून सत्याचा शोध अशक्य आहे. अंहिसा व सत्य एवढी एकरुप आहेत की एकाच नान्याच्या दोन बाजू म्हणता येईल जे अंहिसेने प्राप्त केले जाते ते चीर स्थाई टिकणारे असते. गांधीनी सत्य अंहिसा या तत्त्वावर आधारित व्यक्तीगत व सार्वजनिक जीवनात न्याय मिळवूण देण्यासाठी जो प्रयोग वा प्रयत्न केला त्यातून सत्याग्रहाचे शास्त्र जन्मास आले. गांधीजीनी आपल्या जीवनात सत्याचे प्रयोग केले असून त्यातून जे मिळवता आले ते शास्वत, शांततामय, मानतेचा विश्वास वाढवणारे राहिल्याने जग पून्हा गांधीवादाकडे विश्वासाने पाहताना दिसत आहे.

गांधी विचार आचारातून आलेला विचार आहे. तसेच त्या विचाराची सत्य असत्यता पडताळून हाती आलेल्या सत्यास स्वीकारावे असे गांधी स्वत: सांगत सत्य हे निरपेक्ष, शास्वत, सुख, समाधान देणारे आहे.