



RESEARCH ARTICLE

Mycobiota Associated with Roots of Ashwagandha (*Withania somnifera* (L.) Dunal.) during Storage Deteriorate the Quality of Roots as a Herbal Drug

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ABSTRACT

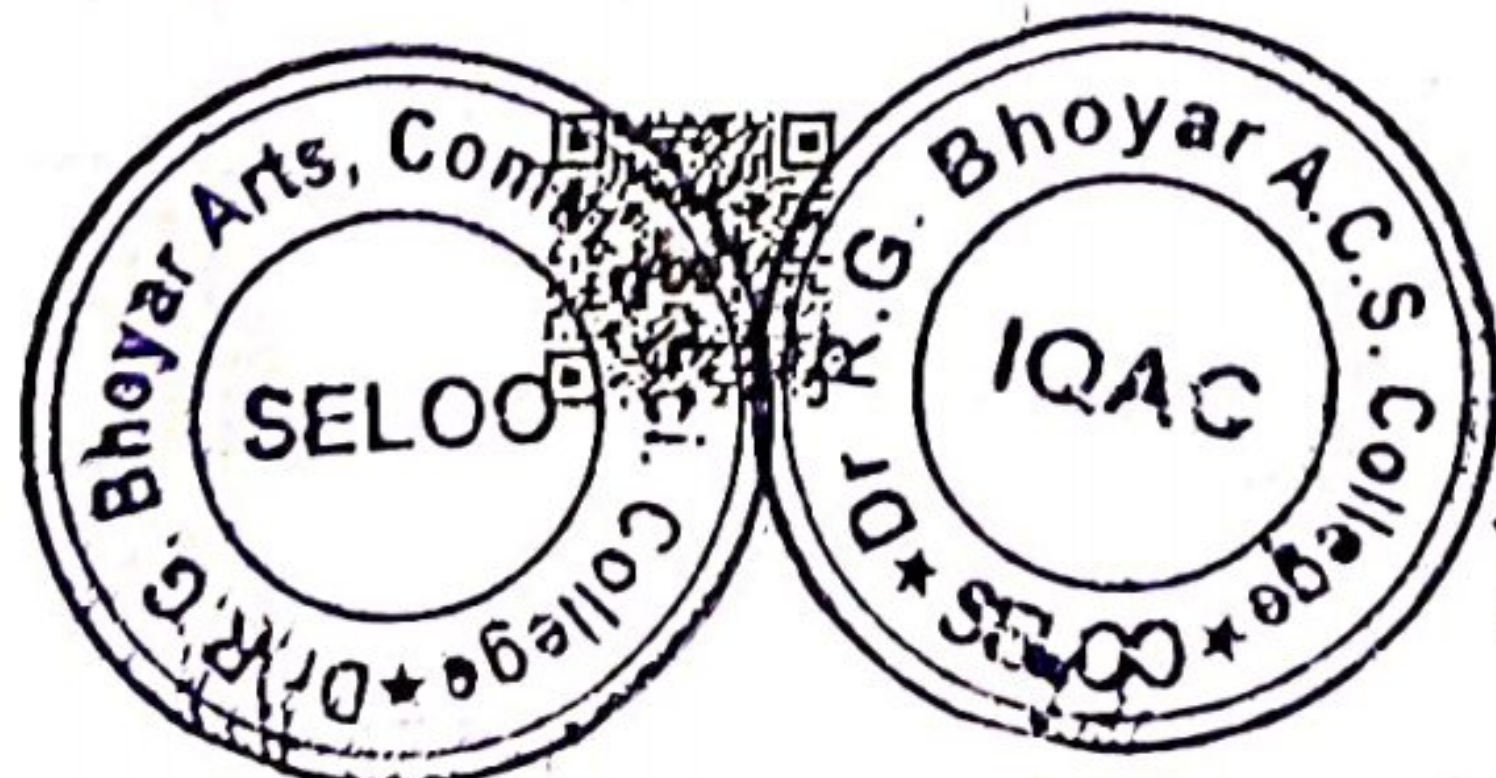
The quality of *Ashwagandha* roots in the most of cases is not fully assured because of mycobial association. The collection and storage of *Ashwagandha* roots are of traditional type (The roots are piled in heaps, under a shelter or they spread on floor or packed in gunny bags) which leads to the association of fungi with them. In the present study, total 45 fungi were isolated from *Ashwagandha* roots. *A. parasiticus*, *A. flavus*, *A. niger*, *P. expansum*, *Rh. stolonifer*, *Rh. oryzae*, *Ch. spirale*, *T. harzianum*, *Rhizoctonia bataticola*, *Paecilomyces* sp., *F. oxysporum* and *A. terreus* found in higher % incidence. Higher relative humidity favours the maximum association of fungi. In addition some of these moulds also produce toxic metabolites. The most prominent toxin is aflatoxin which is known to cause hazards to the liver, digestive, nervous system, respiratory organs. Total 80 market samples of *Ashwagandha* roots were tested for aflatoxin contamination. Qualitative analysis and confirmation of Aflatoxin B₁, B₂, G₁ & G₂ were analyzed with the help of HPTLC technique.

Keywords – *Ashwagandha*, roots, fungi, percentage incidence, relative humidity

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REVIEW ARTICLE

On the identification and medicinal importance of Dashmula plant 'Shalparni' *Pleurolobus gangeticus* (L.) J.St.-Hil. Ex H.Ohashi and K.Ohashi (fam. Fabaceae)

V. N. Patil^{1*}, P. S. Kabnoorkar²

Abstract

Nature has been a source of divergent bioactive compounds for thousands of years. A large number of bioactive compounds valued in modern drugs have been isolated from natural resources. Traditional medicines are an important source of potentially useful new compounds for the development of chemotherapeutic agents. Therefore, there is a necessity to explore these medicinal plants in respect with their pharmacognostic and pharmacological studies to discover their therapeutic properties. *Pleurolobus gangeticus* (L.) J.St.-Hil. ex H. Ohashi & K. Ohashi (Syn. *Desmodium gangeticum* (L.) DC.) is a spreading annual herb found throughout India. It is of great therapeutic value in treating various ailments such as typhoid, piles, inflammation, asthma, bronchitis and dysentery. This review attempts to highlight the available literature on *Pleurolobus gangeticus* with respect to ethnobotany, chemical constituents and summary of various pharmacologic activities.

Keywords: Chemical constituents, Medicinal plant, *Pleurolobus gangeticus*, Therapeutic uses.

Introduction

India is known for its rich repository of medicinal plants. Ayurveda is widely practiced in India. The emphasis on development of biologically active new molecules has been gradually replaced by the use of total herbs as medicine and food supplements. Medicinal plants must be given the status of "National Resources" because their continued availability is essential to sustain one of the world's oldest medicinal traditions, a priceless legacy of the Indian people.

Pleurolobus gangeticus (L.) J.St.-Hil. ex H. Ohashi & K. Ohashi (Syn. *Desmodium gangeticum* (L.) DC.) commonly known as Shalparni, is widely used medicinal herb. It is

commonly used in systems of medicine viz. Ayurveda, Sidha, Unani, Tibetan, Folk, & Homeopathy. It is used in popular 'Ayurvedic' preparation like 'Dashmularishta'. It belongs to family Fabaceae. According to Bhavaprakasha (1974), the following descriptive synonyms are given.

Prisniparni, Prthkparni, Chitraparnyahi, Parnyapi Krestuvinna, Simhapucchi, Kalasi, Dhavaniguha.

P. gangeticus is a woody herb attaining a height of between 20-120 cm, with a short woody stem and numerous irregularly angled branches covered in a fine grey pubescence. It is found throughout the tropical India into the lower portions of the Himalayan range. The meaning of its Sanskrit name 'leaves like Sala' suggests its leaf structure is similar to those of the tree *Shorea robusta* C.F. Gaertn. (Kirtikar and Basu, 1935 and 1974; Warriar et al., 1994).

Classification

The Plant classification details are as follows:

- Classification System: APG IV 2016
- Superregnum : Eukaryota
- Regnum : Plantae
- Cladus : Angiosperms
- Cladus : Eudicots
- Cladus : Core eudicots
- Cladus : Rosids
- Cladus : Eurosids I Ordo : Fabales

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“Foreign Direct Investment: Scenario Within India In New Normal

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Abstract: *A contribution of foreign direct investment in countries economic development is widely important. This paper deals with top sectors which got positive response in the new normal. However few studies are already taken on the FDI. There isn't many research that have looked at this effect's short- and long-term effects simultaneously for developing and emerging markets, particularly during the period of economic unrest at covid time that encompasses the global financial crisis. This paper provides the information about the top Indian sectors which took positive investment in New Normal. Result of the study shown us that to develop economy after FDI is very easy and it will definitely solve our problems regarding unemployment within India.*

Key words: *Foreign Direct Investment (FDI), Short Run & Long Run Effect, Covid, Unemployment*

1. Introduction

Foreign direct investment is one of the most important aspects as per as the Economic development is concern. Many developing countries like India struggling to get foreign direct investment in sectors. Investment made by a company or entity of a country into company or entity of another company. Nonresidential investor invests in residential Business. FDI may be done by any individual, business entities or government. These are some objectives of FDI to Invest in Indian companies, to have a management control, perspective of long-term investment, locking period, any investment is above 10% in Indian company. Government of India prescribed foreign cap in specified industrial sector. Broadly Industrial sector are categorizing as Restricted Sectors (49% FDI is allowed in Insurance Banking, R & D, Courier service). Unrestricted Sectors (100% FDI is allowed in Mining, IT, Airlines, E-Commerce) some sectors are prohibited such as Atomic Energy, Tobacco related industry). FDI can be done through by two ways first is Automatic Route No approval from the government is requires for Example Plantation Sector, Mining (Coal & Lignite), Petroleum & Natural Gas 49% & Broadcasting 100% and Civil Aviation 100%. Next Government Route where is approval by the Government is required Defense Manufacturing 49%, Print Media 26%, Food Product Manufactured 100%. Advantages of the FDI are as follows Flow of foreign money, increase in employment, Domestic producers become more efficient, Inflows of equipment & technology, increase in productivity, Increase Export and Some are disadvantages are Domestic company will suffer if they are less competitive, Effect on natural environment. India is developing Economy means the objective of development economics, a sub-field of economics, is to improve the fiscal, economic, and social circumstances of developing nations. The fields of health, education, working circumstances, and market conditions are those that development economics concentrates on.

An Evaluative Study on Effective Promotional Strategies to Influence Consumer Behavior: Special Reference to Electronics Durable Goods in Nagpur Region

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Abstract- Promotional strategies are essential in the competitive market of today. Two categories can be used to categorize promotional methods. First is the conventional, followed by the modern conventionally there are several promotional strategies like radio or TV commercials, flyers, billboards, bus wraps, telephones call, text messages, coupons, postcards, informational packets, newspapers, and magazines where modern marketing strategies include email campaign, social media post, website content, affiliate marketing, search engine marketing. Durable gadgets are used frequently by consumers, and as a result, they have a big impact on their lives. Due to the lack of time for housework in most dual-earner households, electronic gadgets help modern families save time. So, in this way, electronic durables are very useful today. As per as promotional strategy is concerned A promotion strategy is the plan and tactics you employ in your marketing plan to increase demand for your good or service. The target audience is the focus of promotional techniques, which are an essential component of the marketing mix (product, price, placement, and promotion). Promotional tactics are employed to alter consumer behavior.

Keywords- Conventional, Plan and Tactics, Essential Components

I. INTRODUCTION

Companies use promotional strategy as a sales, marketing, and advertising tactic. A company's choice of marketing strategy is influenced by a variety of elements, including the type of product, marketing budget, target market, and others. Product awareness must grow if you want to boost sales. Compared to the advertising spend. Promotion for any product or service is essential for any company. It is because only through promotion people would come to know about the product. Only after knowing about the product, do they consider purchasing. Since many companies & brands are competing to sell their products to the same set of customers, advertising & promotion are important tools to ensure each brand is differentiated & identified. All the promotional strategies can be classified under two categories – Push and Pull. The push method uses promotional activities to push the product to customers through distributors, wholesalers, and retailers. Push strategies include things that benefit distributors, such as trade exhibitions, bonuses, and wholesaler discounts. As a result, the distribution channel pushes or generates the demand. Since customers cannot see these operations, they are often unaware of them.[1] When a customer enters a mobile store to purchase a new phone and the business owner pushes and exclusively displays Samsung phones, it is push marketing. Selling Samsung phones generates more revenue for the store owner than any other brand. The pull strategy involves running promotional campaigns for customers. Pull methods include advertisements, online marketing, in-store promotions, and others.[2] As a result, the general public has a demand for the products, and they visit physical stores or online sellers to purchase them. Every single customer can see these actions.

An Analytical Study About Consumer Behavior with Special Reference to Electronics Durable Goods in Nagpur Region

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Abstract: Consumer behavior is the most important aspect of the market. Nagpur region has around 25 lacs population the market is also very big. To study consumer behavior, we first need to look at the aspect of the market. The Indian appliances and consumer electronics industry stood at US\$ 9.84 billion in 2021 and is expected to more than double to reach Rs. 1.48 lakh crore (US\$ 21.18 billion) by 2025. Electronics hardware production in the country stood at US\$ 63.39 billion in 2021. So, the market is very big nowadays and it is still increasing in the future. This research article deals with the market and consumer behavior. Consumer behavior and decision-making have evolved and become key issues in the marketing world. This white paper provides a comprehensive overview of consumer behavior in marketing and the factors that influence their purchasing decision process.

1. Introduction

Understanding consumer behavior is a key element of a marketing strategy. In fact, before implementing a strategy, it is essential to fully understand the needs and expectations of the consumers you want to influence. To do this, you need to understand how the consumer will react and be influenced by your marketing strategies.[1] Many authors given theories on consumer behavior some are as follows According to Engel, Blackwell, and Mansard, 'consumer behavior is the actions and decision processes of people who purchase goods and services for personal consumption'.[2] According to Loudon and Bitta, 'consumer behavior is the decision process and physical activity, which individuals engage in when evaluating, acquiring, using or disposing of goods and services'.[3] so both definition tells us that there is a process of consumer behavior which is need recognition, search alternative, evaluation alternatives, purchase, and post-purchase evaluation.

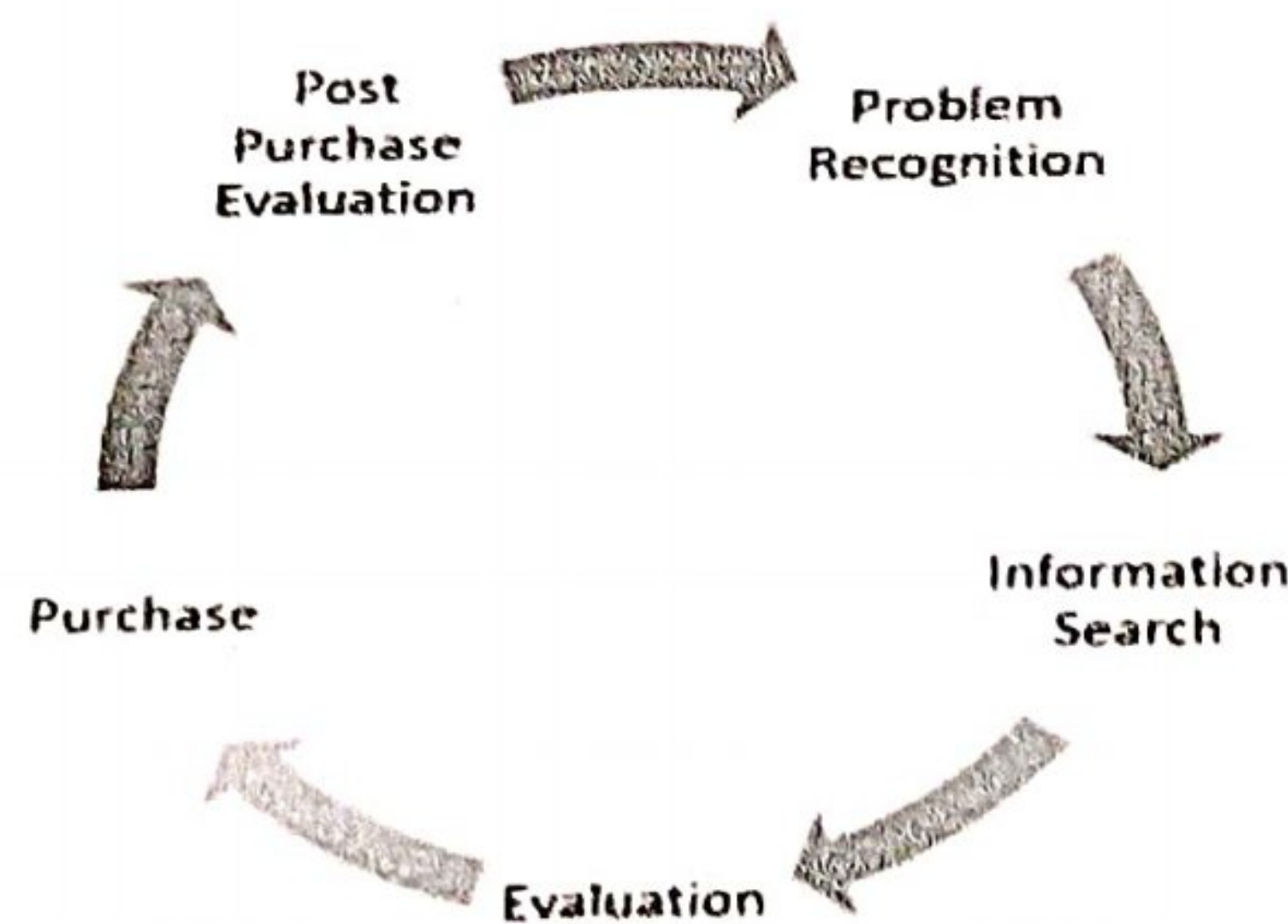


Figure. 1

Need Recognition

This is the first stage of the purchasing process. Consumers do not buy without recognizing their needs and want. Consumers make purchase decisions when they feel the need to purchase a particular product. You have a need or problem that can be solved by



वर्धा जिल्ह्यातील पीक विमा घेतलेल्या शेतकऱ्यांचे नुकसान भरपाई करिता केलेल्या दाव्याबाबत प्रतिक्रियांचे चिकित्सक अध्ययन

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सारांश :

शेतकऱ्यांच्या स्थितीत सुधारणा घडवून आणण्यासाठी आणि त्यांना विकासाच्या प्रवाहात आणण्यासाठीचा पुढाकार म्हणून पीक विमा योजना सुरू केली. यानंतर सन १९९९ साली एन. डी. ए. सरकारने राष्ट्रीय कृषी विमा योजना' लागू केली. या योजनेची सर्वात महत्त्वाची बाजू म्हणजे जरी पासून शेती उत्पादन संरक्षणासाठी विमा काढण्यात येत असला तरी या योजनेत सर्व पिकांचा समावेश करण्यात आला नव्हता. त्यामुळे त्यानंतर सन २००४ नंतर पुन्हा सत्तेत नैसर्गिक आपत्ती आलेल्या काँग्रेस शासनाने काही बदलासह ही योजना चालू ठेवली होती. प्रस्तुत शोधनिबंधात वर्धा जिल्ह्यातील पीक विमा घेतलेल्या शेतकऱ्यांचे नुकसान भरपाई करिता केलेल्या दाव्याबाबत प्रतिक्रियांचे चिकित्सक अध्ययन करण्यात आले आहे.

कीवर्ड :

राष्ट्रीय कृषी विमा योजना, एन. डी. ए., नैसर्गिक आपत्ती, कृषीप्रधान.

प्रस्तावना :

भारत हा कृषीप्रधान देश आहे. येथील लोकांचा प्रमुख व्यवसाय शेती हाच आहे. शेती क्षेत्राच्या विकासाशिवाय मानवी जीवनाच्या सुख समृद्धीची कल्पनाही करता येणार नाही. प्राचीन काळापासून भारतीय लोकांचा शेती हा जिवाळ्याचा विषय आहे. भारताच्या एकूण भौगोलिक क्षेत्रापैकी म्हणजेच ३२.९ कोटी हेक्टर जमिनी पैकी ३०.५ कोटी हेक्टर जमिनीचे मापन करण्यात आले. त्यापैकी प्रत्यक्ष लागवडीखाली असलेले क्षेत्रफळ १४.४ टक्के जमिनीपासून विविध प्रकारचे पीके घेतली जातात. रोजगार निर्मितीसाठी महत्त्वाचे क्षेत्र म्हणून शेती व्यवसायाकडे पाहिले जाते.

परिणामी भारतीय शेतीला भारताचा आत्मा असे म्हणतात. देशाच्या अर्थव्यवस्थेत शेतीचे महत्व अनन्य साधारण आहे. १९५० ते ५१ मध्ये शेती क्षेत्राचा वाटा ५५ टक्के होता. तो २०१८-१९ मध्ये १४.४१ टक्के झाला असला तरी सर्व क्षेत्राला लागणारा कच्चा माल पुरविणारे आणि पायाभूत असणारा असा हा भाग आहे. कापड, साखर, ज्यूट व तेल इत्यादी उद्योग पूर्णपणे शेतीवर अवलंबून आहे. याशिवाय शेती यंत्र व इतर साधनसामुग्री निर्माण करणे शेतीवरच अवलंबून असतात. असे असतानाही भारतातील शेतकरी हे काही समस्यांच्या चक्रातून सुटलेले नाही आहे.

भारतातील पीक विमा योजनेचा इतिहास :

भारतातील पीक विमा योजनेचा इतिहास पहावयाचा प्रयत्न केल्यास असे लक्षात येते की ही योजना केंद्र सरकारने देशातील शेतकऱ्यांसाठी सन १९८५ साली राजीव गांधी पंतप्रधान असतांना सुरू केली. शेतकऱ्यांच्या स्थितीत सुधारणा घडवून आणण्यासाठी आणि त्यांना विकासाच्या प्रवाहात आणण्यासाठीचा पुढाकार म्हणून पीक विमा योजना सुरू केली. यानंतर सन १९९९ साली एन. डी. ए. सरकारने राष्ट्रीय कृषी विमा योजना' (छरींळेपरश्र सीळलींश्रींशी खपींरपलश डलहशाश) लागू केली. या योजनेची सर्वात महत्त्वाची बाजू म्हणजे जरी नैसर्गिक आपत्ती पासून शेती उत्पादन संरक्षणासाठी विमा काढण्यात येत असला तरी या योजनेत सर्व पिकांचा समावेश करण्यात आला नव्हता. त्यामुळे त्यानंतर सन २००४ नंतर पुन्हा सत्तेत आलेल्या काँग्रेस शासनाने काही बदलासह ही योजना चालू ठेवली होती. खरीप हंगाम २०१६ करिता महाराष्ट्र राज्याच्या सर्व जिल्ह्यात 'पंतप्रधान पीक विमा योजना' राबविण्यात येत आहे.

The Impact of Electronic Media on Youth Generation

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ABSTRACT

Electronic media, including television, social media platforms, video games, and the internet, have become integral to the daily lives of today's youth. These platforms have reshaped how young people interact, communicate, consume information, and form their opinions. While electronic media offers educational opportunities and global connectivity, it also has far-reaching implications for mental health, social behaviour, and academic performance. This paper explores the multifaceted impact of electronic media on the youth generation, analyzing its positive and negative effects and offering insights into strategies for responsible media consumption.

Keywords: *Electronic Media, Global Connectivity, Socialization, Digital Literacy, Educational Programs, Government Policies, Media Literacy.*

➤ **Introduction:**

In the past two decades, electronic media has revolutionized communication, entertainment, and information dissemination. The youth generation, comprising individuals aged 10 to 24, has been the primary demographic consuming vast amounts of electronic media daily. With the rise of smartphones, internet penetration, and social media platforms, the way young people engage with the world has drastically changed.

While electronic media provides vast opportunities for learning, social engagement, and creative expression, it also raises concerns about its potential to negatively influence mental health, academic performance, social skills, and behaviour. This paper examines the double-edged impact of electronic media on youth, presenting both its beneficial and harmful effects.

➤ **Forms of Electronic Media:**

- **Television:** Still a dominant form of media, television is used for entertainment, news, and educational programs.
- **Social Media:** Platforms like Instagram, Snapchat, Facebook, TikTok, and YouTube have redefined communication, self-expression, and information sharing.
- **Video Games:** Online gaming platforms, such as Fortnite, Call of Duty, and Minecraft, engage millions of young people in virtual worlds.
- **Internet:** The vast expanse of the internet offers resources for education, research, and entertainment, with tools such as Google, Wikipedia, and online courses playing key roles.

These various forms of electronic media have significant consequences for the psychological, social, and academic development of youth.

➤ **Positive Impacts of Electronic Media on Youth:**

a. Educational Opportunities:

Electronic media provides a wealth of educational resources, ranging from online tutorials to documentaries, and interactive learning platforms. Platforms such as **YouTube**, **Khan Academy**, and **Coursera** offer free or affordable educational content, enabling self-directed learning.

- **Access to Information:** The internet offers immediate access to vast amounts of information, helping youth stay informed on global events, scientific advancements, and technological innovations.

- **Digital Literacy:** Exposure to technology through media encourages the development of digital literacy, which is crucial for navigating today's tech-driven world. This skillset is important for future job markets, as digital proficiency becomes a fundamental aspect of many careers.

b. Global Connectivity and Socialization:

Social media platforms provide a means for young people to connect with peers, share experiences, and engage in conversations about social issues.



Consumer Buying Behaviour: A Comprehensive Study

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ABSTRACT

Consumer buying behaviour examines the decision-making processes consumers undergo when selecting, purchasing, and using products or services. Understanding these processes allows marketers and businesses to meet the demands of their target audience effectively. This paper explores the psychological, social, and cultural factors that shape consumer behaviour, as well as the models used to study it. Additionally, emerging trends like digitalization and sustainability, which are transforming consumer preferences, are discussed. The study aims to provide insights for marketers and businesses to enhance their strategies and better understand their customers.

Keywords: Consumer buying behaviour, Consumer decision-making process, psychological factors, Personal factors, Purchase decision, post-purchase behaviour, Influencer marketing, Consumer behaviour trends.

➤ Introduction:

Consumer buying behaviour refers to the actions and decision-making processes of individuals and households as they select and purchase goods or services for personal use. Understanding this behaviour is essential for businesses to align their products, services, and marketing efforts with consumer needs and preferences. In a rapidly changing marketplace, influenced by globalization and technology, understanding consumer behaviour helps businesses stay competitive, innovate, and build long-term relationships with their customers.

▪ Objectives of the Study:

- Define consumer buying behaviour and its importance to businesses.
- Explore the main factors influencing consumer purchasing decisions.
- Understand various models of consumer buying behaviour.
- Identify the latest trends and their implications for businesses.

▪ Factors Influencing Consumer Buying Behaviour:

Consumer buying behaviour is shaped by a variety of internal and external factors. These influences can be broadly categorized into psychological, personal, social, and cultural factors.

1. Psychological Factors:

Psychological factors include aspects related to an individual's mental state and cognitive processes that influence buying decisions:

- **Motivation:** The driving force behind a consumer's purchase. Maslow's hierarchy of needs identifies levels from basic physiological needs to self-actualization that drive consumer decisions.
- **Perception:** The way consumers interpret information and make sense of their environment. Perception shapes how consumers view a brand or product based on advertising, personal experiences, and word-of-mouth.
- **Learning:** Consumers learn from past experiences, influencing their future buying decisions. Repeated exposure to a product may enhance brand loyalty, while negative experiences can deter future purchases.
- **Attitudes and Beliefs:** Attitudes reflect how consumers feel about specific products or brands, and these attitudes often align with their values and beliefs.

2. Personal Factors:

Personal characteristics, such as an individual's age, lifestyle, economic situation, and personality, strongly impact consumer behaviour:

- **Age and Life Cycle Stage:** Younger consumers tend to be more experimental and price-conscious, while older consumers may prioritize quality and brand loyalty. Major life events such as marriage, parenthood, and retirement also influence buying behaviour.



SYNTHESIS, CHARACTERIZATION & STUDIES OF IRON (II), COBALT (II) COMPLEXES WITH NEWLY SYNTHESIZED p-PHENOXY ISONITROSO ACETOPHENONE

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ABSTRACT

The Fe(II), Co(II) and Ni(II) complexes of newly synthesised ligand p-phenoxy isonitrosoacetophenone (p-PhINAP) were investigated by element microanalysis for C, N, formula $\text{Fe}(\text{p-PhINAP})_2$, $\text{Co}(\text{p-PhINAP})_2$ & $\text{Ni}(\text{p-PhINAP})_2$ were investigated by element microanalysis for C, N, Magnetic Resonance spectra (HNMR) and Magnetic properties. Based on spectral data, complexes appear octahedral complexes against the microbes were higher than that of ligand p-phenoxy isonitrosoacetophenone.

KEYWORDS: $\text{Fe}(\text{p-PhINAP})_2$, $\text{Co}(\text{p-PhINAP})_2$, $\text{Ni}(\text{p-PhINAP})_2$, octahedral geometry, HNMR and antimicrobial activity

INTRODUCTION

Coordination chemistry is certainly the active research area in inorganic chemistry. Several coordination complexes have been synthesized and investigated during the past few decades. Forever since the importance of coordination phenomenon in biological processes was realized, lot of metal containing macromolecules have been synthesized and studied to realize the role of these ligands in biological systems, and they also contribute to the development of new metal-based chemotherapeutic agents. Significant development in the field of biological activity of metal chelates plays vital role in the causes and treatment of Cancer [4,5]. Transition metal complexes of oxime have been the most widely studied coordination compound in the past few years due to their unusual magnetic properties, novel structural feature and relevance to biological system [1-3]. The ligand p-bromoisonitrosoacetophenone (p-BrINAP) and p-chloroisonitrosoacetophenone (p-ClINAP) have also been studied for few transition metals [6,7]. However, structural studies of the complexes of transition metals with p-phenoxy isonitroso acetophenone have not been reported so far. The present paper describes the synthesis and characterization of complexes of transition metals Fe(II), Co(II) and Ni(II) complexes of newly synthesised ligand p-phenoxy isonitrosoacetophenone on the basis of elemental analysis, IR Spectra, NMR Spectra, Magnetic properties and antimicrobial activity.

Materials and Methods:

All solvents, reagents, chemicals of A.R. grade and were commercially available and used as received without purification. The ligand p-phenoxy isonitrosoacetophenone was prepared by the method described in the literature.

The metal complexes were prepared as follows:-

Preparation of Fe (p-PhINAP)₂ complex :- 0.482g. of p-PINAP was dissolved in a minimum volume of alcohol and equal volume of water was added. Similarly 0.392 g. of ferrous ammonium sulphate was dissolved in water. The FAS solution was added to reagent solution drop by drop with constant stirring. The pH was

solved in a minimum quantity of alcohol. Similarly 0.482g of p-PhINAP was dissolved in equal volume of water.

The metal solution was added to the ligand solution with constant stirring. The pH was adjusted to 7 and refluxed on sand bath at 100°C for 24 hrs. A bluish colored complexes were obtained. It was filtered, washed with water and recrystallized from chloroform and nitrogen.

Physical Measurements:

HNMR spectra were registered on FTIR Bruker in pot. The molar conductivity at 25°C and elemental analysis (C.H.N.) were performed. Measurements of complexes were carried out at room temperature with Gouy's balance as magnetic susceptibility standard method given in the literature.

RESULTS:

Quantitative analysis and some physical properties are presented as Pt(p-PhINAP)₂. For the prepared complexes, it was dissolved in solvents such as DMF, DMSO. The prepared complexes have the non-integer molar conductivity at 25°C [8], suggesting absence of free proton during complexation. The molar conductance values in ni-

1/1

14. An Efficient and Eco-Economy & Eco-Friendly Synthesis of Amides Catalyzed by Calcium Chloride

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Abstract

Calcium chloride has been found to be an efficient and cost effective catalyst for synthesis of acetamides in high yields. The use of stoichiometric quantities of acetic anhydride under solvent free conditions without any additional chromatographic purifications makes this etiquette a safe alternative to the existing methods.

Keywords: Acetamide, acylation, amine, Calcium Chloride

Protection and deprotection techniques are the frequently encountered exercise for the synthesis of complex organic materials. Hence, the protection of various functional groups via environmentally benign procedures is highly desirable. Amine functionality is one of the most important functional group presents in embarrassment of biologically relevant molecules. Many protective groups are available for the protection of amine group. Out of these acetyl group is the most common, as it is stable in acidic conditions and can be removed easily under alkaline conditions¹. Different reagents used for the acetyl protection of amines are acetic anhydride², acetyl chloride³, acetyl acetone⁴, acetic acid⁵, zinc acetate⁶ and thioacid⁷. Among these, acetic anhydride is the most commonly used reagent as it is cheap, easy to handle and readily available. Besides their use as a protecting group, acetamides are present in various important natural products and pharmaceuticals such as paracetamol, zonisamide, lacosamide, etc. that are required in bulk quantities. Various methods are available for the acetamide synthesis under basic as well as acidic conditions using acetic anhydride⁸.

However, most of the methods suffer from one or more drawbacks such as harsh conditions, expensive reagents and catalysts, elevated temperatures, long reaction times and high toxicity. Very recently, Kim *et al*⁹ reported the synthesis of acetamides using sulfated choline ionic liquid as a catalyst using grindstone method, though this method is quite efficient in terms of yield and reaction times, however the catalyst is not commercially available, and require preparation. To overcome these drawbacks still there is an avenue to develop a new catalyst

Insights And Perspectives of NEP in transforming Higher Education in Rural India

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Introduction:

In view of the importance of education in the country, with the aim of providing quality education, the present government approved the new National Education Policy for inclusive changes in the education sector. After nearly three decades, a new education policy has been approved in the country. Prior to this, the National Policy on Education was formulated in the year 1986 and was amended in the year 1992. It is expected that this education policy will lay the foundation for new and all-round changes in the education sector. It is known that the world's largest Consultation process was organized to prepare the National Education Policy, 2020. In which constructive suggestions were sought from different sections of the country.

The new National Education Policy was brought by Prime Minister Narendra Modi which has been prepared in consultation with everyone. With the introduction of this, a wide discussion has started on education in the country. In relation to education, Gandhiji meant the all-round and best development of body, mind and soul of child and man. In the midst of all these discussions, we will see that what the shortcomings were left in the education policy of 1986, to overcome which there was a need to bring a new national education policy. Also, will this new National Education Policy be able to fulfill the objectives that Mahatma Gandhi?

In order to meet the needs of the knowledge based economy in the changing global scenario, there was a need for changes in the existing education system. There was a need for a new education policy to enhance the quality of higher education, promote innovation and research of rural india. To ensure global access to the Indian education system, there was a need for changes in education policy to adopt global standards of education.

The centre has set a 2030 deadline for implementing the new education programme. It is not required for state governments to accept education totally because it is a subject of the concomitant List in the Constitution, which both the State and the Central Government have authority over. Wherever there is a problem, both parties have urged that it be resolved through consensus.

The Ministry of Human Resources has been renamed the "Ministry of Education following the introduction of the New Education Policy 2020. This policy anticipates significant changes in the country's school and higher education systems. By 2030,

Case Report

Post-COVID-19 Susceptibility of Young Patient to Tuberculosis

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The globe has been in extreme turmoil ever since the deadly severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic attacked humanity in December 2019 [1]. According to Andrews (2020) [2], Kerala is believed to have reported the country's first COVID-19 case in January 2020 [2]. The first wave hit India in March 2020 and lasted almost all of November 2020. The second wave started in March 2021 and continued until the end of May 2021 [3, 4]. Secondary infections in Covid-19 waves were prevalent in comorbid patients, immunocompromised patients and in patients who recovered from the severe symptoms of Covid-19.

Tuberculosis (TB), one of the most ancient diseases in human history, dates back thousands of years. Latent *Mycobacterium tuberculosis* infection is thought to affect about 25% of people on the planet [5].

This case study covers the story of a young patient who was infected with Covid-19 and *Mycobacterium tuberculosis*. The question is here how patient get infected with severe symptoms of Covid-19 disease even though he was vaccinated? And second question is secondary infection of tuberculosis?

Case Presentation:

The acute respiratory distress during the COVID-19 infection led to concerns about potential post-recovery complications, including susceptibility to respiratory infections. This case study explores the scenario where a young twenty three years old male patient, after

recovering from COVID-19, developed an infection with *Mycobacterium tuberculosis*.

The patient received a first and second dose of the Covishield vaccine. Despite having Covid-19 symptoms for one to two days, the patient in question tested positive for the test using Reverse Transcription Polymerase Chain Reaction (RT-PCR) on January 15, 2022. He took complete Covid-19 medication dosage prescribed by the doctor when he was home quarantined.

The RT-PCR test for Covid-19 was negative after almost fifteen days. Within a week, following two weeks of therapy and recuperation, the patient started to have chronic cough, dyspnea, unexplained weight loss, and increased fatigue. In light of his recent Covid-19 history, the healthcare professional evaluated the patient and performed a comprehensive checkup. Sputum analysis, Computed Tomography (CT) scan, and diagnostic testing were used to evaluate the respiratory system's condition.

Although the preliminary sputum study did not establish the presence of *Mycobacterium TB*, the doctor was suspicious for the presence *Mycobacterium* infection. On February 14, 2022, a follow-up CT scan of the lung produced some questionable results (Figure 1). The doctor advised him to undergo the Xpert MTB-RIF Assay. Xpert MTB-RIF test is a quick PCR-based method for identifying mutations linked to rifampin resistance (RIF) and *Mycobacterium tuberculosis* complex DNA



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Exploring Perspectives of India: A Comparative Analysis between Native and Diasporic Writers

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FULL PAPER

Introduction:

India, with its rich cultural heritage, diverse society, and complex history, has long served as a source of inspiration for writers across the globe. Native and diasporic writers, in particular, offer unique insights into the multifaceted realities of the country, drawing upon their diverse experiences, cultural backgrounds, and relationships with the homeland. This paper undertakes a comparative analysis of literary works by native and diasporic writers to explore the diverse perspectives on India portrayed within their narratives.

The significance of this comparative analysis lies in its potential to deepen our understanding of India's cultural, social, and historical landscape. By examining the intersections and divergences between native and diasporic perspectives, we aim to elucidate the complexities inherent in the portrayal of the motherland (Singh and Chetty, 2010), which examines the transnational dimensions of Indian literature and diasporic identities.

Native writers often offer insider perspectives grounded in cultural intimacy and historical continuity. Their narratives are imbued with vivid imagery, linguistic richness, and nuanced characterizations that reflect the diverse tapestry of Indian culture. Themes of identity, tradition, and family play a central role in their works, echoing the complexities of Indian society (Grace, 2007), which delves into the dynamics of diasporic consciousness and its impact on literary expression.

In contrast, diasporic writers provide outsider perspectives shaped by transnational experiences. Themes of nostalgia, displacement, and cultural hybridity permeate their narratives, reflecting the complexities of diasporic identities and the negotiation of belongingness between multiple cultural worlds. Recent studies such as Kadam's (2022) examination of diasporic consciousness in contemporary Indian



Amplifying Marginalized Tribal Voices: A Study of Mahasweta Devi's 'Chotti Munda and His Arrow' in Indian Literature

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Abstract :

This paper explores Mahasweta Devi's depiction of marginalized tribal voices in "Chotti Munda and His Arrow," (2008) highlighting their customs, challenges, and resilience. Drawing on existing literature and studies, it examines Devi's impact on understanding tribal issues and utilizes close textual analysis and theoretical frameworks. Findings underscore the importance of literature in amplifying tribal voices for social change, emphasizing Devi's role in advocating for marginalized communities. The study suggests future research directions while emphasizing the significance of continued advocacy and representation in literature for tribal communities.

Keywords :

Marginalized communities, Tribal literature, Socio-economic challenges Amplifying voices, Cultural resilience.

Introduction :

Mahasweta Devi stands as a towering figure in Indian literature, renowned for her profound exploration of marginalized communities and their struggles. Her works serve as poignant reflections of the socio-political realities of India, particularly highlighting the plight of tribal communities. Among her notable creations, "Chotti Munda and His Arrow" (2008) emerges as a compelling narrative that delves into the lives of tribal people with depth and sensitivity. "Chotti Munda and His Arrow" (2008) portrays the journey of a tribal boy, Chotti Munda, navigating the complexities of his environment and grappling with societal injustices. Through this narrative, Devi masterfully captures the essence of tribal life, shedding light on their customs, struggles, and resilience in the face of adversity. The story serves as a microcosm of the

broader challenges faced by tribal communities across India, making it a pivotal work in the realm of Indian literature. Studying marginalized tribal voices in Indian literature, particularly through the lens of Mahasweta Devi's works, holds immense significance. Devi's writings serve as powerful conduits for amplifying these voices, bringing to the forefront the often-overlooked narratives of marginalized communities. By examining "Chotti Munda and His Arrow" (2008) within the context of Indian literature, we can gain deeper insights into the socio-cultural fabric of tribal life and the systemic issues they confront.

Through this research paper, we aim to explore into the intricacies of Mahasweta Devi's portrayal of marginalized tribal voices in "Chotti Munda and His Arrow" (2008). By analyzing existing literature on Devi's works, tribal literature in the Indian context, and studies addressing marginalized voices in Indian literature, we seek to enrich our understanding of the profound impact of Devi's writings on the discourse surrounding tribal empowerment and representation in Indian literature.

Literature Review :

Several studies have delved into various aspects of Mahasweta Devi's literary oeuvre. Saha (2024) explores indigenous ecologies in "Chotti Munda and His Arrow," shedding light on environmental themes. Chaturvedi (2024) focuses on gender identity and feminism in Devi's narratives, while Pal (2023) presents an ecological re-reading of select narratives. Other researchers examine Devi's role as a reformer and revolutionary (2023), her portrayal of marginalized voices (Subba, 2023), and her depiction of women's experiences (Banerjee, 2020). Studies on tribal literature highlight the struggles and identities of indigenous



“Breaking Boundaries: Exploring Innovative Trends in Contemporary Indian Fiction Writing in English”

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Abstract:

The research paper investigates the transformative shifts in Indian fiction writing in English through a qualitative exploration of innovative trends. It examines the departure from traditional narrative strategies towards experimental techniques, encompassing diverse perspectives, socio-political engagement, multilingualism, and new genres/forms. Drawing from a comprehensive literature review and analysis of selected works by prominent authors such as Arundhati Roy, Jhumpa Lahiri, and Aravind Adiga, this study illuminates the profound impact of these trends on Indian English literature. Furthermore, it reflects on the global influence of contemporary Indian fiction, challenges faced by innovative writers, and future research opportunities. Ultimately, this paper underscores how innovative trends break boundaries, enrich literature, and shape the global literary landscape.

Keywords: Indian fiction, innovative trends, contemporary literature, narrative strategies, socio-political engagement.

Introduction:

Indian fiction writing in English has a rich and diverse history that spans several centuries, marked by the contributions of iconic authors such as R.K. Narayan, Salman Rushdie, Arundhati Roy, and Amitav Ghosh (Singh, 2018; Roy, 2019). Over the years, Indian literature in English has evolved significantly, reflecting the socio-cultural, political, and economic realities of the nation (Kumar, 2017).

From capturing the complexities of post-colonial identity to exploring the intersections of tradition and modernity, Indian fiction writers have continually pushed the boundaries of literary expression (Gupta, 2020).

In recent years, there has been a noticeable surge in innovative trends within contemporary Indian fiction writing in English (Sharma, 2021). Authors are experimenting with narrative techniques, themes, and forms in unprecedented ways, challenging conventional literary norms and conventions (Khan, 2022). These innovative trends not only reflect the dynamism and diversity of Indian society but also contribute to the global discourse on literature and culture (Das, 2020). Exploring these trends is crucial for understanding the evolving landscape of Indian literature and its impact on readers, scholars, and literary communities worldwide (Mishra, 2019).

The primary objective of this research paper is to investigate and analyze the innovative trends in contemporary Indian fiction writing in English (Joshi, 2023). By examining the works of prominent authors and exploring the various narrative strategies, themes, and forms employed, this study aims to shed light on the evolving nature of Indian literature (Chatterjee, 2021). Additionally, the research seeks to identify the socio-cultural, political, and aesthetic influences shaping these innovative trends (Patel, 2022). Through a comprehensive analysis, this paper endeavors to contribute to a deeper understanding of Indian fiction writing in English and its significance in the global literary landscape (Reddy, 2020.)



Unveiling Shadows: Exploring Mythical Realms and Feminine Empowerment in Sukanya Venkatraghavan's 'Dark Things'

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Abstract :

This study unveils the interplay of mythical realms and feminine empowerment in Sukanya Venkatraghavan's 'Dark Things,' grounded in Hindu mythology. Navigating the novel's complex narrative, it reveals the profound symbolism in shadows and mysticism. Venkatraghavan adeptly modernizes ancient myths, allowing readers to explore tradition and modernity (Venkatraghavan, 2016). The primary focus is on female protagonists, notably Damini, embodying agency within the mythical framework. Through rigorous character and symbolism analysis, this research highlights how Venkatraghavan challenges gender norms, transcending stereotypical archetypes. Justified by the scarcity of comprehensive studies, it aims to offer nuanced insights into feminist literature and the reimagining of mythic tropes in contemporary Indian fiction.

Keywords :

Mythical Empowerment, Hindu Mythology, Feminine Agency, Archetypal Challenge, Contemporary Mythic Tropes.

Introduction :

The enthralling interplay of mythical realms and feminine empowerment within literature has been a subject of significant scholarly interest. In this vein, Sukanya Venkatraghavan's 'Dark Things' emerges as a captivating exploration of these themes, intricately weaving Hindu mythology into its narrative tapestry. Grounded in the rich cultural heritage of India, the novel invites readers into a labyrinth of shadows and mysticism, where ancient mythic elements seamlessly coexist with the contemporary. Venkatraghavan's narrative finesse is evident as she transposes age-old myths into a modern setting, providing a nuanced lens for readers to navigate the intersection of tradition and modernity

(Venkatraghavan, 2016). The primary focus of this research centers on the compelling female protagonists, particularly the character Damini, who stand as embodiments of agency and empowerment within the mythical framework of 'Dark Things.' Through an exhaustive analysis of character dynamics and symbolism, this study aims to unveil how Venkatraghavan strategically challenges and subverts traditional gender roles, elevating her female characters beyond stereotypical archetypes. As the existing literature offers limited comprehensive studies on the specific confluence of mythical symbolism and feminine empowerment in 'Dark Things,' this research endeavors to fill this gap, providing a nuanced understanding of how Venkatraghavan's narrative choices contribute to the broader discourse on feminist literature and the reimagining of mythic tropes in contemporary Indian fiction.

Literature Survey :

The literary survey on Sukanya Venkatraghavan's 'Dark Things' reveals a fascinating intersection of mythical realms and feminine empowerment. In examining the landscape of academic discourse, several themes emerge. Scholars such as Sharma (2018) and Patel (2019) have explored the integration of Hindu mythology into modern narratives, laying the groundwork for understanding how Venkatraghavan utilizes these mythical realms in 'Dark Things.' Examining broader trends in Indian literature, works by authors like Roy (2017) and Das (2020) shed light on the evolving portrayal of feminine empowerment and agency, providing a contextual backdrop for the analysis of female characters in Venkatraghavan's novel. The symbolic dimensions of shadows and mysticism in 'Dark Things' are explored by cultural critics such as Gupta (2016) and Singh (2019),

Unveiling the Struggles : A Comprehensive Exploration of Women's Challenges in the Literary Works of Vikas Swarup

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Abstract :

This research delves into the nuanced portrayal of women's challenges in the literary oeuvre of Vikas Swarup, a distinguished Indian author. By scrutinizing Swarup's novels, the study endeavors to uncover the multifaceted struggles that female characters navigate within the intricacies of Indian society. The analysis spans themes of socioeconomic disparities, gender inequality, violence against women, cultural norms, and the transformative power of education. The exploration also recognizes the resilience and empowerment exhibited by female characters facing adversity. Through a comprehensive examination of Swarup's narrative landscapes, this research contributes to a deeper understanding of the diverse challenges confronting women in Indian literature. The findings aim to shed light on the intersectionality of these challenges, considering factors such as caste, class, and religion. This study not only enriches the discourse on gender representation in literature but also offers insights into the broader sociocultural contexts shaping women's experiences in Vikas Swarup's literary creations.

Keywords :

Women's Issues, Gender Inequality, Sociocultural Challenges, Empowerment,

Introduction :

Within the literary realm of Vikas Swarup, a tapestry of narratives unfolds, intricately interwoven with the multifaceted challenges faced by women. As an acclaimed Indian author known for works such as "Q & A," "Six Suspects," and "The Accidental Apprentice," Swarup navigates the complexities of societal structures, providing a lens through which the struggles of female characters come to life. This study embarks on a comprehensive

exploration, seeking to unveil the nuanced challenges woven into the fabric of the female personas in Swarup's literary repertoire. To contextualize our inquiry, it is crucial to situate this study within the broader discourse on gender representation in literature. Smith (2010) highlights the transformative potential of literature in challenging established gender norms, offering a foundation for understanding the significance of our exploration. Gupta and Sharma (2018) contribute to this discourse by examining the evolving landscape of women's representation in contemporary Indian literature.

In the specific context of Vikas Swarup's works, Patel's (2016) exploration of socio-economic disparities in his narratives underscores the importance of investigating how these disparities shape the lives of female characters. Additionally, Singh's (2017) analysis of cultural norms and expectations within Swarup's literary creations establishes a critical framework for understanding the contextual intricacies that influence the experiences of women in his novels.

Literature Review :

In our exploration, we contextualize the study within the broader discourse on gender representation in literature and draw on insights from various scholars.

Swarup's novels delve into the intersectionality of socio-economic disparities, a theme explored by Patel (2016). Patel's insights into how these disparities manifest in the lives of female characters are crucial for our analysis, given the diverse social strata in Swarup's narratives. Singh (2017) provides a critical analysis of cultural norms within Swarup's creations, essential for understanding contextual intricacies shaping women's experiences. Sarkar's

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CHAPTER

8

c0008
Role of carbonaceous fullerene materials in crop improvement and targeted pesticide management

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s0010 **8.1 Introduction**

p0010 One of the rare elements having a substantial number of allotropic forms is carbon, which has one of the most significant oxidation states or coordination numbers. Another key element is carbon's capacity for catenation. Therefore, it leads to the development of numerous allotropes of carbon. Carbon is present in amorphous as well as crystalline allotropes (Diamond, Graphite, Fullerene) as shown in Fig. 8.1.

p0015 Fullerenes are spheroidal-shape molecules with the composition, C_{2n} , where n will be greater than or equal to 30. These allotropes of carbon can be synthesized by evaporating graphite with a laser. Unlike diamond, which has sp^3 carbon hybridization and is insoluble in organic solvent, fullerenes have carbon sp^2 hybridization and are soluble in organic solvents. One of the most common fullerene materials is C_{60} called "Buckminster Fullerene."

p0020 Fullerenes have fascinated significant attraction in various areas, since their discovery in 1985. Investigating fullerenes' biochemical and physical characteristics has produced good knowledge. Various properties of fullerene such as dimensionality, hydrophobicity, size, and electronic conformations make it a tempting medicinal chemistry subject. Exceptional carbon cage structure and enormous derivatization opportunity make it as a possible therapeutic agent. As carbon

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<http://zoobank.org/urn:lsid:zoobank.org:pub:905D4445-32E6-4DFE-96C8-65D74CAB609F>

First descriptions of the females of *Cyclogomphus heterostylus* Selys, 1854 and *Ictinogomphus distinctus* Ram, 1985 from India, with comments on the status of *Cyclogomphus wilkinsi* Fraser, 1926 (Odonata: Gomphidae)

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Abstract

The present paper deals with the first descriptions of the females of two endemic Gomphid dragonflies of India, namely *Cyclogomphus heterostylus* Selys, 1854 and *Ictinogomphus distinctus* Ram, 1985, based on the specimens collected from Maharashtra, India. Additionally present status of *Cyclogomphus wilkinsi* Fraser, 1926 in India is also discussed.

Key words: Gomphids, Pune, Nagpur, Distribution, Endemic

Introduction

The members of the genus *Cyclogomphus* Selys, 1854 presently classified under five species listed in Paulson *et al.* (2023) are confined to India and Sri Lanka (Rangnekar *et al.* 2019). Of the five species, four species namely *C. flavoannulatus* Rangnekar, Dharwadkar, Sadasivan & Subramanian, 2019; *C. heterostylus* Selys, 1854; *C. wilkinsi* Fraser, 1926; *C. ypsilon* Selys, 1854 are known to occur in Peninsular India and one species *C. gynostylus* Fraser, 1926 is endemic to Sri Lanka (Kalkman *et al.* 2020).

The members of the genus *Ictinogomphus* Cowley, 1934 currently classified under 19 species listed in Paulson *et al.* (2023) are confined to Africa, Asia, Australia, Papua New Guinea and Solomon Islands (Theischinger & Hawking 2006; Marinov & Pikacha 2013). In India, *Ictinogomphus* is represented by six species namely *I. angulosus* (Selys, 1854); *I. decoratus* (Selys, 1854); *I. distinctus* Ram, 1985; *I. kishori* Ram, 1985; *I. pertinax* (Hagen in Selys, 1854) and *I. rapax* (Rambur, 1842) (Kalkman *et al.* 2020). *Ictinogomphus distinctus* Ram, 1985 was described based on a single male from Howrah district of West Bengal (Ram 1985). Both the gomphid dragonflies *C. heterostylus* and *I. distinctus* are endemic to India and several photographic records of females of these species are available in books (Jose & Chandran 2020: 224; Singh 2022: 333) and web portal (Joshi *et al.* 2023). However, both the gomphid dragonflies lack formal descriptions of females. Here we provide for the first time descriptions of females of both gomphids based on the specimens collected from Maharashtra, India. Also, the current status of *C. wilkinsi* in India is discussed here.

Material and methods

The female specimen of *I. distinctus* was captured from Futala Lake of Nagpur, Maharashtra during October 2013 and one female of *C. heterostylus* was collected from Vinjhai Temple of Pune, Maharashtra on June 2021. Captured specimens were stored in 95% ethanol. Field photographs were taken with the help of a Smartphone camera (Redmi 9) and a digital camera Canon 1200D. Further specimens were examined and photographed using

DIVERSITY OF MANTIDS (MANTODEA: INSECTA) IN AND AROUND SELOO CITY, MAHARASHTRA, WITH A SYNOPSIS OF THE RECORDED MANTID FAUNA OF THE VIDARBHA REGION IN INDIA

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Reviewer: Peter Smetacek

ABSTRACT

The present study was carried out to document the mantid diversity in Seloo city and its surrounding area in Maharashtra, central India. During the study period of 2015 to 2022, a total of 23 species of mantids belonging to 18 genera and 8 families, with 11 subfamilies were recorded. Out of these, the species *Gonypetyllis semuncialis*, *Odontomantis pulchra*, *Didymocorypha lanceolata*, *Dysaules himalayanus*, *Dysaules longicollis*, *Mantis religiosa religiosa*, *Hierodula membranacea*, *Hierodula coarctata*, *Hierodula ventralis*, *Deiphobe infuscata*, *Deiphobe mesomelas*, *Toxoderopsis taurus*, *Aethalochroa ashmoliana*, *Empusa guttula* and *Gongylus gongylodes* are reported for the first time from Vidarbha region of Maharashtra. The Family Mantidae is represented by the greatest number of species. Mantidae is represented by 6 species, Gonypetidae (2 species), Hymenopodidae (3 species), Eremiaphilidae (4 species), Nanomantidae

(1 species), Rivetinidae (2 species), Toxoderidae (3 species) and Empusidae (2 species). The present study also includes an updated list of mantid species from Vidarbha region of Maharashtra. This list includes 32 species belonging to 22 genera, 14 subfamilies and 8 families. The mantid fauna of the Vidarbha region is comparatively less studied than that of the northern Western Ghats in Maharashtra. The study supports the value of an urban area in providing suitable habitat for mantids.

Key words: Mantodea, Mantid, Diversity, Vidarbha, Central India

INTRODUCTION

Mantids are predatory insects known as "Praying mantids" that play an important role in terrestrial ecosystems. Praying mantids are a fascinating group of raptoria or snatchers. Mantids have been around since the Paleocene period (Roy, 1996).

**BUTTERFLY (LEPIDOPTERA: RHOPALOCERA) FAUNA OF
PENCH TIGER RESERVE, NAGPUR, MAHARASHTRA, CENTRAL
INDIA**

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ABSTRACT

The diversity of butterfly species was studied in the Pench Tiger Reserve, Nagpur district, in an area of 741 sq. km. from 2008 to 2022. A total of 124 species were recorded, with an addition of 60 new species for Pench Tiger Reserve, Nagpur. Most of the butterflies recorded belong to the family Nymphalidae (43 species) with 17 new records, followed by Lycaenidae with 34 species including 20 new records, Pieridae 18 species with 06 new records, Hesperidae 18 species with 12 new records; 10 species were recorded from the Papilionidae with 05 new records and one species recorded from the family Riodinidae. The observations support the value of the Tiger Reserve area in providing valuable habitats for butterflies.

INTRODUCTION

In Central India, the butterfly diversity was reported earlier by Forsayeth (1884); Swinhoe (1886); Betham (1890, 1891) & Witt (1909). Subsequent works include

reports of several species from Madhya Pradesh and Chhattisgarh (Evans, 1932; Talbot, 1939, 1947; Wynter-Blyth, 1957). D'Abreu (1931) documented a total of 177 species occurring in the erstwhile Central Provinces (now Madhya Pradesh and Vidarbha). In the recent past, several workers have studied butterflies from urban, rural and protected areas of Vidarbha. Singh (2004) reported 45 species of butterfly; later on, 65 species were reported by Sharma & Radhakrishnan (2004) from Pench Tiger Reserve, Maharashtra. The butterfly fauna of Vidharbha, Maharashtra is well-documented with 167 species (reviewed in Tiple, 2011), but a few spatial gaps still remain. Some additions had been made to the fauna of Vidarbha region recently by Deokar & Shukla, 2015; Tiple, 2018; Tiple, 2019; Tiple, 2020; Tiple & Bhagwat, 2023. The present study is an attempt to document the diversity of butterflies from Pench National Park (reserve forest) in Nagpur district.



PREVALENCE OF AMYLASE PRODUCING BACTERIA FROM THE GUT OF *APIS DORSATA* FROM CENTRAL INDIA

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ABSTRACT

Apis dorsata is a wild honey bee as a social insect that represents its unique ability to produce honey by utilizing nectar of flowers with the help of unique gut bacterial community. The present study aimed to indentify the amylase positive gut bacteria in *A. dorsata* using 16S rRNA from the forest around Wardha, Maharashtra, India. More than 30 colonies obtained from gut sample indicated as amylase positive. The better amylase producer identified as *Bacillus aryabhatai* Accession number MW534731 which is reported for the first time in *A. dorsata* from this region.

KEY WORDS: Amylase producer, *Bacillus species*, *Apis dorsata*, 16S rRNA

INTRODUCTION

The commercial use of amylase enzyme finding new avenues and being regularly used in many biotech industries. Presence of amylase in almost all like plants, animals and microbes provides wider diversity to investigate (Engel *et al.*, 2016). Amylase is a biocatalyst, able to initiate many biological reactions in organisms. However, few species utilize their amylase for the reaction; instead, they utilize the symbiotic microbial amylase to carry out better properties and yield (Kanmani *et al.*, 2011). Wang *et al.* (2014) mentioned amylase producing *Bacillus species* does appear in *Apis cerana* and *Apis mellifera* during rape blooming period which confirms the dominance of *Bacillus species* in the gut. The microbial cell can produce amylase in two forms, termed as exoenzymes and endoenzymes. Exoenzymes release out of the cell and mainly act on any available substrate. These enzymes can hydrolyze high molecular weight substrate into small components that the cells can readily utilize once they are assimilated. Most of the molecules of high molecular weight like starch, pectin, lipids are hydrolyzed by exoenzymes.

Wang *et al.* (2015) investigated honey bees, *Apis mellifera* and reported the presence of *Bacillus species* from the foregut. The study suggests that, α -amylase acts as exoenzyme able to carry out carbohydrate hydrolysis

by breaking α -1,4-glycosidic linkage in straw into a low molecular weight product such as glucose, maltose and maltotriose units. Hence α -amylase is in demand from industrial units. The amylase industrial market stands about 30% of the total enzyme market and finds typical applications in pharmaceutical, energy, detergent industry, paper industries and many others.

Taken into consideration, amylase is now extracted from various sources and α -amylase (α -1,4-glucan-4-glucanohydrolase) found in microorganisms, plants, and major animals. α -amylase derived from bacterial community finds its unique place as can be scaled up very quickly (Bankova *et al.*, 2000, Behal *et al.*, 2006). The most-reported genus *Bacillus* mainly the *B. licheniformis*, *B. amyloliquefaciens*, and *B. stearothermophiles* utilized the most for industrial amylase production.

Among the insect families, Honey bee finds its better place as it gives many useful products to the human. As a social insect, the honey bee represents its unique gut bacterial community. As reported, *Apis dorsata* gut harbours many unique bacterial species and demands further investigation (Niode *et al.*, 2021). Using 16S rRNA barcoding studies, many reported the number of phyla in honey bee gut, especially Firmicutes, Proteobacteria and Actinobacteria. The highest count reported with *Bacilli species* and found to be industrially important. The amylase

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ZOOPLANKTON COMMUNITY IN FRESHWATER OF BOR DAM, WARDHA, M.S.

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ABSTRACT

Bor dam is situated on Bor River in Seloo Tehsil, District Wardha (M.S.). This dam was constructed as a part of irrigation project by the State Government in 1965. The present study deals with the Zooplankton diversity of Bor dam, for which it was surveyed during January to December, 2022. In all 26 species were reported which included 11 Rotiferan, 8 Cladoceran, 5 Copepodan and 2 Ostracodan species. Maximum abundance of the species was recorded in winter season, while lower during monsoon and lowest in summer seasons. The dam was found to be of mesotrophic nature, suitable for fish production.

Key Words: Bor Dam, Zooplankton, seasonal variation & mesotrophic

Introduction

Bor dam was constructed on Bor River in Bordharan area in Tehsil Seloo in Wardha District, Maharashtra. It is important for irrigation purpose for agricultural lands in the area. It is nearer to Bordharan Wildlife Sanctuary, thus the surrounding area is covered with good vegetation and agricultural lands at some places. Bor dam is a source of water for wildlife and also a recreation zone. It is ecologically important for groundwater replenishment. During present investigation seasonal variation in zooplankton diversity has been assessed.

Introduction

Freshwater Zooplankton is one of the bio-indicator used for monitoring ecological health of water bodies (Ismail and Adnan, 2016; Jakhar, 2013, Rahkola-Sorsa, 2008, Santos-Wisniewski et al., 2006). It is an important component of aquatic food web, connecting primary producers with consumers (Santos-Wisniewski et al., 2006). Zooplankton diversity and density changes with change in

water quality. Zooplankton in the form of heterotrophic micro-invertebrates play a vital role in aquatic food web. Zooplanktons help to regulate aquatic productivity. Present study was undertaken to investigate composition of fresh water zooplankton, of Bor dam located at Seloo, District Wardha.

Material and Methods

Six sampling stations (B₁ - B₆) were selected on the banks of Bor Dam for collecting water samples. Monthly water samples were collected during morning hours for analysis of zooplankton population from January to December 2022. Fifty lit. water was filtered through plankton net with mesh size of 62 µ and the residue containing zooplankton was preserved by adding formalin at the concentration of 4 %. Sedgwick Rafter counting chamber was used for zooplankton analysis. The qualitative and quantitative analysis of zooplankton were done following APHA, (1976), while zooplankton specimens were identified by Ward and Whipple (1959) and Needham (1972).

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Reviewer: Peter Smetacek

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Title Techniques and Developments for Analysing Brain Neurochemistry

Pages: 461-468

Paper Authors

Dr J Nelson Samuel Jebastin, Dr. Khushal N. Pathade, M.Krishnaveni, Dr. Arshi Amin



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Techniques and Developments for Analysing Brain Neurochemistry

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Abstract

In the brain, complex neural networks connect with each other over many orders of magnitude. Science's biggest problem is trying to figure out how this system affects how we see, remember, and act. Molecular biology, genetics, chemistry, physics, and engineering have all worked together to make brain study more advanced. Chemical communication between neurons, regulated by hundreds of neurotransmitters, neuromodulators, hormones, and other signalling molecules, is equally as vital but harder to understand than electrical excitation. Communication regulates motor control, learning, and behaviour. Researchers have used liquid chromatography, amperometry, and newly made light devices to study the chemical state of the brain. The writers look at functional fluorescence probes and device-based analysis methods that help them understand how brain activity is based on neurochemical processes. Here, the methods for making probes and devices are based on the way the brain works.

Keywords: Neurotransmitters; Neuromodulators; Amperometry; Probes;



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Title The Function of Botanical Garden in the Study of Climate Change

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Paper Authors

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The Function of Botanical Garden in the Study of Climate Change

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Abstract

This review paper aims to explore the significant contribution of botanical gardens in the study of climate change. Botanical gardens play a crucial role in environmental research, conservation, and education. This review will provide an overview of the key functions of botanical gardens in the context of climate change research, highlighting their importance as living laboratories, repositories of biodiversity, centres for public engagement, and platforms for collaborative efforts. The paper will also discuss various methods and initiatives employed by botanical gardens to study climate change, including plant collections, phenology monitoring, conservation efforts, and outreach programs. Furthermore, it will examine the challenges faced by botanical gardens and potential future directions for their involvement in climate change research. Through this comprehensive review, we aim to emphasize the critical role of botanical gardens as vital resources for understanding and addressing the impacts of climate change.

Keywords: botanical gardens, climate change, biodiversity, environmental research, conservation, education



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Title Applications of Botanical Pesticides in Agriculture as a Synthetic Pesticide

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Paper Authors

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Applications of Botanical Pesticides in Agriculture as a Synthetic Pesticide

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Abstract

The excessive use and adverse effects of synthetic pesticides in agriculture have led to a growing interest in exploring alternative pest control methods. Botanical pesticides derived from natural plant sources offer a promising solution. This abstract provides an overview of the applications of botanical pesticides in agriculture as substitutes for synthetic pesticides. It highlights the advantages of botanical pesticides, such as low toxicity, biodegradability, and reduced environmental impact. The abstract discusses their efficacy in controlling a wide range of pests, including insects, mites, nematodes, fungi, and weeds. It also emphasizes the importance of integrating botanical pesticides into sustainable pest management practices. However, challenges such as standardization, formulation development, and regulatory frameworks need to be addressed for their widespread adoption. Overall, botanical pesticides represent a viable and eco-friendly alternative to synthetic pesticides in agriculture.

Keywords: botanical pesticides, agriculture, synthetic pesticides, alternative, pest control, efficacy, sustainability, low toxicity, biodegradability, integrated pest management, challenges.



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Title Recent Advances in Research Concerning the Synthetic Biology of Biological Pesticides Derived from Plants

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Paper Authors

Dr Sangeeta Bhimrao Dongre, Aadya Jha, Dr Manisha, Dr. Khushal N. Pathade



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PRINCIPAL



Recent Advances in Research Concerning the Synthetic Biology of Biological Pesticides Derived from Plants

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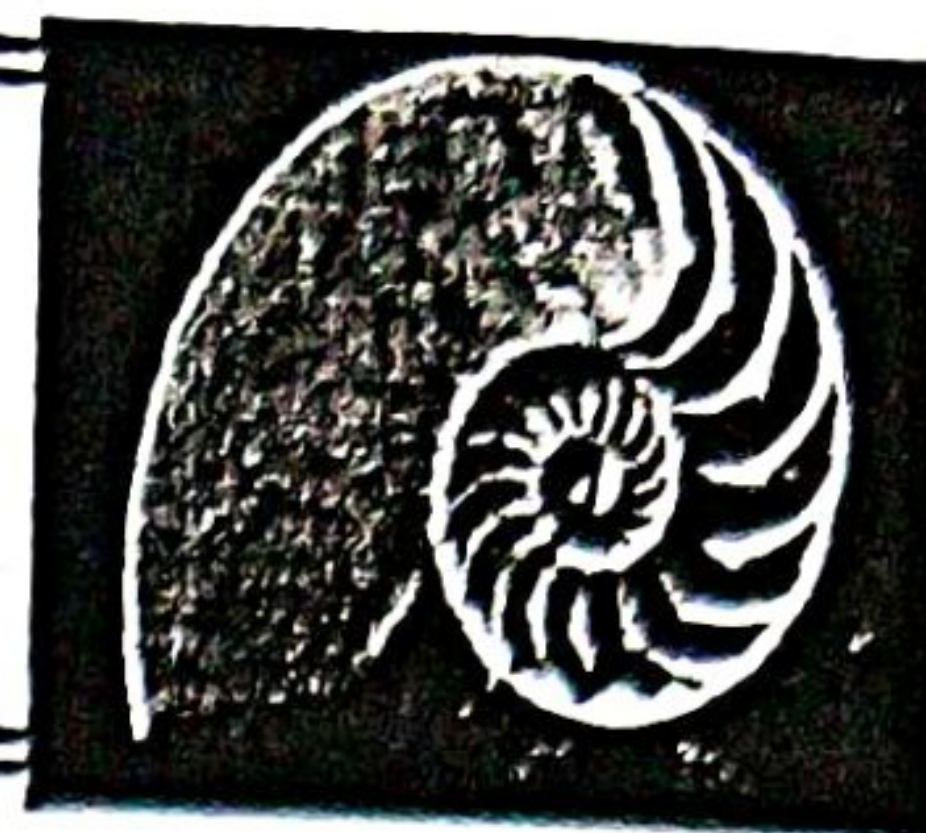
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Abstract

The use of chemical pesticides in agriculture has raised concerns regarding their detrimental effects on human health and the environment. As a result, there has been growing interest in developing alternative pest control methods, including the use of biological pesticides derived from plants. Synthetic biology has emerged as a powerful tool to engineer and optimize the production of these bio pesticides. This review aims to summarize the recent advances in synthetic biology research concerning the development and production of plant-derived biological pesticides. We discuss various strategies employed to enhance pesticide activity, increase production yields, and improve formulation and delivery systems. Furthermore, we highlight the role of genetic engineering, metabolic engineering, and genome editing techniques in the design and modification of plants for enhanced bio pesticide production. The potential benefits and challenges associated with synthetic biology approaches are also examined, along with the current regulatory landscape surrounding genetically modified organisms (GMOs) used for bio pesticide production. Overall, this review provides a comprehensive overview of the recent progress made in synthetic biology research pertaining to plant-derived biological pesticides, offering insights into the future directions and opportunities in this rapidly evolving field.



Acceptance Letter

Date: 27-06-2023.

Manuscript ID: ECB-160-2023

Title: FROM DNA TO PROTEINS: INVESTIGATING GENE EXPRESSION AT THE BIOCHEMICAL LEVEL

Dear Author/s: Dr Sangeeta Bhimrao Dongre^a, Dr.R.R.Kumar^b, Dr. Gaviraj.E.N^c,
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Author/s,

We are pleased to inform that above-mentioned manuscript has been reviewed and accepted for publication in the upcoming special issue (2023) of the European Chemical Bulletin, ISSN 2063-5346. This letter of acceptance is to be considered as the official acceptance of your manuscript with no further amendments required. Author/s are requested to follow ethical and privacy guidelines mentioned in the journal homepage <https://www.eurchembull.com/>

Thank you for your contribution to the Journal.

Kind regards,

Editor-in-Chief

Dr. Luis M Cardoso, Portugal

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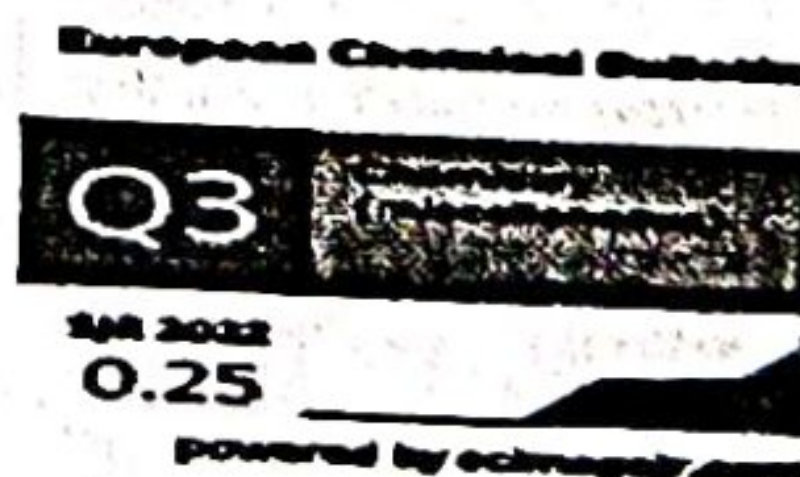
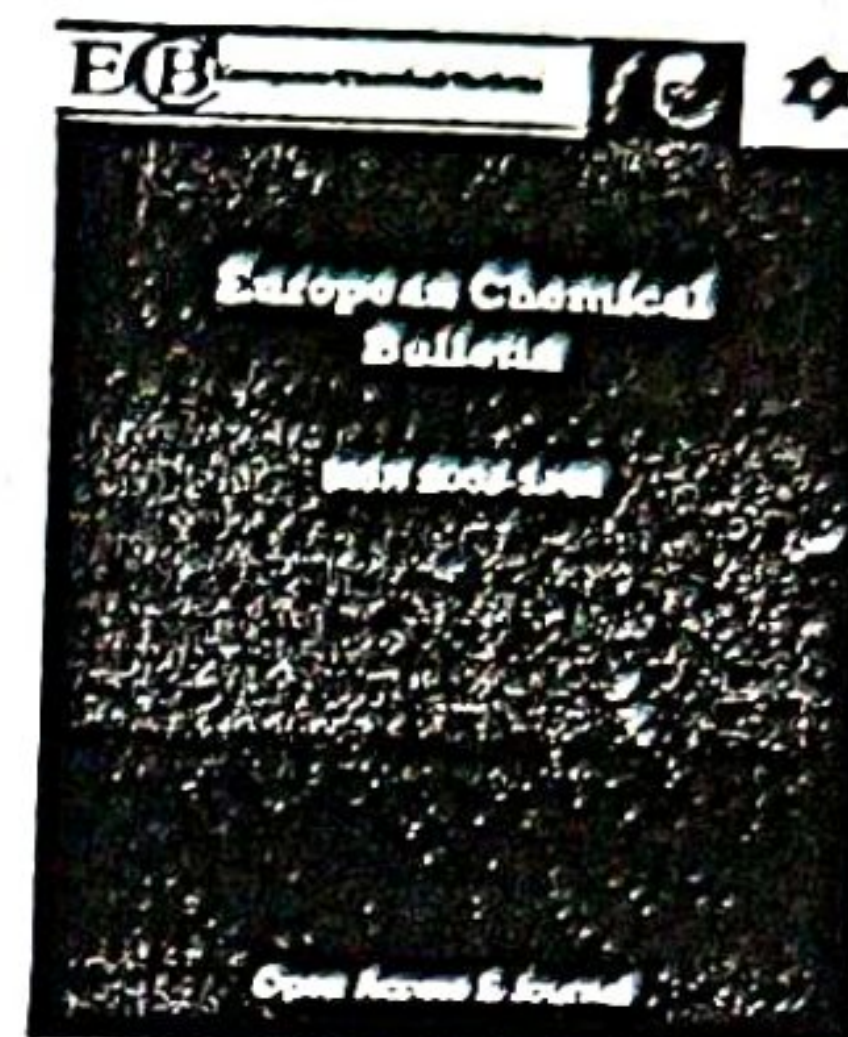
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From DNA to Proteins: Investigating Gene Expression at The Biochemical Level



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Abstract

In all living things, gene expression converts DNA into functional proteins. Understanding gene expression pathways is essential to understanding life and has major consequences for medicine, biotechnology, and evolutionary biology. This review discusses gene expression biochemical processes and important molecular actors. We study RNA transcription, post-transcriptional changes, and protein translation. We also address gene expression regulation and biological methods. Understanding gene expression pathways will progress molecular biology and enable targeted medicines and biotechnological uses.

Keywords: *Gene expression, Transcription, Post-transcriptional Modifications, Translation, Protein Modifications,*

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Environmental Chemistry: Challenges and Solutions for Pollution Monitoring and Remediation



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Abstract

Environmental pollution is a pressing global issue that demands effective monitoring and remediation strategies. Environmental chemistry plays a vital role in understanding pollutant behaviour, identifying sources, and developing solutions for pollution control. This review examines the challenges associated with pollution monitoring and remediation and discusses potential solutions to address these issues. Advanced analytical techniques, remote sensing technologies, bioremediation, and nanotechnology are among the key solutions being explored. Continued research and innovation in environmental chemistry are crucial for a sustainable and pollution-free future.

Keywords: Environmental chemistry, Pollution monitoring, Pollution remediation, Challenges, solutions, Advanced analytical techniques, Remote sensing, Bioremediation, Nanotechnology.

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Introduction

Environmental chemistry is a multidisciplinary field that focuses on understanding the chemical processes and interactions occurring in the environment. It plays a critical role in addressing the challenges posed by pollution and developing sustainable solutions for environmental management. The impact of human activities on the environment has led to widespread pollution of air, water, and soil. Pollutants released from industrial processes, agriculture, transportation, and other sources have detrimental effects on ecosystems, biodiversity, and human health. Environmental chemistry seeks to comprehend the behaviour, fate, and impacts

of pollutants, as well as their sources and distribution in the environment.

The field of environmental chemistry encompasses various sub-disciplines, including analytical chemistry, organic chemistry, inorganic chemistry, physical chemistry, and toxicology. By employing analytical techniques, such as mass spectrometry, chromatography, and spectroscopy, environmental chemists can identify and quantify pollutants in different environmental matrices, enabling accurate monitoring and assessment of pollution levels. Understanding the chemical properties and reactivity of pollutants is crucial for predicting their fate and transport in the environment. Environmental chemists investigate the transformation processes, such as degradation,

Bioremediation Strategies For Soil And Water Pollution Harnessing The Power Of Microorganisms

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Abstract:

Environmental problems such as soil and water contamination are common and are caused by human activities such as industrial processes and agricultural practices. These pollutants include a wide range of chemical contaminants, such as pesticides, heavy metals, pesticide-containing chlorinated solvents, polycyclic aromatic hydrocarbons (PAHs), and newly developing contaminants like microplastics and medicines. Urgent remedial action is required due to the detrimental effects of such pollutants on human health, ecological integrity, and socio-economic welfare. Utilising the innate metabolic capacities of microorganisms to convert and detoxify pollutants into safe metabolites, bioremediation has become a compelling and long-lasting method for mitigating pollution. The present study offers a thorough examination of bioremediation tactics designed to tackle soil and water contamination, focusing on the complex interactions among microbial communities, environmental factors, and remediation effectiveness.

Introduction

Microbial consortia, which are composed of bacteria, fungus, archaea, and algae, are the fundamental components of bioremediation. These organisms possess distinct enzymatic repertoires that enable them to catalyse a wide range of bio¹transformation events. These microorganisms metabolise resistant contaminants and assimilate them into harmless end products or cellular biomass by using a variety of metabolic pathways, such as co-metabolism, fermentation, aerobic and anaerobic respiration, and enzymatic destruction. Numerous bioremediation strategies are explained, including in situ and ex situ methods suited to particular contaminant matrices and environmental circumstances. Exogenous microbial inocula are introduced in bioaugmentation strategies to increase substrate specificity or speed up degradation, while environmental factors like redox potential and nutrient availability are adjusted in biostimulation strategies to increase native microbial activity. Microbial fuel cells

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