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Metric No 3.3.2.1

3.3.2.1 - Number of research papers in the Journals notified on UGC website during the year

Academic Year 2022-2023

Principal
Vaagdevi Degree & PG College
Kishanpura, Hanamkonda

3.3.2.1 - Number of research papers in the Journals notified on UGC website during the year

Summary Sheet

S.No	Name of Faculty	Department	No of Papers Published
1	Dr G Vikram	Bio Technology	05
2	Dr Sateesh Sutari	Botany	02
1	Dr A.Srinivas Reddy	Chemistry	03
2	S.Rajitha	Chemistry	02
3	D.Gowthami	Chemistry	02
4	B.Sabitha	Chemistry	01
5	S.Shamili	Chemistry	02
5	K.Padma	Chemistry	02
6	V.Raju	Commerce	02
7	Dr PSandhya Rani	Commerce	01
	C Datatreyulu	Commerce	01
8	G Neelima	English	01
9	K Prathiba	English	01
10	M.Chiranjeevi	English	02
11	K Yakaiah	Mathematics	02
12	Dr P Ajith Kumar	Management	02
13	CH Karuna	Management	03
14	Dr CH Suresh Chandra	Management	02
15	G.Chandrkala	Microbiology	02
16	Syed Ishrath Farheen	Microbiology	02
17	M.NarsimhaMurthy	Physics	02
18	Dr C Padmavati	Zoology	01
19	Dr P Suresh	Zoology	01

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Microwave-Assisted Synthesis of Methylenebis(phenyl-1*H*-1,2,3-triazol-5-yl-1,3-thiazolidinones) as Potential Anticancer Agents

A. Srinivas[a,*], S. R. Rajitha[b], and P. D. Suresh[c]

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[b] *School of Sciences, Carrier Point University, Kota, 325003 India*
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Received March 10, 2023; revised April 1, 2023; accepted April 14, 2023

Abstract—A series of hybrid heterocycles was synthesized from methylenebis(thiazolidinone carboxylic acids) by treating with propargyl bromide and *p*-chlorophenyl azide under microwave irradiation at 65°C by using glucose as catalyst. Anticancer activity of the prepared compounds was evaluated by *in vitro* screening technique against different cancer cell lines DU145, A549, HELA, MCF. Compounds with the 4-Cl, 4-NO_2, 4-F, and 4-CH_3 groups showed significant anticancer activity against all cell lines examined.

Keywords: hybrid heterocycles, microwave irradiation, click-reaction, thiazolidinones, triazoles, anticancer activity

DOI: 10.1134/S1070363223050213

INTRODUCTION

Thiazolidinones and 1,2,3-triazoles are most important molecules in medicinal chemistry [1, 2]. Thiazolidinones, have promising anticancer [3], anti-HIV [4–6], antimalarial [7], tuberculostatic [8], antihistaminic [9], anticonvulsant [10, 11], antibacterial [12], and antiarrhythmic [13] properties. Similarly, various triazole derivatives possess antifungal [14], anticancer [15], antituberculous [16], and antimicrobial [17] activities. Hybrid compounds have been found to be potent and successful in medicinal chemistry. Synergistic effects are produced by combining two different bioactive moieties with complementary pharmacophoric activities or with diverse mechanisms of action [18, 19]. The validity of this hypothesis has been well established in earlier investigations with 4-thiazolidinones linked with other heterocyclic fragments resulting in significant antitumor activity. As a consequence, we want to synthesize thiazolidinone-triazole hybrid molecules. 4-Thiazolidinones may be easily synthesized via a three-component condensation of a primary amine, an aldehyde, and either a mercapto acid or a carboxylic acid [20–24], This cyclocondensation might be enhanced by *N*,*N*′-dicyclohexylcarbodiimide (δ_CC) [25], 2-(1*H*-benzotriazole-1-yl)-1,1,3,3-tetramethyluronium hexafluorophosphate (HBTU) [26], γ-ferrite [27], $ZnCl_2$ [28], sodium sulfate [29], [bmim][PF6] [30], and activated fly ash [31]. Microwave irradiation [32] and polymer supported systems have also been described [33]. However, the primary bottle neck of these procedures is often severe reaction conditions, extensive heating, and the need for simultaneous water removal to accelerate cyclocondensation. On the other hand, the synthesis of 1,2,3-triazoles has been described using diverse methods [34–42], such as copper-catalyzed azide-alkyne cycloaddition (CuAAC) reaction [43] and microwave-assisted one-pot reaction of an alkyl halide, sodium azide, and an alkyne [44].

We recently reported the synthesis of 1,2,3-triazoles using D-glucose as a reducing agent for the copper catalyst [45]. Recently, metal-free synthesis of 1,2,3-triazoles has also been produced [46]. Microwave irradiation is an alternative heating method that works by converting electromagnetic energy into heat. This approach often enhances the pace of chemical processes [47–52] and gives greater yields. Multicomponent reactions (MCRs) [53–60], have received increased interest in recent years owing to their simplicity, efficiency, atom economy,

ORIGINAL ARTICLE

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organic communications

Synthesis of new heterocycles via methylenebis(2-(2-methoxyphenyl)thiazolidin-4-one) as potential anticancer agents

Avula Srinivas [1*] and Sonti Reddy Rajitha [2]

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Keywords: Bis thiazolo isoxazoles; cytotoxic activity; Knovenagal condensation; cyclisation.

1. Introduction

The isoxazole moiety is a crucial pharmacophore, biochemical synthon in medicinal chemistry. The dynamic potency of isoxazoles has sparked a lot of research, it's been extensively studied for use in antiepileptic[1], PPAR agonists[2], acetylcholine esterase inhibitor[3], anti-inflammatory[4], acrosin inhibitor[5], anti bacterial [6],A-Precursor protien[7] Protein tyrosine phosphate inhibitor[8,9]anti viral [10], anti convulsant[11], insecticidal[12], antitubercular[13], immuno modulatory[14] and hypolipomic[15] treatments.

Thiazolidinone derivatives also have wide biological activities and pharmacological properties[16].This interesting core has received considerable attention for its myriad biological activities,such as antibacterial[17],antidiabetic[18], antibiofilm[19], anticancer[20], antifungal[21,22], anti-inflammatory[23],tyrosinase inhibitory[24], cyclooxygenase-2 inhibitory[25], and anti-HIV [26,27] , nematicidal [28] properties. It has also been used to treat heart diseases. [29]

¨Following the successful introduction of thiazolidinones, isoxazoles and continuation of our work on the development of novel heterocyclics[30, 31] we have synthesized some novel methylene bis *p*-methoxyphenyl thiazolo isoxazoles and evaluated their anticancer activity."

2. Experimental

2.1. Chemical Methods and Apparatus

¨Reagents from the commercial range are employed in accordance with instructions. It is possible to dry purify solvents outside of the refining reagent range if required. On Merck silica F254 Silica plates that had been used to monitor the progress and purity of compounds, and composite

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Synthesis of new heterocycles via methylenebis(2-(2-methoxyphenyl)thiazolidin-4-one) as potential anticancer agents

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Natural Gum and Resin Bearing Plant Taxa in Telangana, India: A Qualitative Method of Data Collection

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[1]*Centre for Floristic & Ethnobotanical Studies, Department of Botany, Vaagdevi Degree & PG College, Hanamkonda, Telangana, India.*

[2]*Department of Botany, Kakatiya Government College, Hanamkonda, Telangana, India.*

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Natural resins, gums (NRGs) are the most extensively used and traded non-timber forest products (NTFPs) other than directly consumed products. The present field-based study reports the natural gum, resin and gum-resin yielding plants and the specific parts from which the products extract from plants by local people in Telangana, India. The result of the present report reveals ninety plant taxa belong to 63 genera and 23 families that predominated by Fabaceae with 36 plant taxa, followed by Malvaceae (12 spp.), Combretaceae, Anacardiaceae and Rubiaceae (5 spp. each), Arecaceae (Palmae) (4 spp.), and about thirteen families with single species each. Telangana is one of the most important contributors and collectors of NRGs from *Firmiana simplex, Anogeissus latifolia, Cochlospermum religiosum* and *Boswellia serrata* in India to generate maximum commerce. The present study outcome can be used by policy makers, scientific community, forest authorities and local people for bio-discovery of plant-based gums and resins sustainably.

Keywords: Natural gums, resins, gum-resins, qualitative approach, non-timber forest products, eco-friendly, Telangana.

INTRODUCTION

The people who live in all around the forest depend on nature and natural resources. For them, Non-timber Forest Products (NTFPs) are culturally, socially and economically important. NTFPs may in the form of roots, tubers/rhizomes, leaves, flowers, fruits, seeds, gums, resins, herbs, medicinal plants, bamboos, etc. In India, most of the people are living in the villages proximate to the forests and depend on forests for their day-to-day life. In India, ca. 15 to 18 thousand plant taxa were reported, of which 3000 species yield NTFPs (Murthy et al., 2005). Even though, only 126 NTFP species that have been commercialized in India (Yadav et al., 2019) and about 50 million people depend on NTFPs for their subsistence (Bhat, 2012) and ca. 17% of landless people depend on NTFPs collection and provide 50% income for about 25% of labour force (Rasul et al., 2008; Omkar et al., 2022). They used to collect gums and resins along with other NTFPs from the forests. India is one of the largest producers of natural resins, gums and gum-resins (NRGs) in the world among China, Indonesia, Russia and Brazil harvesting about 2.8 lakh tons (Pal, 2013). Of these, about 80% are gums, 19% are resins and left over fraction is of gum-resins. These produce are biodegradable, environmental friendly and non-toxic. NRGs are low quantity and have high value in commerce. These are wonderful source of commerce to local poor people and contribute significantly to poverty alleviation (Gachathi & Eriksen, 2011). Share of NRGs in India's total export 18494.34 billion rupees and 19565.15 billion rupees in 2016-2017 and

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A Study on Impact of Covid -19 on Education

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Abstract:

The COVID-19 pandemic has caused drastic changes across the globe, affecting all areas of life. This paper provides a comprehensive study on the influence of COVID-19 in various fields such as the economy, education, society, the environment, and globalization. In this study, both the positive and negative consequences of the COVID-19 pandemic on education are studied. Modern technologies are combined with conventional teaching to improve the communication between instructors and learners. COVID-19 also greatly affected people with disabilities and those who are older, with these persons experiencing more complications in their normal routine activities. Additionally, COVID-19 provided negative impacts on world economies, greatly affecting the business, agriculture, entertainment, tourism, and service sectors.

The current worldwide pandemic has wreaked havoc on one of the most important systems educations. Education is undeniably crucial in contributing to a country's welfare and an individual's growth, but it has been jeopardized by the emergence of Covid -19. It has had a huge impact on the lives of millions of kids. There have been a number of severe targets that have had to be met since the lockdown was implemented. Education was also hampered by the economic crisis, which reduced its output.

Keywords: corona virus; COVID-19, Education and Economy

INTRODUCTION:

A new pandemic named corona virus disease 2019 (COVID-19) arose in Wuhan, the capital of China's Hubei province. COVID-19 is a very infectious disease caused by a new corona virus named Severe Acute Respiratory Syndrome coronavirus-2 (SARS-CoV-2). SARS-CoV-2 has a higher affinity to human ACE 2 (Angiotensin converting enzyme) than the original SARS virus strain. SARS-CoV-2 is an enveloped positive-sense single-stranded RNA virus. The virion releases RNA into the cell. Copies of the virus are created, which infect and capture more cells, especially those within the lungs. The outbreak of COVID-19 was first identified in Wuhan in December 2019. The World Health Organization (WHO) declared this outbreak as a pandemic on 11 March 2020. As of 21 September 2021, about 221 countries and territories have reported 4,716,983 deaths and 230,028,186 cases.

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Role of Technology in Management education in India

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Abstract:- The advancement of Technology has impacted everything and everyone around us. From computers to smart phones and their role in education, the journey has been very illuminating. Soon, mind hacking devices would be taking the position of our books and notebooks. No doubt, the human brain is also evolving and getting sharper day by day, the result of which is a 5-year old kid can operate smart phones. When it comes to education, India bags 92nd position among 145 countries. India must work on the rate and level of education provided to the management students. Moreover, it must ensure that every students gets quality education. However, now people are very much interested in getting their technology based education as they have understood the importance of it. It is common to have a large computer screen instead of a whiteboard and tablets instead of notebooks to take down the notes. We are not totally there but we are walking towards it.

Keywords:- *Smart Phones, Human Brain, Computer Screen, Quality Education and Note Books.*

I. INTRODUCTION

Technology is changing every aspect of our lives, and education is one of the most important sectors that need to be modernized and advanced leading to the overall growth of the institution. Meanwhile, it is also essential that institutions must understand the right usage and importance of educational technology. Technology these days is far more than digital whiteboards, learning management systems, and such technological tools. So which technology are you using in your institution to be in the technological touch? Let's discuss some of the important technologies and their benefits for education institutions.

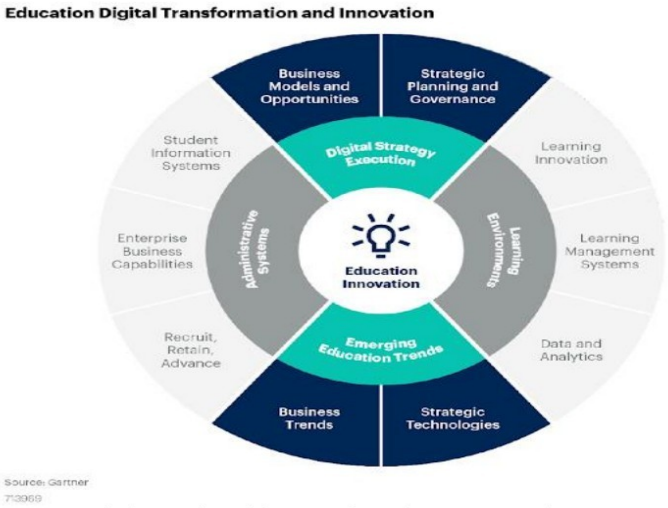

Fig 1Education Digital Transformation and Innovation

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Design and Synthesis of Some New Quinoxaline Containing 1,3,4-Oxadiazole Hybrids and Evaluation of Their Anti-Cancer Activity

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Abstract—Herein, we synthesized some new quinoxaline-1,3,4-oxadiazole hybrids (**Va–n**) and evaluated for their in vitro anticancer potency towards A549 (lung), MCF-7 (breast), HeLa (cervical) and HEK-293 (embryonic kidney) and etoposide acts as a standard drug. Compounds 1-((5-(3,5-dimethoxyphenyl)-1,3,4-oxadiazol-2-yl) methyl) quinoxaline-2(1*H*)-one, 1-((5-(4-methoxy phenyl)-1,3,4-oxadiazol-2-yl) methyl) quinoxalin-2(1*H*)-one and 1-((5-(2,4-dimethyl phenyl)-1,3,4-oxadiazol-2-yl) methyl) quinoxalin-2(1*H*)-one showed promising anticancer activities against four cancer cell lines. Predominantly, the compound 1-((5-(3,5-dimethoxy phenyl)-1,3,4-oxadiazol-2-yl) methyl) quinoxaline-2(1*H*)-one has shown greater potency against all cell lines than the standard Etoposide with IC_{50} ranging from 0.93 ± 0.03, 1.95 ± 0.04, 1.87 ± 0.02 and 2.13 ± 0.05 μM. Furthermore, the compounds1-((5-(3,5-dimethoxyphenyl)-1,3,4-oxadiazol -2-yl) methyl) quinoxaline-2(1*H*)-one and 1-((5-(4-methoxyphenyl)-1,3,4-oxadiazol -2-yl) methyl) quinoxalin-2(1*H*)-one displayed promising inhibitory activity over tyrosine kinase EGFR when compared with the standard erlotinib.

Keywords: quinoxaline, 1,3,4-oxadiazole, anti-cancer activity, tyrosine kinase EGFR inhibitory activity

DOI: 10.1134/S1068162023010132

INTRODUCTION

Cancer is a rapidly growing disease of current era which poses a major life-threatening situation to human beings. Continuous research is going on in the direction to develop effective molecules for the treatment of the cancer. These efforts include searching for more active heterocyclic compounds possessing potential anticancer activity [1, 2]. Remarkably, in recent times, nitrogen heterocycles were extensively studied, owing to their various pharmacological activities [3–8]. Among such fortunate heterocycles, the oxadiazoles have gain importance, due to the existence of (–N=C–O) moiety in oxadiazole nucleus improves the lipophilicity of the corresponding drug which subsequently helps to transfer the drug to desired target through the transmembrane diffusion [9]. In specific, among all oxadiazole isomers, the 1,3,4-oxadiazole has fascinated the consideration of various researchers, as a result of their exclusive pharmacokinetic properties. Predominantly, the Zibotentan (**I**) drug is a 1,3,4-oxadiazole based hybrid is in clinical trial which opens up a new route for the expansion of potent 1,3,4-oxadiazole based hybrids as anticancer compounds and usage of this powerful 1,3,4-oxadiazole pharmacophore has continued till date [10].

The quinoxaline heterocyclic is considered as a promising core for the expansion of novel therapeutic agents. The quinoxaline and its derivatives show very interesting biological properties like antiviral [11], anticancer [12], antileishmaniai [13] ensuring them an intense future in medicinal chemistry [14, 15]. Many drug candidates bearing quinoxaline structures have been subjected to phase II clinical trials and some of them are currently under clinical trials for anticancer therapeutic purposes [16]. Among these, the XK469 (**II**) and the chloro quinoxaline sulfonamide (CQS) (**III**) are recognized as antineoplastic quinoxaline topoisomerase II inhibitors [17] (Fig. 1).

A hybrid pharmacophore approach is helpful to improve the efficacy of existing approved drugs and overcome their disadvantages such as low solubility, adverse effects, and multidrug resistance [18–20]. The principal aim of our work was to develop effective quinoxaline-based chemotherapeutics by hybridization of the quinoxaline pharmacophore motif with 1,3,4-oxadiazole structures (Fig. 2). In addition to this, all

[1] Corresponding author: e-mail: bandarisrinivas2005@gmail.com

[2] Srinivas Bandari and Bhaskar Juluru are main authors of this paper. Material preparation, data collection and analysis in biology were performed by Srinivas Bandari. Material preparation, data collection and analysis in chemistry were performed by Bhaskar Juluru. The manuscript was written by Bhaskar Juluru.

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SPECTROSCOPIC, THERMAL PROPERTIES AND APPLICATIONS OF SOME HEAT RESISTANT POLYMERS

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B.Chnadramouli, Department of Chemistry, Pingle Govt College for Women, (Autonomous), Hanamkonda, Warangal, Telangana, India.
D.Shireesh, Department of Physics, AVV Degree & PG College, Warangal, Telangana, India.
B.Sanjeeva Rao, Department of Physics, Kakatiya University, Warangal, Telangana, India.
Renu Sharma, Professor and Dean, School of Applied Sciences, Om Sterling Global University, Hisar, Haryana, India.

Abstract:
Polymers for high altitude applications and stable in nuclear environment are always important. When compared to aliphatic polymers, the aromatic polymers are mostly suitable for above applications. Besides of above applications, the aromatic polymers find applications as ion – exchangers as well as drug delivery. Thus there is a need for development of new aromatic polymers besides of existing vast group. In this context the authors report on new generation aromatic polymers of DHPPE-FM, DHPPE-FM-PMAP. In the present assay the authors discuss synthetic processes and their characterization methods. It is generally believed that the IR / FTIR technique is finger print tool to detect chemical environment of the newly synthesized compounds. The polymer exhibited all the characteristic functional groups needed to be present. The nuclear magnetic resonance (NMR) provided valuable information on presence & orientation of chemical functionalities present in it. These aspects are confirmed by recording NMR spectra. To ascertain thermal behavior and thermal properties Thermo gravimetric analysis (TGA) and differential thermal analysis (DTA) are couples to ascertain these aspects. Important properties like glass transition temperature (Tg) and melting point are measured. Thermal degradation profiles and activation energy associated with thermal degradation are evaluated from Arrhenius diagrams. A comparison in properties of DHPPE –FM and DHPPE – FM – PMAP made.

Introduction:
Heat resistant polymers are employed in high temperature, high altitude applications. The het resistant polymers include poly tetra fluoro ethylene, polycarbonate, poly ethylene terephthalate, polyimide etc. It is generally believed that polymers containing aromatic groups have good thermal stability than the aliphatic polymers. Though various types of polymers available, there is a need to develop new systems with high thermal profiles. In this context, Fyfe (1) investigated on thermal degradation mechanism of cured phenolic resins using NMR spectroscopy. Kondaiah et al (2) have reported on synthesis, characterization and biological activity behavior of some novel resacetophenone Schiff base (RAPPHTH) ligand and their metal complexes. Nayak et al (3) have reported on resins based on 2,4-dihydroxyacetophenone and characterized them by IR spectroscopy. Solution properties, fungicidal properties of the resins are investigated. Sasikala (4) has developed high heat resistant aromatic polymers like 3-amino – 4-hydroxy benzoic acid AHBA, 4-amino benzoic acid (ABA) with superior thermal stability of 740°C from inedible biomass (kraft pulp) and feed stock without inorganic fillers.

Kuroda et al have (5,6) studied degradation of aromatic polymers like poly carbonate, polyacrylate, poly ester amide (PEI) poly sulfone(PSF) poly ether sulfone (PESF). These polymers were degraded in vacuum at 380℃ and molecular weights, molecular weight distributions are measured by gel permeation chromatography (GPC). The polymers preferably undergo cross linking rather than degradation. The degree of cross linking is in the order of

PEI > PAR > PC > PSF =_ PESF

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The Significance Of Using The BBC Learning English App To Enhance Pronunciation In English Speaking

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Abstract:

The main focus of this paper is to find out the significant effect of the BBC Learning English app on enhancing the learner's language skills, especially speaking skills. BBC Learning English application is an English learning app used to help English pronunciation to enrich learners speaking ability. Learning English speaking through mobile apps is an easy task for learners. It encourages self-learning. Learners can understand the contents from anywhere and anytime. They can download the series and learn in offline mode, also. Learners expressed an interest in receiving instruction in good pronunciation. Some students didn't pay any attention to accents while speaking. The researcher noticed that the speaker's articulation was unfamiliar, So the researcher started guidance with the basic sound patterns using mobile apps. BBC Learning English provides audio and video lessons for learners. The researcher used an experimental method and used a speaking test as the instrument. In collecting data, the researcher recorded the voice of the learners. The recordings were held in two parts – pre-test and post-test. The sample of this research is conducted on tertiary level or undergraduate students of BCA (Bachelor of Computer Application). The researcher asked the students to read a paragraph in the pre-test and post-test. The researcher observed the learner's pronunciation of voiceless consonants and how they pronounced words in the pre-test and post-test. This Broadcast learning English makes the students more confident.

Keywords: BBC Learning English App, Speaking, Pronunciation, Self-learning, voiceless consonants.

Design and Synthesis of Some New Quinoxaline Containing 1,3,4-Oxadiazole Hybrids and Evaluation of Their Anti-Cancer Activity

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Abstract—Herein, we synthesized some new quinoxaline-1,3,4-oxadiazole hybrids (**Va–n**) and evaluated for their in vitro anticancer potency towards A549 (lung), MCF-7 (breast), HeLa (cervical) and HEK-293 (embryonic kidney) and etoposide acts as a standard drug. Compounds 1-((5-(3,5-dimethoxyphenyl)-1,3,4-oxadiazol-2-yl) methyl) quinoxaline-2(1*H*)-one, 1-((5-(4-methoxy phenyl)-1,3,4-oxadiazol-2-yl) methyl) quinoxalin-2(1*H*)-one and 1-((5-(2,4-dimethyl phenyl)-1,3,4-oxadiazol-2-yl) methyl) quinoxalin-2(1*H*)-one showed promising anticancer activities against four cancer cell lines. Predominantly, the compound 1-((5-(3,5-dimethoxy phenyl)-1,3,4-oxadiazol-2-yl) methyl) quinoxaline-2(1*H*)-one has shown greater potency against all cell lines than the standard Etoposide with IC_{50} ranging from 0.93 ± 0.03, 1.95 ± 0.04, 1.87 ± 0.02 and 2.13 ± 0.05 uM. Furthermore, the compounds1-((5-(3,5-dimethoxyphenyl)-1,3,4-oxadiazol -2-yl) methyl) quinoxaline-2(1*H*)-one and 1-((5-(4-methoxyphenyl)-1,3,4-oxadiazol -2-yl) methyl) quinoxalin-2(1*H*)-one displayed promising inhibitory activity over tyrosine kinase EGFR when compared with the standard erlotinib.

Keywords: quinoxaline, 1,3,4-oxadiazole, anti-cancer activity, tyrosine kinase EGFR inhibitory activity

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INTRODUCTION

Cancer is a rapidly growing disease of current era which poses a major life-threatening situation to human beings. Continuous research is going on in the direction to develop effective molecules for the treatment of the cancer. These efforts include searching for more active heterocyclic compounds possessing potential anticancer activity [1, 2]. Remarkably, in recent times, nitrogen heterocycles were extensively studied, owing to their various pharmacological activities [3–8]. Among such fortunate heterocycles, the oxadiazoles have gain importance, due to the existence of (–N=C–O) moiety in oxadiazole nucleus improves the lipophilicity of the corresponding drug which subsequently helps to transfer the drug to desired target through the transmembrane diffusion [9]. In specific, among all oxadiazole isomers, the 1,3,4-oxadiazole has fascinated the consideration of various researchers, as a result of their exclusive pharmacokinetic properties. Predominantly, the Zibotentan (I) drug is a 1,3,4-oxadiazole based hybrid is in clinical trial which opens up a new route for the expansion of potent 1,3,4-oxadiazole based hybrids as anticancer compounds and usage of this powerful 1,3,4-oxadiazole pharmacophore has continued till date [10].

The quinoxaline heterocyclic is considered as a promising core for the expansion of novel therapeutic agents. The quinoxaline and its derivatives show very interesting biological properties like antiviral [11], anticancer [12], antileishmanial [13] ensuring them an intense future in medicinal chemistry [14, 15]. Many drug candidates bearing quinoxaline structures have been subjected to phase II clinical trials and some of them are currently under clinical trials for anticancer therapeutic purposes [16]. Among these, the XK469 (II) and the chloro quinoxaline sulfonamide (CQS) (III) are recognized as antineoplastic quinoxaline topoisomerase II inhibitors [17] (Fig. 1).

A hybrid pharmacophore approach is helpful to improve the efficacy of existing approved drugs and overcome their disadvantages such as low solubility, adverse effects, and multidrug resistance [18–20]. The principal aim of our work was to develop effective quinoxaline-based chemotherapeutics by hybridization of the quinoxaline pharmacophore motif with 1,3,4-oxadiazole structures (Fig. 2). In addition to this, all

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[2] Srinivas Bandari and Bhaskar Juluru are main authors of this paper. Material preparation, data collection and analysis in biology were performed by Srinivas Bandari. Material preparation, data collection and analysis in chemistry were performed by Bhaskar Juluru. The manuscript was written by Bhaskar Juluru.

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Research Article

RNA ISOLATION, CDNA SYNTHESIS AND ARSENIC METHYLTRANSFERASE GENE (*ARSMT*) EXPRESSION STUDIES BY RT-PCRINTHREE DIFFERENT MICROALGAL SPECIES *Chlorella vulgaris*, *Scenedesmus acutus* AND *Oscillatoria acuminata*

Mohamed Halith A[1]*, Elumalai Sanniyasi[2], Yuvaraj Sampathkumar[2], Vijayabaskar Pandian[3], Vishnu Murugesan Raja[4], Mohan Priya Arumugam[5], Pavithra Dhamodharan[5], Selvaraj Palanisamy[6], Madhusudhanan Jeyaraman[7], Vikram Godishala[8] and Kaushik Thamilchelvam[9]

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ABSTRACT

Microalgal species have evolved the ability to tolerate and detoxify the toxic arsenic (AS) substances in their environments, often by producing metabolic enzymes that efficiently detoxify the arsenic toxicant. Arsenic is a redox sensitive metalloid that can also be methylated by different Microorganisms.AS methylation involves sequential transformation of inorganic ASto mono, di and tri-methylated species. Arsenic biotransformation was considered as a major pathway for arsenic detoxification, which includes the processes of oxidation, reduction and methylation. Arsenic methyltransferase (*Arsmt*) is a key enzyme that catalyzes the transfer of a methyl group to the acceptor (AS) in the presence of the methyl group donor like the methyl-cobalamin, S-adenosylmethionine. In this research, the RNA Isolation, cDNA synthesis and arsenic Methyltransferase Gene (Arsmt) expression was studied by using RT-PCR in Three Different Microalgal Species such as *Chlorella vulgaris*, *Scenedesmus acutus* and *Oscillatoria acuminata*. The test samples of *Chlorella vulgaris*, *Scenedesmus acutus* and *Oscillatoria acuminata* expressed up regulations on Arsmt gene respectively over the control samples while the 16s gene was used as internal control (Housekeeping gene) in gene expression studies for the normalization. The test samples of *S.acutus*, *O. acuminata* and *C. vulgaris* treated with 50ppm arsenic was showed up regulations on *Arsmt*gene expression by 2.24,2.03 and 3.04fold increase respectively over control samples. The microalgal species could be used to detoxify the arsenic from drinking water samples as ecofriendly, low cost and potent method for arsenic detoxification.

INTRODUCTION

Arsenic

Arsenic is a carcinogenic chemical element with the symbol *As* and its atomic number is 33. Arsenic is a metalloid, found in several minerals, generally in conjunction with sulfur, metals and can also be occur as pure elemental crystals. Groundwater contamination of arsenic is the serious environmental problem that affects more than 100 million of people all over the world. Arsenic is also one of the most toxic heavy metals and it is regarded by World Health Organization (WHO) as the first priority pollutant (Saha, 1995;Jie and Waalkes, 2008;Bhaskar*et al*., 2009).

Drinking Water Problems

Water is very precious commodity of the world and most of the water (97%) in the earth is salty (sea) water and cannot be used for drinking. Only 2.5% of the earth water is fresh water and two third of that water is frozen in ice caps and glaciers. Only 0.01% of the total earth water is accessible for drinking purpose. Water without any contamination is one the basic human needs. More than one in six people lack reliable access to get pure drinking water in the developing world. All drinking water samples especially from deep bore tube wells must be tested frequently for arsenic and other chemical contaminants (Meharg, 2004). Since there has been many research works were done in arsenic water pollution and

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Empowering Women and Challenging Stereotypes: A Study of Sudha Murty's 'Mahashweta'

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Abstract

Sudha Murty is a highly esteemed figure in the realm of Indian literature written in the English language. The primary objective of her literary works is to empower women by instilling confidence and educating them about their own rights. *Mahashweta* serves as a compelling exemplification for the exploration of the concept of the "new woman," characterized by her superior power and agency in comparison to males. The primary objective of this paper is to portray women as exemplary figures for other women within their community. The novel demonstrates that women have transcended their historical role as subordinates to male authority and have emerged as autonomous and innovative individuals. One prominent issue pertaining to womanhood is the disproportionate worry exhibited by women towards their husbands, while husbands, in turn, display a lack of regard towards their wives and subject them to mistreatment within the familial context. This is the period during which women reject their husbands and establish their own individual identities. The novel *Mahashweta* serves as a significant critique of patriarchal societal structures. In the literary work, Anupama demonstrates a conscious decision to reject her spouse and embrace a newfound existence that is self-determined, stemming from her educational pursuits. The present paper studies Sudha Murthy's novel '*Mahashweta*' serves as a prime illustration for challenging stereotypical perceptions of women and highlighting their integral role within society.

Keywords: new woman, historical role, autonomous, individual identity, patriarchal structures, societal norms etc.

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ANALYZING THE WORKS OF WILLIAM SHAKESPEARE FROM DIFFERENT CRITICAL PERSPECTIVES, DELVING INTO THEMES LIKE GENDER, POWER, AND IDENTITY IN HIS PLAYS

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Abstract

William Shakespeare is widely regarded as one of the greatest writers in the English language. He was born on or around 23 April 1564 in Stratford-upon-Avon, the eldest son of John Shakespeare, a prosperous glover and local dignitary, and Mary Arden, the daughter of a wealthy farmer. There are no records of William's education, but he probably went to King's New School – a reputable Stratford grammar school where he would have learned Latin, Greek, theology and rhetoric – and may have had a Catholic upbringing. He may also have seen plays by the travelling theatre groups touring Stratford in the 1560s and 70s. At 18, William married Anne Hathaway, and the couple had three children over the next few years. The research paper provides shaor birief details on the William Shakespeare plays.

Introduction

Shakespeare was an English poet, playwright, and actor. He was born on 26 April 1564 in Stratford-upon-Avon. His father was a successful local businessperson and his mother was the daughter of a landowner. Shakespeare is widely regarded as the greatest writer in the English language and the world's pre-eminent dramatist. He is often called England's national poet and nicknamed the Bard of Avon. He wrote about 38 plays, 154 sonnets, two long narrative poems, and a few other verses, of which the authorship of some is uncertain. His plays have been translated into every major living language and are performed more often than those of any other playwright.

At the age of 18, Shakespeare married Anne Hathaway. She was older than him by eight year s. They had three children: Susanna and Hamnet and Judith were twins. Details about his life became very scarce after his marriage. But in his novels, he is believed to have spent much of his time writing and performing in London. He started a prosperous career in London between 1585 and 1592, as an actor, writer, and part-owner of a playing company called the Men of the Lord Chamberlain, later known as the Men of the King.

Between 1589 and 1613, Shakespeare created much of his documented research. His early plays were mostly comedies and tales, and these works are still considered some of the best works in these genres. Until around 1608, he primarily wrote tragedies, including Hamlet, Othello, King Lear, and Macbeth considered some of the finest works in the English language. He wrote tragicomedies in his last period, also known as romances, and collaborated with other playwrights.

Today, Shakespeare's plays remain highly influential and are continuously studied, performe d, and reinterpreted across the world in various cultural and political contexts.

He moved to Stratford around 1613, at the age of 49, where he died three years later. Few documents remain of Shakespeare's private life. On 23 April 1616, at the age of 52 years, he died. "perfect health"perfect health. Shakespeare left the bulk of his great estate in his will to his elder daughter, Susanna

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LITERATURE AND CULTURAL ASPECTS IN THE INDIAN WAR OF INDEPENDENCE

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Abstract

Broadly literature means the entire body of writings dealing with a particular area of subject. Literature has played immense role in the struggle for independence of India as it existed as one of the important sources of mass communication medium to bring awareness and arouse nationalistic consciousness among the masses. The different genres of writing which immensely impacted the emotional framework included poems, essays, articles, stories in newspapers, Books, novels, etc. Writers like Bankim Chandra Chattopadhyay in Bengal, Subramania Bharati in Tamil Nadu, and Rabindranath Tagore in Bengal crafted literary works that celebrated the richness of Indian culture, depicted the sufferings of the people under British rule, and called for a collective uprising. These literary works not only influenced public sentiment but also served as a source of inspiration for freedom fighters and revolutionaries.

Cultural aspects were equally significant during the Indian War of Independence. Indian traditions, customs, and symbols played a pivotal role in unifying the diverse Indian society against colonial rule. The rebellion drew upon the rich tapestry of Indian culture, incorporating religious and social elements as catalysts for resistance. The Sepoy soldiers, who played a crucial role in the rebellion, were deeply influenced by their cultural and religious beliefs, which fueled their determination to fight against the British. literature and cultural aspects played integral roles in the Indian War of Independence. The power of words, expressed through various literary forms, awakened the masses, instilled a spirit of resistance, and preserved the memory of the struggle for future generations.

***Keywords**: Literature, independence, struggle, Indian culture, freedom fighters, sepoy solders*

Introduction

An important event in India's history was the Indian War of Independence, also known as the Indian Rebellion of 1857 or the First War of Independence. This armed revolt against British colonial rule not only had profound effects on politics and society, but it also had a long-lasting effect on the country's literature and culture. The conflict propelled a rich scholarly custom that encapsulated opposition and the yearning for opportunity. Additionally, it became a driving force behind cultural revival and the creation of a unified national identity. A deeper comprehension of the significance of this significant event in history and its lasting legacy can be gained by studying its literary and cultural aspects. Overall, the Indian War of Independence had a transformative effect on literature and cultural aspects in India. It gave rise to a wave of nationalistic literature, inspired folk traditions, influenced language usage, and shaped the cultural symbols and icons associated with the struggle for independence. These cultural expressions played a vital role in galvanizing public support and shaping the collective consciousness of the Indian people during their fight against British colonialism.

Evoking emotions: Art helped nationalist in their struggle by evoking emotions related to oppression or kind of injustice to people that they had been facing for a long time. It helped to increase the sensitivity among elite and bourgeoisie class towards the suffering of the common man by depicting their poor living condition and atrocities.

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Research Article

Fourth Hankel and Toeplitz Determinants for Reciprocal of Bounded Turning Functions and Inverse of Reciprocal of Bounded Turning Functions Subordinate to cos z

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Abstract. The purpose of the present research article is to find an upper bounds of fourth Hankel and Toeplitz determinants for reciprocal of bounded turning functions subordinate to $\cos z$ and for the inverse of reciprocal of bounded turning functions subordinate to $\cos z$. The Zalcman conjecture is verified for specific values of n for the functions in these classes. The sharp upper bounds for Fekete-Szegö inequalities were obtained.

Keywords. Reciprocal of bounded turning function, Inverse of reciprocal of bounded turning function, Hankel determinant, Toeplitz determinant

Mathematics Subject Classification (2020). Primary 30C45; Secondary 30C50, 30C80

1. Introduction

Let $\mathcal{A}$ denote the family of all holomorphic functions of the Maclaurin series expansion form

$$f(z) = z + \sum_{n\geq 2} a_n z^n, \quad \forall\ z \in \mathcal{U} \tag{1.1}$$

Fourth Hankel and Toeplitz determinants for bounded turning functions subordinate to $1+tanhz$

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Abstract

The aim of the present paper is to find the fourth Hankel and Toeplitz determinants for bounded turning functions subordinate to $1+tanhz$. We also consider this problem for Fekete-Szego inequality and Zalcman Conjectures for bounded turning functions subordinate to $1+tanhz$.

2010 Mathematics Subject Classification. **30C45.** 30C50, 30C80.
Keywords. analytic functions, functions with positive real part, bounded turning functions, Hankel determinants, Toplitz determinants and subordination.

1 Introduction

Let $\mathcal{A}$ be the family of analytic functions f defined on the open unit disk U in the complex plane C with the normalization $f(0)=f'(0)-1=0$.
The Maclaurin series expansion of a function $f\in\mathcal{A}$ is of the form $f(z)=z+\sum_{n=2}^{\infty}a_nz^n, \forall z\in U$.
Let $\mathbb{S}$ be the class of all functions f in $\mathcal{A}$ that are univalent in U.
The class consisting of all functions P is analytic in U with $p(0)=1$ and $\Re p(z)>0$ is called the class of all functions with positive real part and is denoted by P.

Example 1.1. $p(z)=\frac{1+z}{1-z}$ and $p(z)=\frac{1+z^2}{1-z^2}$ are functions with positive real part.
The functions $p(z)=\frac{1+z}{1-z}$ and $p(z)=\frac{1+z^2}{1-z^2}$ are called Caratheodary functions and the class of functions with positive real part is also known Cartheodary class.

The q^{th} Hankel determinant of index $n\geq 1$ for $f\in\mathcal{A}$, will be denoted by $H_q(n)$ and is defined as

$$H_q(n)=\begin{vmatrix} a_n & a_{n+1} & a_{n+2}\cdots\cdots & a_{n+q-1} \\ a_{n+1} & a_{n+2} & a_{n+3}\cdots\cdots & a_{n+q} \\ a_{n+2} & a_{n+3} & a_{n+4}\cdots\cdots & a_{n+q+1} \\ -- & -- & ------ & --- \\ -- & -- & ------ & --- \\ a_{n+q-1} & a_{n+q} & a_{n+q+1}\cdots\cdots & a_{n+2q-2} \end{vmatrix}. \tag{1.1}$$

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National Education Policy, 2020–An Observational Study On Policies In Higher Education In India

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ABSTRACT

Education being one of the major services directly impacting the nation's growth, the sector has been ever growing with changing nature of national and international demands. The globalization has brought significant demands for changes in the education sector and keeping in view of the national and international expectations, Government of India initiative Education Policies to enhance the access, facility and empowerment of people through implementation of policies. Right from the inception of Kothari Commission on Education, the Education Policies introduced in India have focalized on various dimensions such as value spent on education, providing equitable opportunities, Universal Enrollment and empowering School Education, Professional Education, Higher Education and strengthening of education to all.

Objectives: The paper presents the study on scenario of Government spent on expenditure to Education Sector and present the critical issues on New Education Policy, 2020 pertaining to Higher Education. An Attempt is made to present the key observations on NEP, 2020 with an aim to draw challenges ahead for implementation of policy.

Methodology: Study is based on Descriptive Research Design and sources of data primary include Economic Survey Reports, reports of MHRD, UNO and NITI Aayog Reports.

Key Observations: Study explored the policy statements and its concerned issues pertaining to Higher Education. Study further

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EFFECT OF WORK LIFE BALANCE OF WOMEN FACULTY - A ANALYZE ON CONSTRAINTS AND COPE UP STRATEGIES

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Abstract
Work-life balance is the act of separating one's work life from their personal life in such a way that neither encroaches on the other. The concept of work-life balance has received huge concern in the present stressful competitive market. The emerging problems including pressure for substantial intensification of work, causes due to imbalance in personal economic growth, organizational redesigns, modification in the work pattern and changing work culture and increase in the business competition has led to work-life imbalance. Most of the present day organizations have equipped themselves with three remedial approaches with regard to women faculty' argument on work-life balance. In view of these emerging issues, the present paper contributes valuable field based observations on women faculty with reference to the preferences, constraints and cope-up strategies for the work life balance.

Key Words: Cope-Up Strategies, Leave V/S Leaving, Preferences, Motivation, and Stress.

1) Significance of Work Life Balance

Work-life balance is the state of equilibrium where a person equally prioritizes the demands of one's career and the demands of one's personal life. Work-life balance is typically defined as the amount of time you spend doing your job versus the amount of time you spend with loved ones or pursuing personal interests and hobbies. Work-life balance refers to the level of prioritisation between personal and professional activities in an individual's life and the level to which activities related to their job are present in the home. The ideal work-life balance is open to discussion. Freethinker Paul Krassner said that anthropologists often define happiness as having little or no differentiation between an individual's professional and personal lives. Work-life balance is a topical issue due to the increased amount of technology that removes the importance of physical location in defining the work-life balance. Previously it was difficult or impossible to take work home and so there was a clear line between professional and personal.

Women are considered as the nation builders and the rising entry of women in profession is making the organization to see right combination of manpower. Utilization of the women faculty resources for achievement of better results are based on the commitment of the women faculty towards organisational goals and personal life goals. Rational satisfaction over work and personal life are the great challenges to women especially in the modern stressful life.. In the era of globalization, the work life balance has direct effect on the quality of life for women in managing the family as well as the quality of the organisational work flow. These include the organizations reacting through emotional situations which include ignoring the women faculty' problems of their life(ostrich approach), focusing on the problems when the problem get seviour(just in time approach) and getting well ahead by working on the root causes of the problem before it gets worst. The modern day situations are demanding the complex decision making strategies of the organizations and the women faculty to tackle with the sensitive emerging problem in the form of work life balance.

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EMPLOYEE RETENTION IN INDIAN PHARMA INDUSTRY– AN OVERVIEW

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Abstract
The demand for talent within the country like India has risen to a good extent thanks to globalisation. Globalization has modified not solely the business world however additionally the minds of the people. Each pharma company is interested to grab the fittest from such a competitive atmosphere. Employee retention problems are rising because the most important manpower management challenges of the immediate future, driven by worker loyalty considerations, company restructuring efforts and tight competition for key talent. Employee retention matters as pharma companyal issues such as training time and investment; lost knowledge; insecure employees and a costly candidate search are involved. Hence failing to retain a key employee is a costly proposition for an pharma company. In view of the importance of Employee retention, the paper presents the detailed analysis on significance of Employee Retention and need for Employee Retention practices in Indian Pharma Industry.

1. Introduction

Studies have indicated that retention driven by many key factors that need to be managed congruently: structure culture, strategy, pay and advantages philosophy, and career development systems (Fitzenz 1990). Retention is vital for firm performance. If the pharma company isn't able to retain its staff, it'll not be able to maximize human assets developed inside the pharma company (Shekshnia, 1994).

There are 5 determinants like Career Development Opportunities , Superior Support, Work atmosphere, Rewards, and Work-Life Policies to review the impact of HRM practices on retention of staff. Retention of worthy employees is critical to the long-term health and success of any pharma company. It is a known fact that retaining the best employees ensures customer satisfaction, increased product sales, satisfied colleagues and reporting staff, effective succession planning and deeply imbedded pharma companyal knowledge and learning.

Various estimates suggest that losing a middle manager in most pharma companies costs up to five times of his salary. Intelligent employers always realize the importance of retaining the best talent. Retaining talent has never been so important in the Indian scenario; however, things have changed in recent years. In prominent Indian metros at least, there is no dearth of opportunities for the best in the business, or even for the second or the third best. Retention of key employees and treating attrition troubles has never been so important to companies.

One of the foundation stones of companies which attract, retain and motivate high performing employees is a positive and valuing attitude toward them. In this era of monster mergers and mega corporations, it is all too easy for top management to see employees as expendable resources to be hired and fired at will according to the current short-term business plan. A doubt can creep into a work force which undermines its efforts, and this can cause employees to look for work elsewhere when opportunity arises. The internal and external situations that cause pharma companyal turnover are vast and complex. Pharma companies can do little to control the country's economy or an employee's preference for mobility. An enterprise can, however, design internal culture, structures, strategies and programs that retain valuable employees.

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A STUDY ON YOUTH ATTITUDE TOWARDS CAREER PROSPECTS

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Abstract
Every day, teenagers make important decisions that are relevant to their future. The time and energy they dedicate to learning and the fields of study where they place their greatest efforts profoundly shape the opportunities they will have throughout their lives. A key source of motivation for students to study hard is to realize their dreams for work and life. Those dreams and aspirations, in turn, do not just depend on students' talents, but they can be hugely influenced by the personal background of students and their families as well as by the depth and breadth of their knowledge about the world of work. In a nutshell, students cannot be what they cannot see. Primary data was collected from 105 respondents by making a structured questionnaire and sent to various group of people. Factors such as frequency of online buying, priority towards online buying and level of satisfaction has drawn from the results. The hypothesis is framed to find how the Demographic factors such as gender, age, income, qualification influence the youth attitude towards career prospects. The collected data was analyzed using chi-square test, ANOVA , correlation, independent t-test and corresponding analysis.

Key words: Career Prospects, Career Choices, Dream Job, Social Media, Youth Attitude.

1. Introduction

The aim of this research was to survey the career choices and youth perceptions of influences on their career choice also their satisfaction with career choice. Gender differences were examined in relation to each aspect of the aim. Both quantitative and qualitative methods were used in the survey. Career choices of youth were largely class-specific and gender-specific. Youth ratings for importance of influence on career choice were highest for self. Youth were mostly either very or extremely satisfied with their career choice. Youth justified their importance ratings for various influences on career choice and their rating for satisfaction with career choice. Some gender differences in findings were observed. For example, men identified a higher number of important influences on career choice than women.

2. Youth Attitude towards Career Prospects

Good career planning leads to life fulfillment however; cultural heritage can conflict with youths' personal interests. This systematic review examined existing factors that influence youths' career choices in both cultural settings from around the nation with the aim of identifying knowledge gaps and providing direction for future research. A systematic review strategy was conducted. The ERIC, Psych Info, Scopus, and Informative Platform databases were searched for articles published between January 1997 and May 2018. A total of 30 articles were included in the review, findings revealed that youth from collectivist cultures were mainly influenced by family expectations, whereby higher career congruence with parents increased career confidence and self-efficacy. Personal interest was highlighted as the major factor that influenced career choice in individualistic settings, and the youth were more independent in their career decision making. Bicultural youth who were more acculturated to their host countries were more intrinsically motivated in their career decision making. Further research is imperative to guide the understanding of parental influence and diversity, particularly for

ANALYSIS ON MARKET TIMING AND STOCK SELECTION ABILITY OF INDIAN OPEN ENDED EQUITY MUTUAL FUND MANAGERS: A CASE STUDY ON SELECT OPEN ENDED MUTUAL FUNDS

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Abstract:

The investments in mutual funds is increased rapidly in India during the last three decades, due to the implantation of economic reforms and encouragement given by the government of India to private sector particularly linking to information technology and infrastructure sector resulted in creating more employment and contributed in growth of economy. The increased growth in economy resulted in improving the saving capacity of individuals and this encouraged financial market in India and people are looking for investment opportunities based on their risk capacities.

Mutual Funds are the best investment opportunities for both small and high net worth individuals particularly investors who are ready to take risk based on their investment value and time period. The present paper analyses the performance of open ended equity mutual funds and it analyses the market timing and stock section abilities of fund managers of select funds. It is known fact particularly investments linking to open ended equity funds investors always looking into market timing and stock selection ability of concern fund manager.

The present paper analyses and compares the fund manager market timing and stock selection ability select open ended equity funds and make necessary recommendations to the investors of mutual funds.

***Keywords*:** mutual funds, open ended, risk, fund manager, performance, ability, market timing and stock selection

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Synthesis and antimicrobial activity of novel (1-phenyl-1*H*-1,2,3-triazo-4-yl) methyl-2-acetamido-1-phenyl-1*H*-benzo[f]chromene-3-carboxylate and 2-amino-octahydro-4-phenyl-2*H*-chromene-3-carbonitrile

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A series of novel (1-phenyl-1*H*-1,2,3-triazol-4-yl)methyl-2-acetamido-1-phenyl-1*H*-benzo[f] benzo[f]chromene-3-carboxylate **6a-i** compounds have been synthesised from prop-2-yn-1yl-3-acetamido-1-phenyl-1*H*-benzo[f]chromene-2-carboxylate **5**. 3-Amino-1-phenyl-1*H*-benzo[f]chromene-2-carbonitrile and 2-amino-4-phenyl-4a,5,6,7,8,8a-hexahydro-4*H*-chromene-3-carbonitrile (**1** and **2a**) are generated when benzaldehyde, β-naphthol, (or) cyclohexanol, and malononitrile are incorporated into the mixture. Activity of two conventional antibiotics, Chloramphenicol and Amphotericin-B, have been compared to the antibacterial and antifungal properties of the prepared synthetic compounds. A study has been conducted on the spectroscopic properties of Schlenter products.

Keywords: 3-Amino-1*H*-chromene-2-carbonitriles, Chromenes, Multicomponent reaction, Chloramphenicol, Amphotericin-B

The fused pyran ring structure is a well-known heterocycle and amplet core unit in a variety of intrinsic products. Pyran and benzochromene or benzopyran derivatives have piqued the interest of researchers due to their association with a wide range of biological characteristics. In the modern treatment of infectious illnesses, a multidrug unit is used over a lengthy period of time. Chromenes biological significance as an anticoagulant, aflatoxins as mycotoxins and coumestrol as an oestrogen and phytoalexin has resulted in a significant amount of research in the field of fused ring structures.

Chromenes exhibits a variety of pharmacological actions[1], such as spasmolytic[2], and is a valuable component in the production of a wide range of natural products[3]. Chromene derivative arena has a wide range of biological actions, including antitumor[4], antimicrobial[5], antiviral[6], and so on. In order to continue our efforts in the advancement of environmentally benign synthetic approaches for the design and synthesis of heterocyclic compounds[7-9], we would like to synthesise chromene heterocyclic compounds, by reacting with benzaldehyde, malononitrile, and β–Naphthol at RT and recrystalised with ethanol.

Results and Discussion

The synthesis of 3-amino-4*H*-Chromene-3-carbonitriles 1 and 2 in ethanol catalysed by began with the condensation of equimolar quantities of benzaldehyde, malononitrile, and β-Naphthol, sodium carbonate in ethanol (Scheme 1).

The pyran type 1 reaction process was chosen as an exemplary example because it comprises two stages of condensation first, the Knoevenagel condensation of benzaldehyde and malononitrile in the presence of Sodium carbonate, resulting in the formation of arylidene malononitrile. Following Michael addition of the naphtholic form of β-naphthol to an electron deficient carbon of cyanoolefin, 3-amino-1-phenyl-1*H*-benzo(f)chromene-2-carbonitriles 1 are formed (Scheme 1). The pyrans 1 with the β - naphthaminonitrile moiety described above form a class of intermediates that are known to be very reactive and are utilised as precursors in the synthesis of freshly fused chromene co factors.

The IR, ^{1}H, and ^{13}C NMR spectra of the newly generated chromene 1 and 2 were used to describe them. As an instance, the IR spectra of compound 1 revealed an absorption band at 2215 cm^{-1} due to the cyano group, while the NH_2 stretching bands emerged

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Design, Synthesis, and Anti-Proliferative Activity of Some New Quinoxaline Containing 1,2,4-Thiadiazoles Amide Hybrids

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Abstract—A series of new quinoxaline-1,2,4-thiadiazoles amide hybrids has been synthesized and evaluated for their anti-proliferative activity on four different human cancer cell lines including HeLa (breast), A549 (lung), MCF-7 (breast), and HEK-293 (embryonic kidney) using etoposide as a standard drug. Three synthesized compounds exhibit promising anticancer activity. One of those demonstrates higher potency against all cell lines than etoposide. Two products exhibit promising inhibitory activity over tyrosine kinase EGFR.

Keywords: quinoxaline,1,2,4-thiadiazoles, in vitro anticancer activity, in vitro tyrosine kinase EGFR inhibitory activity, SAR studies

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INTRODUCTION

1,2,4- Thiadiazoles are considered to be among most important bioactive five-membered cyclic compounds for medicinal chemistry [1] due to significant biological activity of various nature including cyclooxygenase inhibitors [2], anti-leukemia [3], antibacterial [4], antiulcer [5], and many more. One of the anticancer drug scaffolds, 3,5-bis(pyridin-3-yl)-1,2,4-thiadiazole (**1**), acts as an inhibitor of aromatase and used for treatment of various types of cancers [6].

Quinoxaline and its derivatives exhibit very important biological properties including antiviral [7], anticancer [8] and anti-leishmanial [9]. Many drug candidates bearing quinoxaline structures have been subjected to phase II clinical trials and some of them are currently under clinical trials for anticancer therapeutic purposes [9]. Among these XK469 (**2**) and chloro quinoxaline sulfonamide (CQS) (**3**) have been recognized as antineoplastic quinoxaline topoisomerase II inhibitors [10].

Figure 1 illustrates the significant role of quinoxaline, 1,2,4-thiadiazole and amide pharmacophores in the development of anticancer drugs. Herein, we present synthetic approach to the combination of quinoxaline, 1,2,4-thiadiazole and amide pharmacophores combined in one type of molecular structures **5a**–**5m**. All products were tested for their in vitro anticancer activity against four cancer cell lines: HeLa (human cervical), A549 (human lung adenocarcinoma), MCF-7 (human breast), and HEK-293 (human embryonic kidney). Also, we carried out in vitro tyrosine kinase EGFR inhibitory activity studies with three potent compounds **5d**, **5e**, and **5g** for supporting their anti-proliferative activity results.

RESULTS AND DISCUSSION

The synthetic approach to the target quinoxaline-1,2,4-thiadiazole amide hybrids **5a**–**5m** (Scheme 1) started with quinoxalin-2 (1*H*)-one (**1**) which was prepared according to the method that had been reported earlier [11, 12]. Then, compound **1** was reacted with 2-bromoacetonitrile using Cs_2CO_3 as a base to produce the corresponding intermediate 2-(2-oxoquinoxalin-1(2*H*)-yl)acetonitrile (**2**). The latter intermediate **2** was treated with thiourea, $AlCl_3$ and iodine in *n*-butyl acetate to give the corresponding 1-[(5-amino-1,2,4-thiadiazol-3-yl)methyl]quinoxalin-2(1*H*)-one (**3**). Eventually, reaction of compound **3** with a desired aromatic carboxylic acid **4a**–**4m** in presence of coupling agents EDCI and HOBt led to the corresponding amide hybrids **5a**–**5m** in moderate to high yields (Scheme 1).

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ARTICLE

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Synthesis and biological assessment of some fused Pyran derivatives

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Abstract

Pyran was formed by reacting methyl 3-methoxyacrylate **(1)** with 2-benzylidenemalanonitrile to form compound **2**. The pyrano derivatives **3–6** were obtained by reacting the second molecule with 2-benzylidenemalanonitrile, carbon disulfide, formamide, and benzylidene cyclohexanone. Compound **(2)** interacted with ethyl chloroacetate to form compound **8**, which then cyclized in the presence of sodium ethoxide to form compound **9**. Compound **7** was formed when compound **(2)** was treated with acetic acid in the presence of sulfuric acid and reacted with ethylchloroacetate to form compound **10** and then was converted to compound **11** by the addition of sodium ethoxide. Analytical and spectral data have been used to determine the structures of the newly synthesized substances and they were then tested for their antibacterial and antioxidant activities. In terms of antioxidant activity, compounds **2** and **8** were found to have the greatest and lowest levels, respectively, against Enterobacter aerogenes.

1 | INTRODUCTION

Pyrans exhibits a variety of pharmacological actions [1], such as spasmolytic [2], and is a valuable component in the production of a wide range of natural products [3]. Pyran derivative arena has a wide range of biological actions, including antitumor [4], antimicrobial [5], antiviral [6], and so on. In order to continue our efforts in the advancement of environmentally benign synthetic approaches for the design and synthesis of heterocyclic compounds [7], complex synthetic procedures with extraction and purification at every stage result in synthetic ineptitude and the generation of enormous quantities of waste due of lengthy reaction times and costly catalysts required for the synthesis of pyran derivatives [8]. To tackle this issue, a multi-component process was employed to synthesize pyran derivatives [9]. The peculiar structure and therapeutic uses of pyranopyran-based heterocyclic compounds, such as anticancer, anti-proliferative, anti-inflammatory, and antiviral [10–13], make them very important. The use of pyranopyran derivatives as medicines has been documented in several studies [14].

The fused pyran ring structure is a well-known heterocycle and amplet core unit in a variety of intrinsic products [15]. Pyran and benzochromene or benzopyran derivatives have piqued the interest of researchers due to their association with a wide range of biological characteristics [16]. In the modern treatment of infectious illnesses, a multidrug unit is used over a lengthy period of time [17]. Chromenes biological significance as an anticoagulant, aflatoxins as mycotoxins and coumestrol as an estrogen and phytoalexin [18–23] has resulted in a significant amount of research in the field of fused ring structures.

2 | RESULTS AND DISCUSSION

In refluxing ethanol, piperidine stimulated the reaction between benzylidenemalononitrile and methyl 3-methoxyacrylate **1**, resulting in a yellow solid of compound **2**, Eskandar Kolvari et al., [24].

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IMPACT OF COVID-19 ON STOCK INDICES IN EMERGING ECONOMY

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Abstract:
The pandemic covid-19, which originated in China, has devastated the economic roots of all the world's nations irrespective of its economic status. It has shown a profound effect on the world stock market indices. It has also had an impact on the BRICS nations, which is the fastest growing five - nations bloc in the world. Hence an attempt has been made to investigate the impact of covid-19 on BRICS nations stock market indices (BRAZIL-BOVESPA, RUSSIA-MOEX, INDIA-NIFTY, CHAINA-SHANGAI COMPOSITE, SOUTH AFRICA-SA-40) for the period of 5 months by considering weekly stock market returns in terms of percentage of respective nations. Trend analysis and descriptive statistics are utilized to analyze the data and the study has found that covid-19 has shown mixed impact on returns of BRICS nations stock market indices.

Key Words: COVID-19, Emerging Economy, BRICS, Stock Market Returns.

1. Introduction

Stock market of every nation plays a vital role in its economic development by making contribution to GDP. Likewise, BRICS also has been playing a significant role in contributing to worlds GDP for its economic development. BRICS is the alliance of five largest emerging economic countries in the world namely BRAZIL, RUSSIA, INDIA, CHINA, SOUTH AFRICA created for the purpose of faster development which representing the 23% GDP, 42% population, 30% of the territory, 18% of the global trade of the world. Emerging economies occupied a prominent place in development of world's economy by engaging more productive activities with global market. The world investment report (UNCTAD, 2013) found that emerging economies accounted for around 45 percentage of FDI in 2011as their inflows reached a new record high, rising 11 percentage to $684 billion. So, there is an essence to study the behaviour of stock markets of emerging economies during the COVID-19 outbreak.

2. Review of Literature

Here an attempt is made to review some of research studies which taken previously related to this paper in order to understand the research area.

- HaiYue Liu 1 , Aqsa Manzoor 1,*, CangYu Wang 1 , Lei Zhang 2,* and Zaira Manzoor 3 (2020) have made an attempt to examine the short-term impact of the coronavirus outbreak on 21 leading stock market indices in major affected countries, found that Asian countries experienced more adverse effect in its returns as compared to other countries and markets of Asian countries quickly reacted to covid-19 outbreak.
- Scott R. Baker Nicholas Bloom Steven J. Davis Kyle J. Kost Marco C. Sammon Tasaneeya Viratyosin (2020) in their working paper they tried to investigate "The Unprecedented Stock Market Impact of Covid-19" and found that government restrictions on economic activities and social distancing etc. are the main cause to negative reaction of US stock market to COVID-19 outbreak.
- S. Rajamohan, A. Sathish, Abdul Rahman (2020) have made an attempt to study the volatility in stock prices of automobile sector due COVID-19 outbreak. To analyze they utilized tools like Relative Strength Index (RSI), Augmented Dickey Fuller Test (ADF) and GARCH (1,1) Model and found that COVID-19 has made negative impact on automobile sector in India. The study also concluded that there was a significant impact of COVID-19 on movement of index price of automobile sector.
- Kotishwar A (2020) has tried to examine the impact of covid-19 virus spread on the stock markets. In his study he found that Covid-19 pandemic is having the significant long run

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CHARACTERIZATION AND MEASUREMENT OF SILVER NANOPARTICLES FROM SALINE-TOLERANT MICROALGAE BY SCANNING ELECTRON MICROSCOPY

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ABSTRACT

Currently, researchers look to natural biological processes such using marine algae, to create dependable and ecofriendly methods for the synthesis of metallic nanoparticles (AgNPs), Using microalgae like *Nostoc* sp., *Lyngbya* sp., and *Phormidium* sp. we have examined the intracellular and extracellular biosynthesis of silver nanoparticles in this study. The microalgae extract contains a variety of active biomolecules, including superoxide dismutase (SOD), oxidase, reductase, NAD-dependent enzymes, lipid, carbohydrates, peptides, protein and pigment. These molecules play a significant role in the formation of nanoparticles and structures in the nanometer range, which is demonstrated by a change in the brown colour that denotes the synthesis of silver nanoparticles. Extracted biogenic silver nanoparticles and studies on their characterization are used in a scanning electron microscopy field to analyze a 2D and 3D topographical blueprint. There was a logical relationship between the efficiencies of micro algae in the production of silver nanoparticles and their graphical studies provide a support in the 3 D Luminance imaging technology, Contour map analysis, and micro valley network. The silver nanoparticles pattern was deposited on micro glass slide and imaged by SEM and EDS (FEI Quanta) with Digital Surf Mountain @ surface analysis technology to characterize the silver nanoparticles using electron beam lithography. According to the size, shape, stability, and surface properties of the nanoparticles, the primary methods of characterization of silver nanoparticles are described.

KEYWORDS: Microalgae, silver nanoparticles, SEM, Mountain 8 Graphical tool, Micro valley.

INTRODUCTION

The synthesis of nanoparticles has become the matter of great interest in recent times due to its various advantageous properties, including high sensitivity biomolecule detection and diagnosis[4], tissue engineering,[2] antimicrobials[1] and therapies, catalysis, and microelectronics.[3] However, utilizing metal oxide nanoparticles,[5] can have a lot of negative effects on human health. Since the chemical processes used in the production of nanomaterial's produce a significant number of hazardous byproducts,[6] the development of novel chemical or physical approaches has led to environmental contaminations Using the scanning electron microscope (SEM), individual particles and groups of particles can be visualized.[7] Here, we used SEM combined with Digital surf: Mountain 8 graphical software to characterize silver nanoparticles and analyze the surface morphology. SEM is a surface imaging technique, capable of fully resolving various particle sizes, size distributions, forms of nanomaterial, and the surface morphology of the produced particles at the micro and nanoscale.[8] Using SEM, we can probe the morphology of particles and and counting the particles by using specific software.[9]

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SILVER NANO-PARTICLES CHARACTERIZATION AND IMAGING OF THEIR SURFACES, STUDIES OF METROLOGY USING ATOMIC FORCE MICROSCOPY, AND DIGITAL SURF-MOUNTAIN MAPS

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Abstract: Currently, researchers look to natural processes such using marine algae, to create dependable and ecofriendly methods for the synthesis of metallic nanoparticles, using microalgae like *Nostoc* sp., *Lyngbya* sp., and *Phormidium* sp. We have examined the intracellular and extracellular biosynthesis of silver nanoparticles in this study. The microalgae extract contains a variety of active biomolecules, including superoxide dismutase (SOD), oxidase, reductase, NAD-dependent enzymes, lipid, carbohydrates, peptides, protein and pigment. These molecules play a significant role in the formation of nanoparticles and structures in the nanometer range, which is demonstrated by a change in the brown color that denotes the synthesis of silver nanoparticles. Extracted biogenic silver nanoparticles and studies on their characterization are used in an atomic force microscopic field to analyze a 2D and 3D topographical blueprint. The Mountain -®-expert graphical tool play a vital role in lateral and Partial analysis. There was a logical relationship between the efficiencies of micro algae in the production of silver nanoparticles and their studies provide and support a several characters feature of the detection by threshold segmentation, watershed segmentation, edge detection and circle detection and graphical representation. The threshold used to counts the number of silver nanoparticles. The silver nanoparticles pattern was deposited on micro glass slide and imaged by AFM (NT-MDT NTEGRA PRIMA –Ireland) with Digital Surf Mountain @ surface analysis technology to characterize the silver nanoparticles using electron beam lithography. According to the size, shape, stability and surface properties of the nanoparticles, the primary methods of characterization of silver nanoparticles are described.

Keywords: Microalgae, silver nanoparticles, AFM, Digital surf, Lateral analysis, Partial analysis.

I. INTRODCUTION

Nanotechnology: Nanotechnology is a modern science coordinates with engineering and technology at the nano-scale, which is about 1 to 100 nanometers [2, 9, 10, and 11]. They are three types, i.e., natural biogenic nanoparticles, anthropogenic nanoparticles [12] and metal oxide nanoparticles and quantum dots. Nano science and nanotechnology are the forefront of modern research. The developing economy in this area wants the skilled person who has good knowledge in modern science with hi-tech skills to apply this talent in a modern product [14,15 1nd 29].

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Research Paper *Insilico Anticancer Study*

MOLECULAR DOCKING ANALYSIS OF VASCULAR ENDOTHELIAL GROWTH FACTOR (VEGF) RECEPTOR WITH BIOACTIVE MOLECULES FROM CYANOBACTERIA AS POTENTIAL ANTI-CANCER AGENTS

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VEGF, ADMET, Molecular docking, Flavone, Cyanobacteria.

ABSTRACT

Cyanobacteria are a great source of a wide variety of bioactive substances. The present study reports an anticancer bioactive compound from cyanobacterium *Nostoc sp*., *Lyngbya* sp., and *Phormidium sp*. using GC-MS analysis. The extracted samples were processed with JEOL GCMATE II with high resolution data system. The micro algal compounds (Strigol, Allyl-(2-methylphenyl)-sulfide, Flavone, Octonic acid, Ethyl iso-allocholate, Quinazolin and Quinolin) are characterized by GC-MS. Further, retrieve the required target protein (VEGF: 2VPF) from the RCSB protein data bank as a PDB file and the marine algal compounds were scrutinized through molecular docking and ADMET risk assessment. There were a total of seven compounds found, which were further examined for Log P, oral bioavailability, synthetic accessibility, lead-likeness and alarms for PAINS & Brenk. In addition, the compliance of the pharmacokinetics of the metabolites of particular medications was investigated. Our study provides the greatest illustration of a computationally driven tool for selection and finding new drug with high therapeutic windows and a binding energy of Flavone -5. 44 kcal/mol for VEGF receptor affinity. The SWISS ADME and admet SAR were used to evaluate the ADMET parameters.

INTRODUCTION

Blue-green algae (also called cyanobacteria) are found in hyper saline lakes, coastal hyper saline lagoons, saltern evaporation ponds, seawater, saline springs and reservoirs (Aharon Oren, 2015).The physiology of the cell must be modified specifically for life in high salt environments. The production of a wide range of secondary metabolites by cyanobacteria is well known. Cyanobacterial medicinal properties were initially recognized as early as 1500 BC, when *Nostoc* species were employed to treat gout, fistulas and various cancers (Rahul *et al*., 2011). An anti-cancer factor has been identified in *Scytonema* sp., *Phormidium tenue* and *Anabaena variabilis*. Borophycin, isolated from a *Nostoc sp*., showed cytotoxicity against human epidermoid carcinoma (LoVo) and human colorectal adenocarcinoma activity and Apratoxin A, isolated from *Lyngbya boulloni*, showed cytotoxicity against to adenocarcinoma (Nguyen *et al*., 2019). Symplostatin 3 isolated from *Symploca* sp., showed cytotoxicity against epidermoid carcinoma cell line (Hendrik *et al*., 2002), *Scytonema ocellatum* depolymerized actin to disturb cell division and seems to be a potent anti-cancer drug.

The third most typical malignancy among Indian women is ovarian cancer. Epithelial cells, germ cells and stromal cells are three different cell types that make up the ovaries. Different forms of tumours can develop from each of these cell types. Nine out of ten ovarian tumours start in epithelial cells. In India, 43,886 new cases of ovarian cancer were reported in 2020, according to statistics (Prashant *et al*., 2020). Most ovarian cancer cases start to appear after menopause. Ovarian cancer risk is increased in women who have had more cycles during their lives. Ovarian cancer is first caused by a DNA mismatch in the BRCA1 and BRCA2 genes (Robert *et al*., 2017). Women who have a family history of ovarian cancer are more likely to get the disease. High-grade, severe, non-mucinous ovarian cancer is linked to BRCA mutations, whereas mismatch repair gene alterations are the cause of Lynch syndrome. Therefore, finding newer inhibitors and medications is absolutely essential for improving ovarian

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Green synthesis of silver nanoparticles from saline tolerant microalgae and their antiviral properties against HIV-1

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Abstract

The microalgae were exposed to silver nitrate (AgNO3) solution and screened for their suitability for production of the nano-silver (nano-Ag). The HIV-1 gag p24 Elisa Assay was used to study the anti-HIV activity of biogenic silver nanoparticles from microalgae *Nostoc sp., Lyngbya sp.,* and *Phormidium* sp. The antiviral activity of biogenic silver compounds can be explained by their ability to cross the lipophilic membranes and interact with proteins involved in apoptosis. The antiviral activity of silver ion assembled into the V3loop of HIV -GP120. CD4 cell with CXCR4 chemokine receptor binding with its ligand CXCL12 plays an important role in protecting the entry of HIV virus. The role of the extracellular loop from CXCR4 and its mechanism allowed for the binding of HIV glycoprotein. This active site of protein bind with target protein to form protein–protein-ligand interaction to carry out the signals to lead the various pathways such as CXCL12 or SDF-1 protein-mediated kinase, Ras-c-Raf-1-MEK1/2-ERK1/2 dependent pathway, and CD45 cell-mediated pathway. The sulfur-bearing residues located in the glycoprotein knobs would be attractive sites for nanoparticle interaction. Silver nanoparticles are blocked the protease activity of different HIV-1strains with overlooks their tropism. Modification in gp120 among HIV strains is the major determinant site of differing tropism among HIV strains.

Keywords: Biogenic silver nanoparticles; HIV-1; ELISA; Microalgae and CXCR4

1. Introduction

AIDS is a final stage of HIV infection that occurs when the body's immune system is suppressed by the action of HIV viruses. Statistical reports for the accounting of HIV infection were estimated *650 000* [*510 000–860 000*] people dying from HIV globally in 2021. The map showed the number of HIV-infected cases reported in 2017-18 with the top ten districts of Tamilnadu [Fig. 1]. In most countries, HIV-infected persons are treated with anti-retroviral drugs [1] such as abacavir, emtricitabine, lamivudine, stavudine, enofovir, and zidovudine but most of the HIV-1 strains are resistant to at least one of the available drugs. For these reasons, in need to the discovery of new anti-HIV agents that function overcomes the retro transcription or protease activity that can be used for treatment and prevention of HIV/AIDS.

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Potential Resources of NTFPs and Socio-economic Empowerment in the Rural Economy of Telangana, India

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Forests are very important resources for the livelihood, sustenance and for commerce generation to forest inhabitants. Non-timber forest products (NTFPs) such as medicinal, leaves, flowers (corolla), fruits, seeds, bamboos, gums, resins offer seasonal employment to local people and provide socio-economic empowerment in the rural economy. The present study focuses on the NTFPs as potential resources and their role in livelihoods improvement of rural people of Telangana, India. Hence, over exploitation and unscientific harvesting practices are the major threats for the loss of natural resources and the present study highly recommends the conceptual framework for the conservation and sustainable management of NTFPs for their bio-based economy potential to the poorest section of society.

Keywords: Non-Timber Forest Products (NTFPs), Socio-economic empowerment, Livelihood, Rural and Tribal people, Telangana.

INTRODUCTION

Non-wood forest products (NWFPs) are goods of biological origin other than wood, derived from forest, other woody lands and trees outside forest. The biological origin implies that wildlife and its derivatives, so it is come under violation of Wildlife Protection Act. So, in the Fourth World Forestry Congress (1954), it was recommended be called as 'Non-Timber Forest Products' (NTFPs) and these fulfil multiple functions in supporting human well being. NTFPs play major roles in the existence of millions of rural and urban people of the world (Malhotra & Bhattacharya, 2010; Shackleton et al., 2015; Suleiman et al., 2017). Around 70 million ethnic people, spread all over the globe, largely depend on forests for firewood, fodder, fruits, tubers, nuts, medicines, etc. Worldwide, more than 150 various NTFPs have been under trade and millions of people rely on them (Sills et al., 2011; Chou, 2018). Currently, the forest area, vegetation and biodiversity are being subjected to destruction and degradation due to anthropogenic and livestock pressures (Slingenberg et al., 2009; Bowler et al., 2020). About 500 million people in India depend on NTFPs for their complementary income and 17% of landless people depend on the collection of NTFPs as daily wages and provide 50% income for about 25% of Indian labour force (Rasul et al., 2008). The contribution of these daily net resources to livelihoods typically ranges from 10-60% of total household income (Asfaw et al., 2013; Babulo et al., 2009). In India, NTFPs contribute an income equivalent to US$ 2.7 billion per year and absorb 55% of the total employment in forestry sector and also 50% of forest revenue as well 70% of forest based export income comes from NTFPs (Shiva & Verma, 2002; Chauhan et al., 2008; Kaushik & Banik, 2020). Pandey et al., (2016) reported that ca. 50 to 70% of forest export revenue comes from unprocessed NTFPs and 80% of the developing countries population relies

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Research Paper

A Study on Performance Analysis of Oriental General Insurance Company

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Abstract
The evaluation of a company's performance is an integral part of the management of every organization. This research enables the determination of the extent to which actions made by business management had an impact on the company's performance results, as well as the trajectory of those results and the necessary steps to enhance them. It should be highlighted, however, that in today's dynamic corporate climate, timely performance control is vital; as a result, non-financial performance indicators are gaining increasing attention. Traditionally, the performance of a corporation is evaluated by analyzing financial performance metrics. However, in today's dynamic business world, timely performance management is essential. Based on secondary data from the company's annual report on performance analysis, this study assesses the performance of Oriental General Insurance in terms of premiums collected, claims paid, operational expenses, profit earned, and income distribution.

Keywords: *Performance, Premiums, Claims, Operating expenses, Income*

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I. Introduction

Insurance is the backbone of risk of the people from unexpected happenings to them in a nation. Insurance providers offer a variety of risk protection packages to businesses, ensuring them financial stability. It assists individuals and organizations in mitigating the effects of risk, contributing significantly to the growth and development of the insurance sector. The Indian insurance business faces significant obstacles in terms of finding willing customers, supplying them with services, attracting and keeping players, product and distribution innovation, and so forth. In addition to meeting the needs of their clients, Indian life insurers must also improve their performance to ensure profitable growth. To sustain profitable growth, private enterprises struggle with promoting insurance awareness, building brand strength, meeting regulatory requirements, establishing a vast network of distribution channels, and putting in place infrastructure. The importance of new and competitive dynamics is heightened by the fact that the oriental insurance sector anticipates diverse consumer categories with varying wants, hence highlighting the significance of new customer segments. To win, they need to rethink business strategies that help businesses make money and stay in business.

Industry Growth in Life Insurance:

At the time of the opening of the insurance industry in India, there was no intense market competition. Until 2021, the only life insurance firm functioning in India was the public-sector Life Insurance Corporation (LIC). In 1999, the Indian government permitted the privatization of the insurance industry and established the Insurance Regulatory Development Authority (IRDA) to regulate and grow the sector. IRDA has awarded licenses and opened the market for private life insurance companies. As a result, India's insurance business has expanded rapidly since liberalization in 1999, when private players were permitted to enter the country's life insurance market. In terms of premium income, new business policies, number of offices, agents, products,

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Synthesis and biological assessment of some fused Pyran derivatives

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Abstract
Pyran was formed by reacting methyl 3-methoxyacrylate **(1)** with 2-benzylidenemalanonitrile to form compound **2**. The pyrano derivatives **3–6** were obtained by reacting the second molecule with 2-benzylidenemalanonitrile, carbon disulfide, formamide, and benzylidene cyclohexanone. Compound **(2)** interacted with ethyl chloroacetate to form compound **8**, which then cyclized in the presence of sodium ethoxide to form compound **9**. Compound **7** was formed when compound **(2)** was treated with acetic acid in the presence of sulfuric acid and reacted with ethylchloroacetate to form compound **10** and then was converted to compound **11** by the addition of sodium ethoxide. Analytical and spectral data have been used to determine the structures of the newly synthesized substances and they were then tested for their antibacterial and antioxidant activities. In terms of antioxidant activity, compounds **2** and **8** were found to have the greatest and lowest levels, respectively, against Enterobacter aerogenes.

1 | INTRODUCTION

Pyrans exhibits a variety of pharmacological actions [1], such as spasmolytic [2], and is a valuable component in the production of a wide range of natural products [3]. Pyran derivative arena has a wide range of biological actions, including antitumor [4], antimicrobial [5], antiviral [6], and so on. In order to continue our efforts in the advancement of environmentally benign synthetic approaches for the design and synthesis of heterocyclic compounds [7], complex synthetic procedures with extraction and purification at every stage result in synthetic ineptitude and the generation of enormous quantities of waste due of lengthy reaction times and costly catalysts required for the synthesis of pyran derivatives [8]. To tackle this issue, a multi-component process was employed to synthesize pyran derivatives [9]. The peculiar structure and therapeutic uses of pyranopyran-based heterocyclic compounds, such as anticancer, anti-proliferative, anti-inflammatory, and antiviral [10–13], make them very important. The use of pyranopyran derivatives as medicines has been documented in several studies [14].

The fused pyran ring structure is a well-known heterocycle and amplet core unit in a variety of intrinsic products [15]. Pyran and benzochromene or benzopyran derivatives have piqued the interest of researchers due to their association with a wide range of biological characteristics [16]. In the modern treatment of infectious illnesses, a multidrug unit is used over a lengthy period of time [17]. Chromenes biological significance as an anticoagulant, aflatoxins as mycotoxins and coumestrol as an estrogen and phytoalexin [18–23] has resulted in a significant amount of research in the field of fused ring structures.

2 | RESULTS AND DISCUSSION

In refluxing ethanol, piperidine stimulated the reaction between benzylidenemalononitrile and methyl 3-methoxyacrylate **1**, resulting in a yellow solid of compound **2**, Eskandar Kolvari et al., [24].

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Designing Low-Cost Arduino Powered Spin Coater for Thin Film Deposition

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Keywords: Sol-Gel, spin coating, Arduino Uno, AZO thin film, Structural properties, Optical properties.

Abstract. In the present work, we have designed a low-cost spin coater using the Arduino Uno board. The advantage of selecting Ardunio is, it has pulse width modulation (PWM) based pins. Depending on the width of the pulse, the output voltage changes which will intern change the speed of the DC motor connected to the PWM pin. The thickness of deposited film using spin coater depends on RPM and the duration of the rotation. The rotation of the substrate during deposition has three stages a gradual increase in RPM, maintaining constant RPM over a while, and a gradual decrease in RPM. All these parameters can be controlled by an Arduino board. An Aluminum doped Zinc Oxide with Al: 3wt% dopant concentration film was deposited on a glass substrate using Arduino based spin coater. X-ray diffraction, UV – VIS spectroscopy, and FTIR methods were used as characterization techniques. Hexagonal crystal structure of deposited AZO layer was confirmed by XRD and optical band gap, transparency was calculated by UV-VIS spectroscopy.

1. Introduction

Thin films have a wide range of applications in the field of surface technology such as enhancing optical transmission and reflection, electrical conductivity, surface hardness, corrosion…etc. Several methods are available for the fabrication of thin films. Different methods have their advantages and disadvantages, among which sol-gel synthesis is one of the simplest chemical solution techniques. In the sol-gel method, the quality of deposited thin films depends on concentration, pH value of the solution, temperature, bathing period, aging time, nature of substrate selected.

The prepared sol-gel solution can be used to fabricate thin films either by using a spin coating process or by a dip-coating process. In the spin coating process, few drops of sol-gel solution are dropped on the surface of the substrate. The rotation speed of the substrate governs the thickness of deposited thin film [1]. There are few limitations of installing spin coater units in the laboratory such as expensive cost and its maintenance. In the present work, we have designed a spin coater using Adriano Uno board at a very low cost and the user can program himself to get desired RPM, duration of the rotation. Nano thin film coatings have a wide range of applications particularly in the field of solar cells, anti-reflecting coatings, display devices, anti-corrosion coatings …Etc. One of the cost-effective conducting films is Zinc oxide thin films. Zinc oxide is a direct, wide bandgap [2] with its unique properties which are best suitable for the designing of transparent conducting films, optoelectronic devices…Etc [3]. Further, these properties can be improved by introducing impurity atoms into the ZnO lattice. Many research groups had studied the change in structural, optical properties by adding different dopant elements into the ZnO lattice [4 - 8]. Among these dopant impurity elements, Aluminum has proven a promising element. Hjiri et al. reported that AZO films have a good sensitivity towards gas sensing applications [8]. Y sun et al. reported that the AZO thin films can be used as electrodes for display devices [9]. C. Manoharan et al. reported that AZO thin films can exhibit improved anti-bacterial properties [10]. In this work, an attempt

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The effect of solution pH on the structural, surface morphological, and optical characteristics of ZnO thin films synthesized by the chemical bath deposition technique

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ABSTRACT

The presented work utilizes the chemical bath deposition technique to fabricate zinc oxide nano-thin films on a glass substrate. The quality of synthesized films is dependent on the deposition parameters, which include the solvents and metal salts used, as well as the bathing time and temperature. The impact of the pH value of the solution on the crystal structure, surface morphological, and optical characteristics of zinc oxide thin films was studied in this respect. An XRD diffractometer was used to determine the structural characteristics; a scanning electron microscope was utilized to analyze the surface topology. The linear optical properties were carried out using a UV–VIS spectrometer. The XRD results showed an increase in grain size from 36.06 nm to 42.23 nm as the pH value increased from 8 to 10. The Debye-Scherrer method was utilized to assess crystal grain size and microstrain along (1 0 1) orientation. SEM images showed a significant correlation between grain size distribution and precursor's solution pH. All the deposited films have shown more than 86% optical transparency, suggesting that these obtained films are best suitable for transparent conducting electrodes for display devices. However, the optical transparency of the deposited films has decreased with an increase in pH value, which may be attributed to increased film thickness. The sample deposited at pH: 10 exhibited the minimal optical bandgap of all the samples.

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1. Introduction

Thin films are widely used in various application fields, including non-reflective coatings on mirrors, optical interference filters, corrosion inhibitors, solar radiation absorbing coatings, adhesion improving coatings, and gas/liquid sensors. In the semiconductor device fabrication field, thin films are beneficial as transparent conducting electrodes, flat panel displays, and piezoelectric devices. In contrast to narrow bandgap semiconductor materials, wide bandgap semiconductor materials allow for substituting impurity energy levels, allowing for tuning their optoelectronic characteristics. Some of the wide bandgap semiconductor materials are GaN (3.4 eV) [1], CdS (2.43 eV) [2], ZnS (3.54 eV) [3], TiO_2 (3.20 eV) [4], SnO_2 (3.7 eV) Among these semiconductor materials, GaN is extensively utilized as an active component in the fabrication of optoelectronic devices[5]. On the other hand, the most often used transparent conducting films are ITO (Indium tin oxide) and FTO (Fluorine doped SnO_2) [6,7]. The growing demand for transparent conducting films has compelled the worldwide industry to look for a substitute material. ZnO has garnered the most interest in this respect because of its broad bandgap (3.37 eV) and high excitation energy (60 m eV) [8]. Even though GaN has a wider bandgap than ZnO, it has a lower excitation energy (25 meV) [9]. ZnO films have been suggested as a possible option for TCO films [10] and piezoelectric nanogenerators [11], Anti-corrosion coatings [12], thin-film solar cells [13], gas sensors [14], and anti-bacterial coatings [15] are just a few examples.

Nowadays, various sophisticated film deposition methods are available for the bulk fabrication of thin films, categorized into physical and chemical processes such as pulsed LASER deposition, thermal evaporation, molecular beam epitaxy, chemical vapour deposition, Sol-Gel synthesis .Etc. Almost all the physical synthesis methods have a high degree of vacuum conditions. On the other

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