3.4.3 Research Papers Published During the Year 2022-23

Title of paper	Name of the author/s	Department of the teacher	Name of journal	ISSN number	Is it listed in UGC Care list
Arbuscular mycorrhizal species composition during rainy season from polluted sites and their role biofertilizer	Ashwini Deshpande	Botany	International Journal of Food and Nutritional Science	2320-7876	YES
Arbuscular mycorrhizal species composition during rainy season from polluted sites and their role biofertilizer	Mahavir Gosavi	Botany	International Journal of Food and Nutritional Science	2320-7876	YES

PRINT ISSN 2319-1775 e-ISSN 2320-7876, www.ijfans.org
Volume.11, Issue13, Nov- 2022

UGC CARE Listed (Group -I) Journal

Research Paper

Arbuscular Mycorrhizal Species Composition During Rainy Season From Polluted Sites And Their Role As Biofertilizer

Mrs. Ashwini Deshpande[1], Dr. Mahavir Gosavi[2]
[1]Assistant Professor, Department of Botany, SIES College of Arts, Science and Commerce (Autonomous), Sion(W), Mumbai. [University of Mumbai]
[2]Associate Professor and Head, Department of Botany, SIES College of Arts, Science and Commerce (Autonomous), Sion(W), Mumbai. [University of Mumbai]

Abstract:
Arbuscular mycorrhizae (AM) exhibit the most positive obligate symbiotic relationship, with roots of majority of plants. They show higher ecological amplitude under adverse environmental conditions. The current study deals with the study of diversity of AM fungi during rainy season with respect to rhizosphere soil analysis for AM species composition and their subsequent role as bio-fertilizer. Spores of *Glomus, Sclerocystis* and *Scutellospora* were observed. The observed species were also detected in root colonization analysis, using standard staining methods. The spore density was highest for *Glomus*. It proved to be a dominant species. The application of bio-fertilizer product prepared with these dominant species was proved to be a potent bio-fertilizer in the field trials with chili crop.

Evaluation of antibacterial, antioxidant and seed germination potential of Biosynthesized silver nanoparticles from bark extracts of Ailanthus excelsa Roxb.	Neeraja Tutakne	Botany	The Journal of Plant Science Research	0970-2539	YES

Jour Pl Sci Res **39 (1)** 17–28 2023

Evaluation of Antibacterial, Antioxidant and Seed Germination Potential of Biosynthesized Silver Nanoparticles from Bark Extract of *Ailanthus excelsa* Roxb.

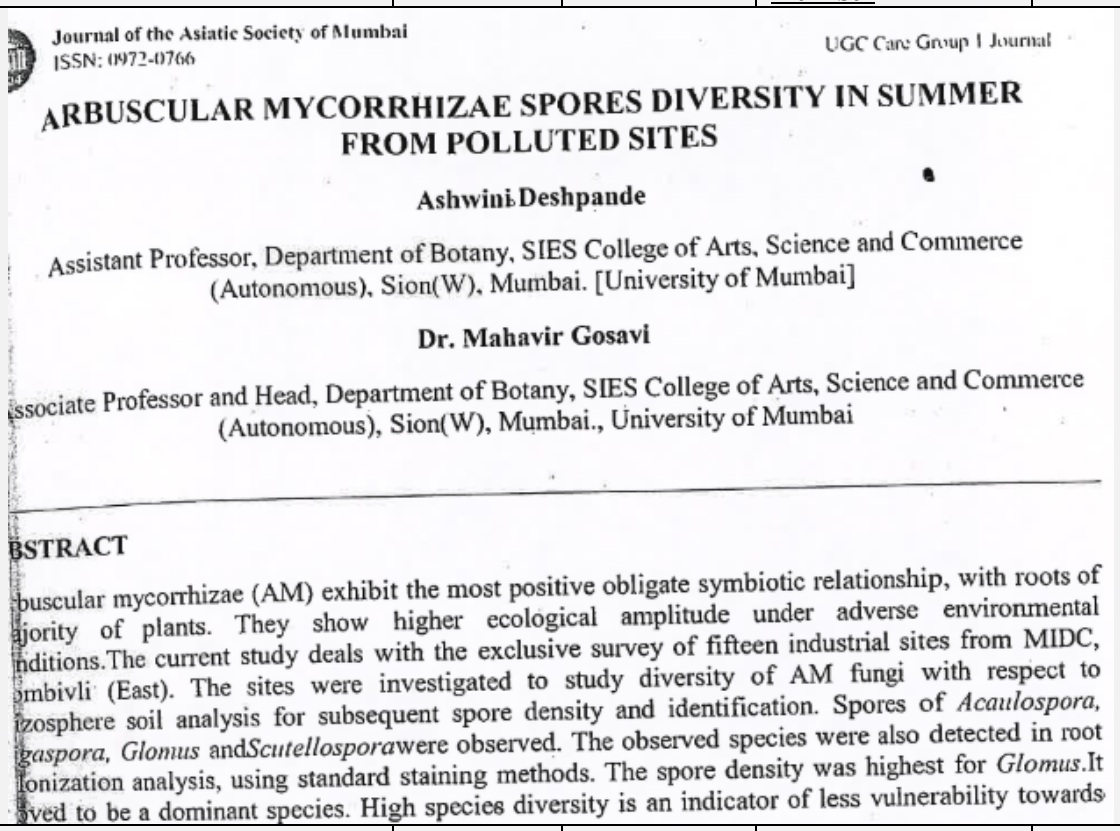
Sumita Nair* and Neeraja Tutakne

Department of Botany, SIES College of Arts, Science and Commerce (Autonomous), Sion (W), Mumbai, India.

**Corresponding author email: sumitanair7@gmail.com*

Nanotechnology, an emerging scientific domain promises potential applications in varied sectors. Currently, research in nanotechnology focuses on the optimization of nanoparticle synthesis. Green synthesis of nanoparticles is an economic and non-toxic alternative to conventional methods. In the present study, aqueous bark extract of *Ailanthus excelsa* Roxb. was used for the biosynthesis of silver nanoparticles (AgNPs). UV-Visible Spectroscopy confirmed the presence of AgNPs with an absorption Surface Plasmon Peak at 450nm. Biosynthesized AgNPs and bark extract were investigated using Fourier Transform Infrared Spectroscopy (FTIR) for determining the functional groups in phytochemicals that act as reducing and capping agents in the synthesis process. High-Resolution Transmission Electron Microscopy (HRTEM) analysis denotes that AgNPs were predominantly spherical, with an average size of 18.84 ± 2.28nm. The

Arbuscular mycorrhizae spores diversity in summer from polluted sites	Mahavir Gosavi	Botany	Journal of the asiatic society of mumbai	0972-0766	YES
Arbuscular mycorrhizae spores diversity in summer from polluted sites	Ashwini Deshpande	Botany	Journal of the asiatic society of mumbai	0972-0766	YES



Journal of the Asiatic Society of Mumbai
ISSN: 0972-0766

UGC Care Group 1 Journal

ARBUSCULAR MYCORRHIZAE SPORES DIVERSITY IN SUMMER FROM POLLUTED SITES

Ashwini Deshpande

Assistant Professor, Department of Botany, SIES College of Arts, Science and Commerce (Autonomous), Sion(W), Mumbai. [University of Mumbai]

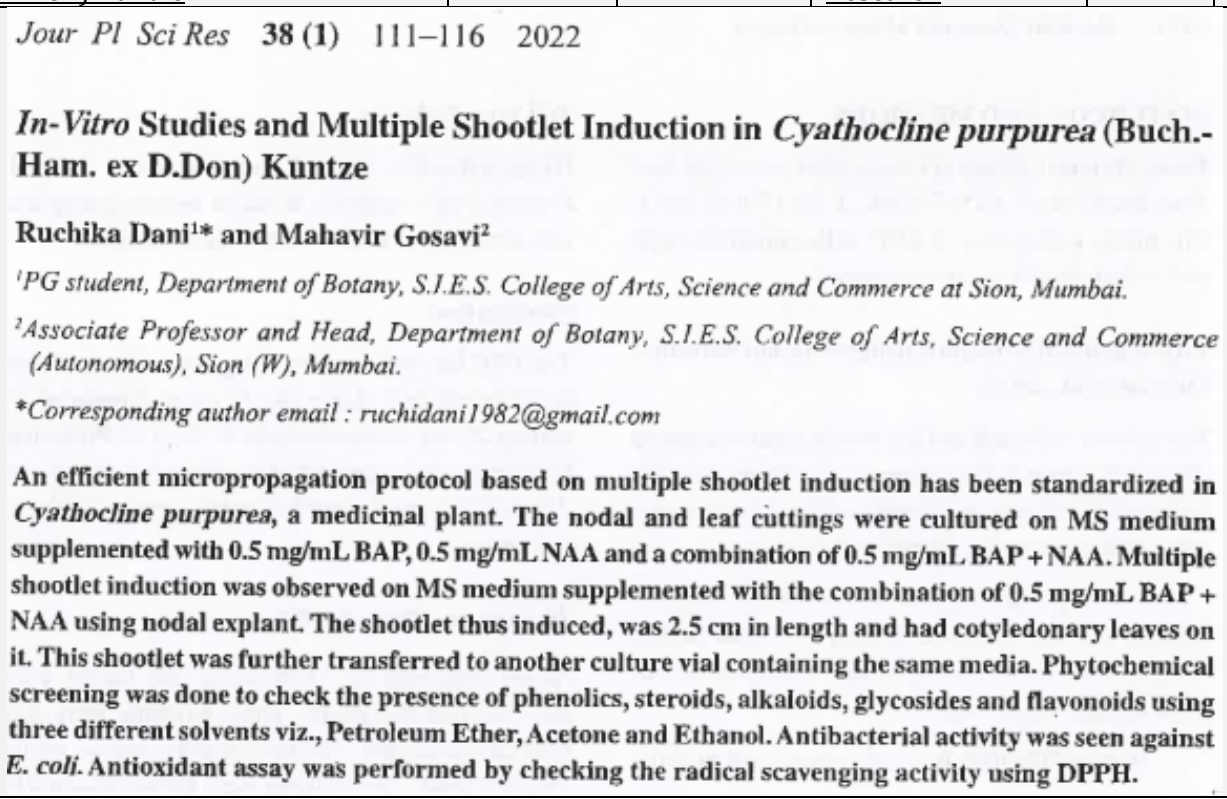
Dr. Mahavir Gosavi

ssociate Professor and Head, Department of Botany, SIES College of Arts, Science and Commerce (Autonomous), Sion(W), Mumbai., University of Mumbai

BSTRACT

buscular mycorrhizae (AM) exhibit the most positive obligate symbiotic relationship, with roots of jority of plants. They show higher ecological amplitude under adverse environmental nditions.The current study deals with the exclusive survey of fifteen industrial sites from MIDC, mbivli (East). The sites were investigated to study diversity of AM fungi with respect to izosphere soil analysis for subsequent spore density and identification. Spores of *Acaulospora*, *gaspora*, *Glomus* and*Scutellospora*were observed. The observed species were also detected in root lonization analysis, using standard staining methods. The spore density was highest for *Glomus*.It ved to be a dominant species. High species diversity is an indicator of less vulnerability towards

In-Vitro Studies and Multiple Shootlet Induction in Cyathocline purpurea (Buch.-Ham. ex D.Don) Kuntze	Mahavir Gosavi	Botany	The Journal of Plant Science Research	0976-3880	YES
In-Vitro Studies and Multiple Shootlet Induction in Cyathocline purpurea (Buch.-Ham. ex D.Don) Kuntze	Ruchika Dani	Botany	The Journal of Plant Science Research	0976-3880	YES



Jour Pl Sci Res **38 (1)** 111–116 2022

In-Vitro Studies and Multiple Shootlet Induction in *Cyathocline purpurea* (Buch.-Ham. ex D.Don) Kuntze

Ruchika Dani[1]* and Mahavir Gosavi[2]

[1]*PG student, Department of Botany, S.I.E.S. College of Arts, Science and Commerce at Sion, Mumbai.*

[2]*Associate Professor and Head, Department of Botany, S.I.E.S. College of Arts, Science and Commerce (Autonomous), Sion (W), Mumbai.*

**Corresponding author email : ruchidani1982@gmail.com*

An efficient micropropagation protocol based on multiple shootlet induction has been standardized in *Cyathocline purpurea*, a medicinal plant. The nodal and leaf cuttings were cultured on MS medium supplemented with 0.5 mg/mL BAP, 0.5 mg/mL NAA and a combination of 0.5 mg/mL BAP + NAA. Multiple shootlet induction was observed on MS medium supplemented with the combination of 0.5 mg/mL BAP + NAA using nodal explant. The shootlet thus induced, was 2.5 cm in length and had cotyledonary leaves on it. This shootlet was further transferred to another culture vial containing the same media. Phytochemical screening was done to check the presence of phenolics, steroids, alkaloids, glycosides and flavonoids using three different solvents viz., Petroleum Ether, Acetone and Ethanol. Antibacterial activity was seen against *E. coli*. Antioxidant assay was performed by checking the radical scavenging activity using DPPH.

Synthesis of alkyl levulinate as fuel blending agent by catalytic valorization of carbohydrates via alcoholysis: Recent advances and challenges	Kirtikumar C. Badgujar	Chemistry	Catalysis Today	1873-4308	YES

Catalysis Today 408 (2023) 9–21

Contents lists available at ScienceDirect

Catalysis Today

journal homepage: www.elsevier.com/locate/cattod

Synthesis of alkyl levulinate as fuel blending agent by catalytic valorization of carbohydrates via alcoholysis: Recent advances and challenges

Kirtikumar C. Badgujar [a,b], Vivek C. Badgujar [a,c], Bhalchandra M. Bhanage [a,*]

[a] Department of Chemistry, Institute of Chemical Technology, Matunga, Mumbai 400019, India
[b] Department of Chemistry, SIES College of Arts, Science & Commerce, Mumbai 400022, India
[c] Department of Chemistry, Pratap College of Arts, Science & Commerce, Amalner 425401, India

ARTICLE INFO

Keywords:
Alcoholysis
Alkyl levulinate
Fuel blending agent
Catalytic valorization
Bronsted Lewis acid catalyst

ABSTRACT

Alkyl levulinate moieties are recognized as the most attractive and potential energy compounds due to their excellent fuel additive/blending properties and commercial applications. These alkyl levulinates can be efficiently synthesized by the Bronsted and Lewis acid catalytic valorization of carbohydrates through alcoholysis reaction. However, potential production of alkyl levulinate at the industrial scale-up is still a challenging issue which demands for an overview of current research advances in the field to expand the knowledge horizon and scope for the future perspective. With this objective, the present review is planned to emphasize the recent update on (i) catalytic valorization of carbohydrates via alcoholysis, (ii) fuel blending potential of levulinates (iii) factors affecting (catalyst, solvent, feedstock) alcoholysis reaction and (iv) mechanistic view for alcoholysis of carbohydrates. Moreover, this review also emphasizes future prospects in terms of opportunities/challenges for the sustainable production of alkyl levulinate from carbohydrates through alcoholysis.

Highly efficient magnetically separable Zn-Ag@l-arginine Fe3O4 catalyst for synthesis of 2-aryl-substituted benzimidazoles and multicomponent synthesis of pyrimidines	Nitin A. Mirgane	Chemistry	Results in chemistry	2211-7156	YES

Results in Chemistry 4 (2022) 100655

Contents lists available at ScienceDirect

Results in Chemistry

journal homepage: www.sciencedirect.com/journal/results-in-chemistry

Highly efficient magnetically separable Zn-Ag@L-arginine Fe_3O_4 catalyst for synthesis of 2-aryl-substituted benzimidazoles and multicomponent synthesis of pyrimidines

Padmakar A. Kulkarni [a], Sandeep S. Kahandal [b], Nitin A. Mirgane [c], Ashis Kumar Satpati [d], Suresh S. Shendage [a,*]

[a] Department of Chemistry, KET'S Vinayak Ganesh Vaze, College of Arts, Science and Commerce, (Autonomous), Mithagar Road, Mulund (E), Mumbai 400081, India
[b] Department of Chemistry, VPM's B. N. Bandodkar College of Science, (Autonomous) Jnanadweepa, Chendani Bunder Road, Thane (W), Thane 400601, India
[c] Post Graduate Department of Chemistry, SIES College of ASC, Sion (West) affiliated to University of Mumbai, Mumbai 400 022, India
[d] Analytical Chemistry Division, Bhabha Atomic Research Centre, Homi Bhabha National Institute, Trombay, Mumbai 400 085, India

ARTICLE INFO

Keywords:
Zn-Ag @L-arginine Fe_3O_4
Benzimidazole
Pyrimidine
Magnetic Nanocatalyst

ABSTRACT

A general and efficient one pot protocol has been developed for the synthesis of benzimidazoles and pyrimidines using Zn and Ag@L-arginine Fe_3O_4 as a heterogeneous catalyst. The prepared catalyst provided good yields of the corresponding products within a short reaction time. Catalyst was characterized by using XRD, TEM, FEG-SEM, EDS, XPS, Raman, CHNS and FT-IR. The present method provided high yields of the products with wide substrates scope. The catalyst could be reused five cycles without a significant loss of catalytic activity.

Recent update on use of ionic liquids for enzyme immobilization, activation, and catalysis: A partnership for sustainability	Kirtikumar C. Badgujar	Chemistry	Current Opinion in Green and Sustainable Chemistry	2452-2236	YES

Available online at www.sciencedirect.com

ScienceDirect

Current Opinion in Green and Sustainable Chemistry

ELSEVIER

Recent update on use of ionic liquids for enzyme immobilization, activation, and catalysis: A partnership for sustainability

Kirtikumar C. Badgujar[1,2], Vivek C. Badgujar[3] and Bhalchandra M. Bhanage[1]

Abstract

Recent literature survey suggested that, ionic liquid not only possesses potential as a green solvent, but also plays a significant role in enzyme immobilization, activation, stabilization, and catalysis. Furthermore, biocatalysis in ionic liquids (IL) may be a key sustainable solution for the next generation chemical processes, which requisite extensive research efforts to expand the knowledge horizons in this field. In view of this, the present review highlights the recent update of potential applications of IL in biocatalysis for (i) biomass pretreatment/hydrolysis, (ii) enzyme immobilization-activation, (iii) organic transformation, (iv) bioremediation, and (v) biosensing. Moreover, this review also addresses the challenging issues and future outlook of this research area for the industrial development in near future.

organic substrates displayed poor solubility in water, which restricts the industrial organic synthetic applications of biocatalysis at large scale [2]. In contrast to this, organic substrates showed better solubility in organic media wherein enzyme showed usually lower activity. Further, use of organic solvents at large scale typically possess non-green limitations such as flammability, volatility, non-safe handling, toxicity, and high cost of solvent recovery/distillation [2]. Based on principles of green and sustainable chemistry, there is a rising attention to develop enzyme compatible water like non-aqueous solvent systems which can stabilizes the enzymes for catalytic activity and promote the solubility of organic substrates for transformations [3]. In recent years, the Newton's designer solvent ionic liquids (ILs) have

Study of (n,p), (n, alpha) and (n,2n) reactions of stable and radio-nuclides produced in a reactor environment	Vishal Desai	Physics	Pramama journal of physics	0973-7111	YES

Study of (n, p), (n, α) and (n, 2n) reactions of stable and radio-nuclides produced in a reactor environment

V V DESAI[1,2]*, * and I MAZUMDAR[1,*]

[1]Department of Nuclear and Atomic Physics, Tata Institute of Fundamental Research, Mumbai 400 005, India
[2]Department of Physics, SIES College of Arts, Science and Commerce, Mumbai 400 022, India
*Corresponding authors. E-mail: indra@tifr.res.in; vishal.desai001@gmail.com

MS received 19 July 2022; revised 10 October 2022; accepted 21 October 2022

Abstract. The knowledge of the neutron-induced reaction cross-section is important, especially, for the fusion and fission reactor technologies. In the absence of experimental data or for cases where measurements are difficult, theoretical predictions of nuclear cross-sections are needed to be improved upon using refined model calculations or effective semi-empirical formulas. Accurate, physics-based modelling of neutron-induced reactions is key to all nuclear science and technology applications. In the present work, the excitation functions for (n, p), (n, α) and (n, 2n) reactions up to 20 MeV for stable isotopes of Ti, Cr, Mn, Fe, Co, Ni, Cu, etc. are calculated using the EMPIRE-3.2 nuclear reaction model code using optimised values of input parameters. The experimental data available in EXFOR database for these stable isotopes are reproduced to determine the optimum parameters. The optimised parameters, so obtained, are then used to calculate the reaction cross-sections for a series of unstable nuclides for the incident neutron energy of 1–20 MeV. The calculated cross-sections are compared with the evaluated data available in literature (ENDF). We have also compared our results with the estimated cross-sections using available empirical formulas. Based on the calculations, we recommend a reliable set of parameters to estimate the (n, p), (n, α) and (n, 2n) cross-sections for unstable nuclides in the mass region $A \sim 40$–70.

Recent Development of Aluminates in Solid State Lighting	Aarti Muley	Physics	Progress in Solid State Chemistry	0079-6786	YES

Progress in Solid State Chemistry xxx (xxxx) xxx

Contents lists available at ScienceDirect

Progress in Solid State Chemistry

journal homepage: www.elsevier.com/locate/pssc

ELSEVIER

Recent development of aluminate materials for solid state lighting

Aarti Muley [a], Samiksha B. Dhoble [b], Pooja Ramesh [a], Ram Sagar Yadav [c,**], Sanjay J. Dhoble [b,*]

[a] SIES College of Arts, Science and Commerce (Autonomous), Mumbai, 400022, India
[b] Department of Physics, R.T.M. Nagpur University, Nagpur, 440033, India
[c] Department of Zoology, Institute of Science, Banaras Hindu University, Varanasi, 221005, India

ARTICLE INFO

Keywords:
Aluminate phosphors
Synthesis methods
Crystal structure
Luminescence
Applications

ABSTRACT

Different phosphors emit different wavelengths of light depending upon the doped impurity ions. They have various applications in the technological fields. Therefore, the majority of research is accelerated in terms of energy saving and eco-friendly devices. The enormous and countless research in the aluminate materials have shape up the new era of solid state lighting in terms of illumination, small size, energy saving, long lasting eco-friendly phosphors, etc. Aluminates are the low cost and easily available materials and have the potential to fulfill almost all the properties that are required for illumination. The scientists have accelerated progressively more economical techniques, which are useful for technological advancement as well as mass production of the materials. This article highlights the recent development in aluminate materials in terms of their synthesis process, investigation in crystal structure, crystal field splitting and effect of energy band gap along with luminescence properties and lifetime measurements. Some of the earlier investigations showed the limitations and recent critically challenged investigations have also been discussed in this article. This article also includes various applications of these aluminate materials.

Jalsandharan Va Vyavasthapan: Mahilancha Sahbhagh	Rashmi Bhure	Politics	Parivartanacha Watsaru	2250-3145	YES

संशोधन

जलसंधारण व व्यवस्थापन : महिलांचा सहभाग

मेधा ढापरे
व
रश्मी भुरे

जागतिक महिला दिन ८ मार्च २०२३चे घोषवाक्य 'न्याय्यतेची गळाभेट' (Embrace Equity) आणि आंतरराष्ट्रीय जल दिन २३ मार्च २०२३चे घोषवाक्य 'भागीदारी व सहकार्याद्वारे वेगवान बदल' (Accelerating the Change with Partnership and Cooperation) ही आहेत. महिला व पाणी हे परस्परांशी संबंधित आहेत. पाण्याशी निगडित हणाऱ्या वेगवान बदलांमध्ये सर्वसमावेशकता व महिलांना जलव्यवस्थापनामध्ये प्राधान्याने न्याय्य वागणूक अशा रीतीने दोन्ही घटकांची सांगड घालता येते. जलसाक्षरता व जलव्यवस्थापनामध्ये समाजातील विविध घटकांचे सहकार्य व त्यांच्यातील भागीदारीमध्ये महिलांचा सहभाग हे भविष्यकालीन पाणी टंचाईवर मात करण्यासाठी आवश्यक आहे.

पाणी परिमित नैसर्गिक साधन संपत्ती आहे. पाण्याचे पुनर्भरण पावसावर अवलंबून असल्यामुळे ते अनिश्चित स्वरूपाचे आहे. औद्योगिकीकरण व त्यामुळे वाढते शहरीकरण, भूपृष्ठावरील पाण्याची अपधाव (runoff of surface water), भूगर्भातील पाण्याचा अनियंत्रित उपसा, पाण्याची मर्यादित साठवण क्षमता, असमान व अनियमित पाऊस, वाढत्या लोकसंख्येमुळे पाण्याची वाढती मागणी या सर्व बाबींमुळे जागतिक पातळीवर पाण्याचे दुर्भिक्ष्य मोठ्या प्रमाणात जाणवत आहे.

दोन्ही लेखिका अनुक्रमे कीर्ती एम. डुंगरसी महाविद्यालय, दादर, मुंबई आणि एस. आय. ई. एस. कला, विज्ञान व वाणिज्य महाविद्यालय, सायन, मुंबई येथे राज्यशास्त्राच्या विभागप्रमुख आहेत.
dhapremedha16@gmail.com
rsbhure@gmail.com

जागतिक जलदिना निमित्ताने (२२ मार्च २००२) संबोधित करतांना संयुक्त राष्ट्र सचिव कोफी अन्नान यांनी असे मत मांडले की, सन २०२५पर्यंत जगातील दोन तृतीयांश लोकसंख्या मध्यम किंवा तीव्र पाणीटंचाई असलेल्या देशांमध्ये राहण्याची शक्यता आहे. जलस्रोतांवरील तीव्र राष्ट्रीय स्पर्धेमुळे पाण्याच्या प्रश्नात हिंसक संघर्षाची बीजे असल्याची भीती निर्माण झाली आहे (Annan, 2002).

पर्यावरणवादी विचारवंत वंदना [illegible]

Role of influencer marketing in branding	Vaneta Raney	Mass media	Shodhaprabha	0974-8946	YES

शोधप्रभा
Shodha Prabha (UGC CARE Journal)
ISSN: 0974-8946
Vol. 48, द्वितीया अंक, Book No.06:2023

ROLE OF INFLUENCER MARKETING IN BRANDING

Dr. Arti Sharma, Assistant Professor, VIVA Institute of Management and Research
Dr. Vaneeta Raney, Assistant Professor cum Program Coordinator-Mass Media SIES College of Arts, Science, and Commerce,Sion,Mumbai, Email address: vaneetar@sies.edu.in

Abstract
The research paper throws light on the intricacies of influencer marketing as an up and coming phenomenon that is becoming crucial to brands in today's economy. With the persistent and formidable increase of screen time among individuals the importance and role of influencers is paramount. Through the following research paper the researcher strives to convey the power of persuasion that influencers today hold given the plight of social media use. Qualitative secondary research approach was utilized to exhibit a conclusive, thorough and pragmatic understanding of influencer marketing. It seeks to present to brands and consumers alike the hold influencers have over their audience and this can be tapped into via suitable means.

Determination of Antioxidant and Anti quorum Sensing Activity of Aegle marmelos Picrorrhiza kurroa and Swertia chirayita	Pramod Kamble	Microbiology	Defence Science Journal	2456-0537	YES
Determination of Antioxidant and Anti quorum Sensing Activity of Aegle marmelos Picrorrhiza kurroa and Swertia chirayita	Manju Phadke	Microbiology	Defence Science Journal	2456-0537	YES

Defence Life Science Journal, Vol. 7, No. 3, July 2022, pp.179-184, DOI : 10.14429/dlsj.7.17890

Determination of Antioxidant and Anti-quorum Sensing Activity of *Aegle marmelos*, *Picrorrhiza kurroa*, and *Swertia chirayita*

Pramod Ananda Kamble[#,*] and Dr. Manju Phadke[$]
[#]*Department of Biotechnology, SIES College of Arts, Science and Commerce, Mumbai 400 022, India*
[$]*Department of Microbiology, SIES College of Arts, Science and Commerce, Mumbai 400 022, India*
**Email: pramodk@sies.edu.in*

ABSTRACT

From the ancient period, humans have been fighting pathogenic microorganisms for survival purposes and in this context, man has developed antibiotics as a powerful weapon to treat various infections caused by pathogens. Nevertheless, the need to discover new antimicrobial agents is increasing at an alarming rate. This is because the microorganisms have developed various mechanisms to resist the action of antibiotics. One such mechanism is the production of biofilm. Infections caused by biofilm-forming pathogenic microorganisms are very difficult to treat, even using potent antibiotics. However, in folk medicine, many plants are found to be helpful to treat certain infectious diseases. This is because of the synthesis of a variety of bioactive compounds by plants with high medicinal value. Hence, in the present study, three different plants were used viz *Aegle marmelos*, *Picrorrhiza kurroa*, and *Swertia chirayita* to determine their antioxidant and anti-quorum sensing activities. According to the literature, antioxidants delay the oxidation process and nullify the effect of free radicals that cause damage and accelerate aging. Quorum sensing is the chemical way of communication between biofilm-forming microorganisms.