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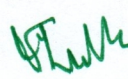
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ARTIFICIAL INTELLIGENCE

# CAPTURING ARTIFICIAL INTELLIGENCE IN PRESENT SCENARIO



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**Dr. Sadhana Kesharwani** is a Professor and Head, Department of Zoology & Biotechnology. She has received the prestigious Award Environmentalist of the year, Eminent Biotechnologist, Excellent Teacher, FSLSC fellowships and published over 70 Research Papers/Articles, 04 Books at the National and International levels. Dr. Sadhana has attended/presented research at over 70 above Conferences, Seminars, Workshops and has given several invited speeches. She has guided 05 Ph.D students, with three successfully completing their degrees.

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IMPORTANCE OF CAREER COUNSELING AND MOTIVATION IN HIGHER EDUCATION

**22 May 2024**

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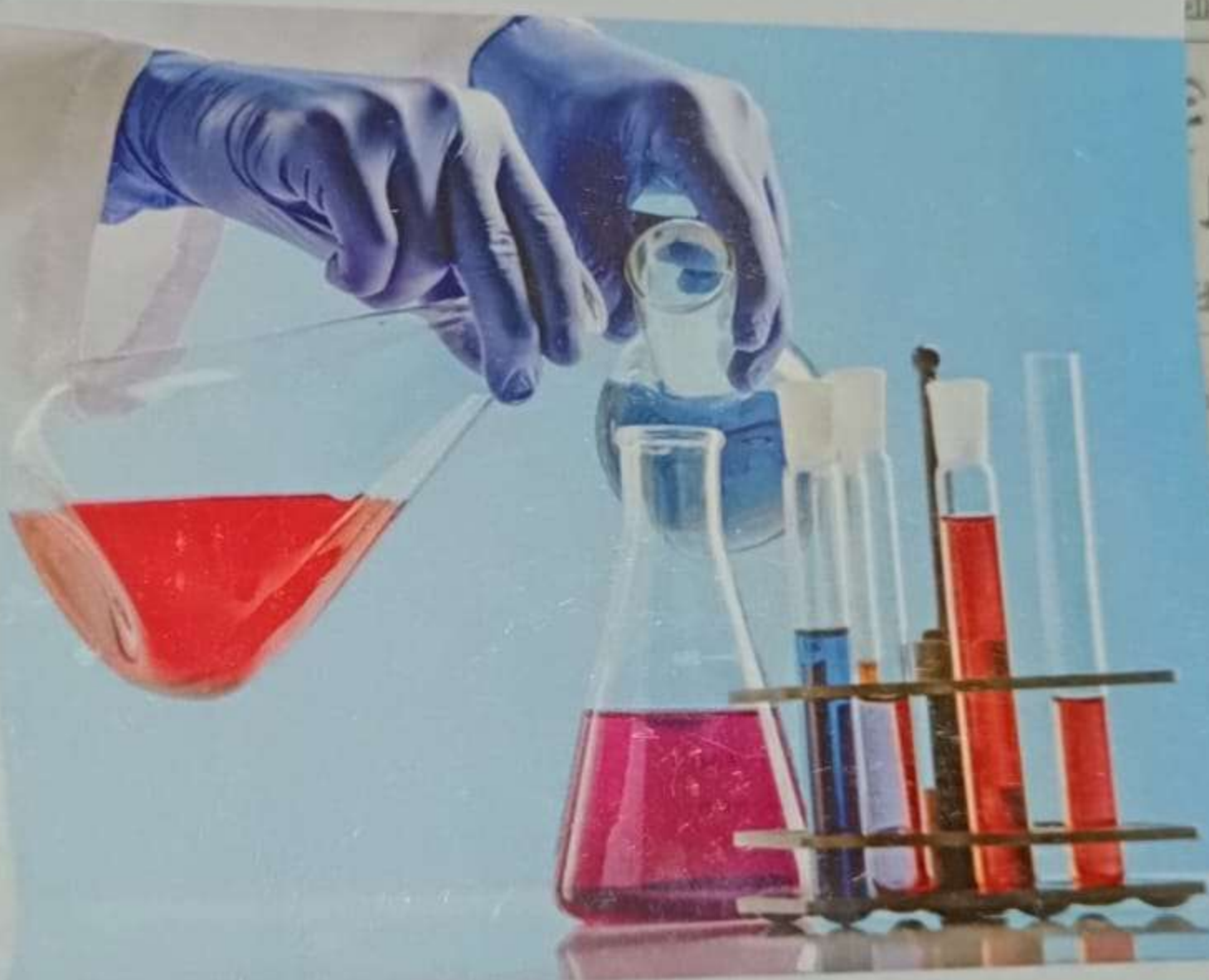
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# An Introduction to GREEN CHEMISTRY



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**Dr. Nisha Singh**, Born in district Rewa (M.P.) completed PhD in chemistry 2019 from the Research Institute government science college Jabalpur and MSc in chemistry 2011 from Government Girls College Rewa MP. 5 year teaching experience, presently working as a guest lecturer in the department of Higher Education Bhopal Madhya Pradesh and presently posted in the department of chemistry in government MH College of Home Science and Science for Women Jabalpur MP, autonomous. 06 research paper published in reputed journal, 01 patent are also published. 04 abstract has also been published and 01 book published in Medicinal Chemistry at national level.



**Dr. Sanjay Kumar Singh** is currently Professor, Chemistry at Department of Applied Sciences and Humanities, Institute of Engineering and Technology, Lucknow. He obtained his M.Sc. degree from Allahabad University in 1987 and completed his Ph.D. degree in 1993. He has been teaching courses on Engineering Chemistry, Applied Chemistry, Environment and Ecology at B.Tech. level for more than 32 years. He has published more than 88 research papers/articles in reputed journals, 04 Patents and 15 Text books on Engineering Chemistry, Chemistry and Environment & Ecology. Currently he is Chairman BoS of Engineering Chemistry, Environment & Ecology at Dr APJ Abdul Kalam Technical University, Lucknow. His interest areas are Engineering Chemistry, Applied Chemistry, Environmental Science, Energy and Synthesis.

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# AN INTRODUCTION TO ANALYTICAL CHEMISTRY

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**Dr. Sadhana Kesharwani** is an accomplished Zoology Educator with 38 years of **experience teaching undergraduate and postgraduate classes**, specializing in cell biology and limnology. Currently serving as the Head of the Department of Zoology and Biotechnology at Government M.H. College of Home Science and Science, Jabalpur. Author of three books on Zoology and Biotechnology, and "Narmada Rupayan" to fulfill her spiritual inclination. Recipient of esteemed accolades such as Environmentalist of the Year 2011 by NESANew Delhi, Best Worker 2022 for Academic and Curricular Activities by All India Women's Conference, Jabalpur, Eminent Biotechnologist Award 2023 by ABRF Prayagraj, Excellent Teacher Award 2023 by Election Commission Sweep, Jabalpur. Honored with F.S L.Sc and F.A.B.R.F fellowships. As a Research mentor, She has guided 05 Ph.D. Students, with three successfully completing their degrees. Her Prolific research output includes 72 Papers published in national and international journals, along with numerous oral Presentations and Participations in seminars and workshops. She serves as Editor/Associate Editor for various Journals and Magazines.

**Dr. Arjun Shukla** is Faculty of the Department of Zoology, Govt. M.H. College of Home Science, Jabalpur (M.P.). Dr. Arjun has significantly contributed in the field of Zoological Science. He has worked on the Fauna of Jabalpur on Narmada River. He has done his research on Biomonitoring study of River Narmada in Jabalpur region with special reference to Benthic Macroinvertebrates. Dr. Arjun wrote a book titled Narmada Nadi nahi Sabhyata, Scientific Confluence of River Narmada, Navaratri Smriti, Narmada Smriti, Science for People and People for Science, Odonata : a Scientometric study, Butterfly : Beauty of Jabalpur and The Journey of Entomology. Dr. Arjun has received 14 World Records. viz. He has published 104 International Research/Review Papers, 116 Research abstracts and wrote about his study in 30 National Science magazines, 13 Book Chapter and 10 Books. After a brilliant academic career he got 105 Awards/Appreciation and 23 Honorary Fellowships in Science discipline, he was honored by Bharat Shree, Bharat Bhushan, Vigyan Shree, Narmada Ratna, Vigyan Ratna, Paryavaran Ratna, Paryavaran Shri, Fame Icon Award, Asia's Top 50 Researcher Award, Environmentalist of the Year, International Young Entomologist Award, International Life time Best Researcher Award and The Golden Start Icon Award. He appointed as the chairman of Jabalpur division of National Society of India ESW Society (Environment and Welfare), he appointed as editor of International Magazine Research Review as well as a Subject expert and Chief guest in many institutes to aware students about his research. Dr. Arjun has been organizing a grand Garba on Navratri in collaboration with Tripuri Times since 2017.



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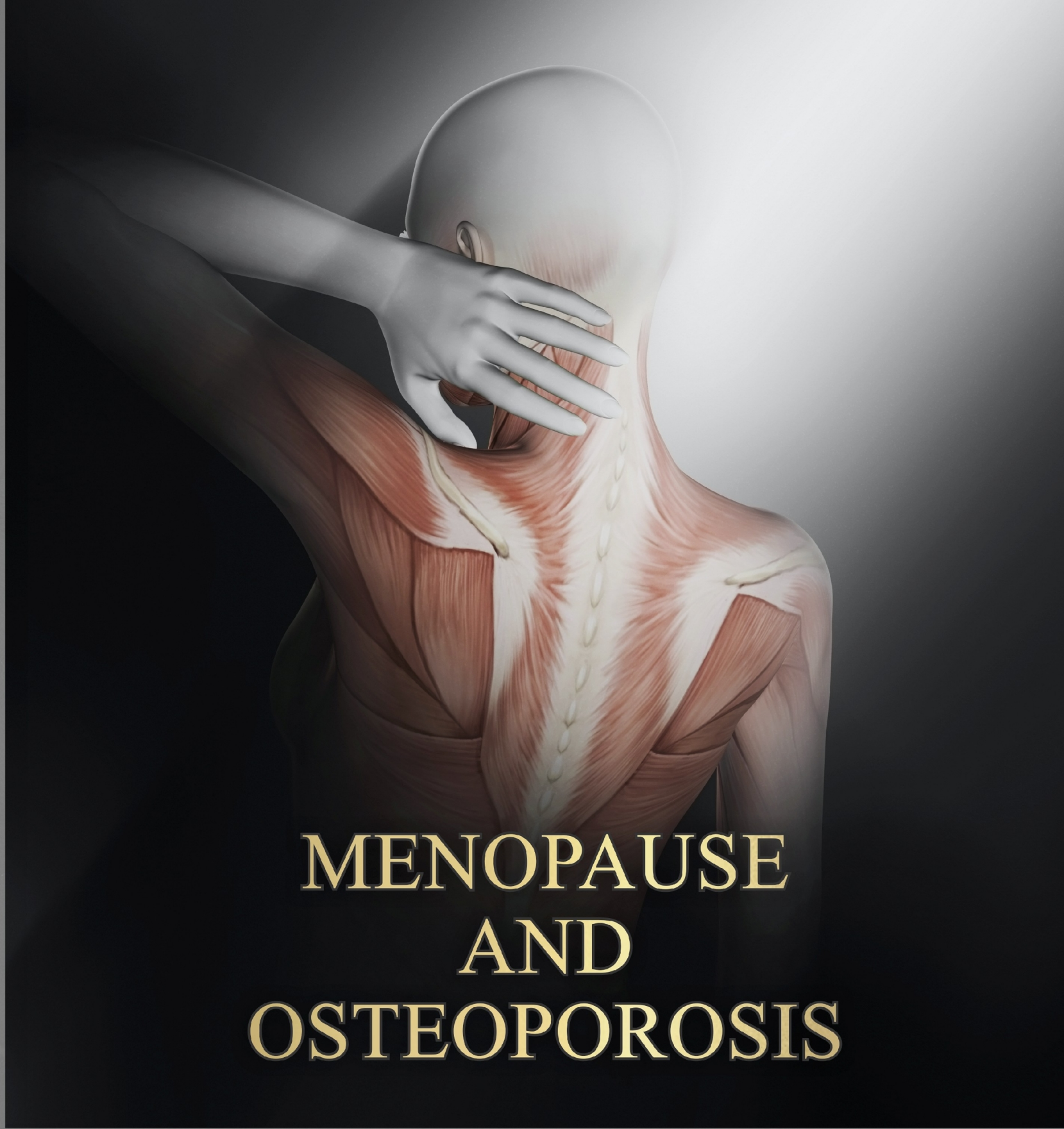
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MENOPAUSE AND OSTEOPOROSIS : DR. SMITA PATHAK & VIBHA SHRIPAL



# MENOPAUSE AND OSTEOPOROSIS

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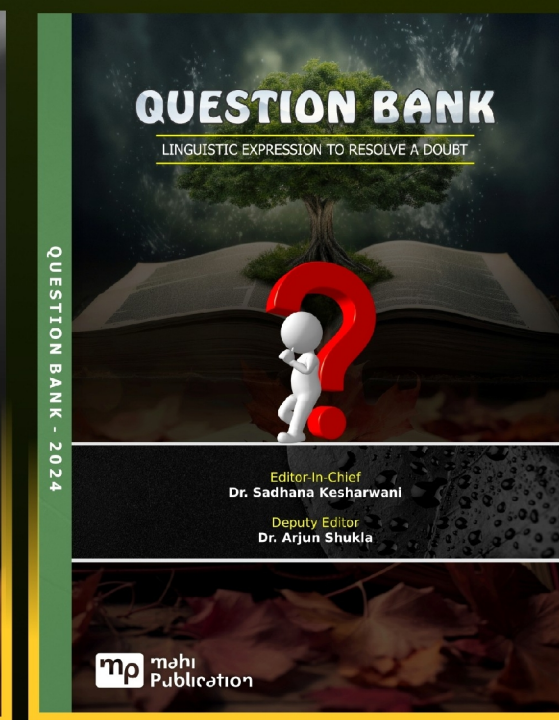
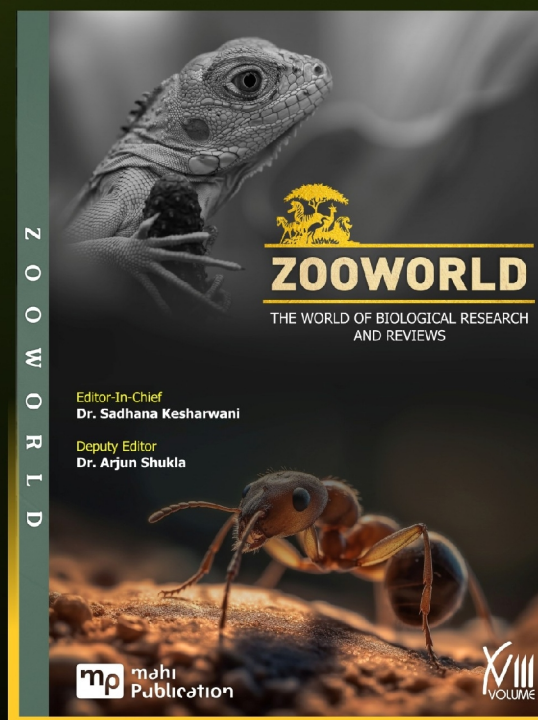
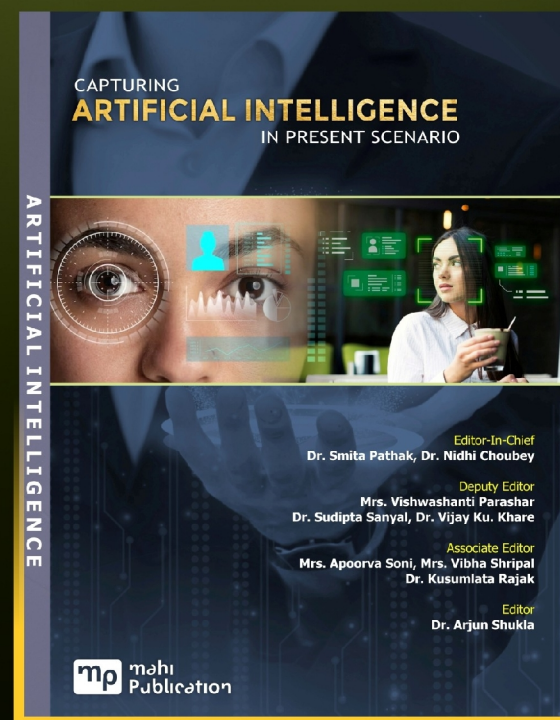
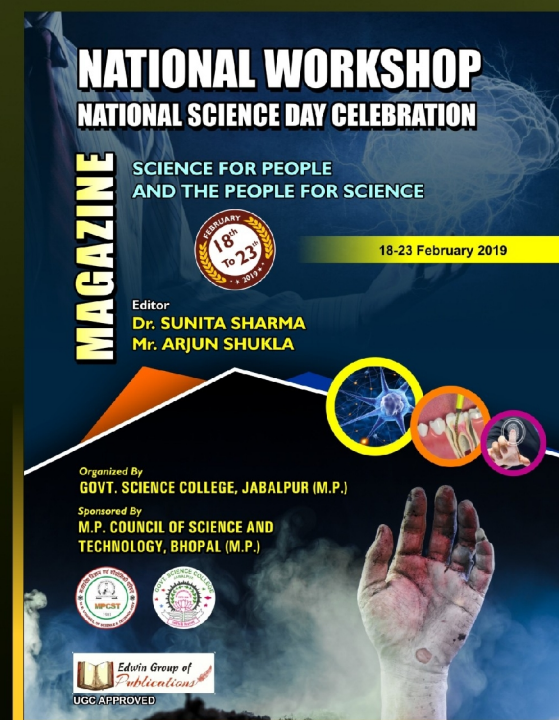
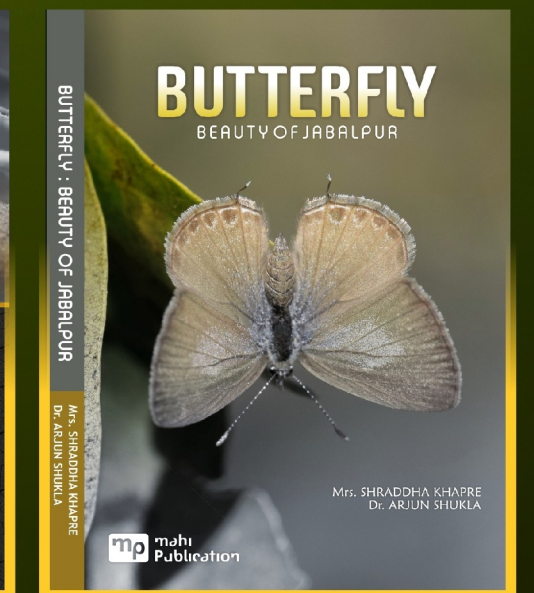
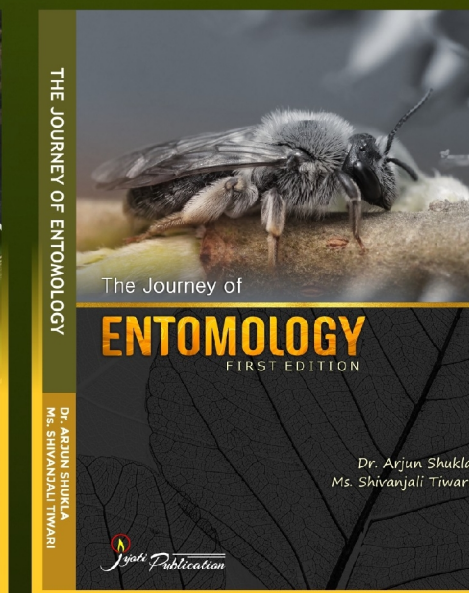
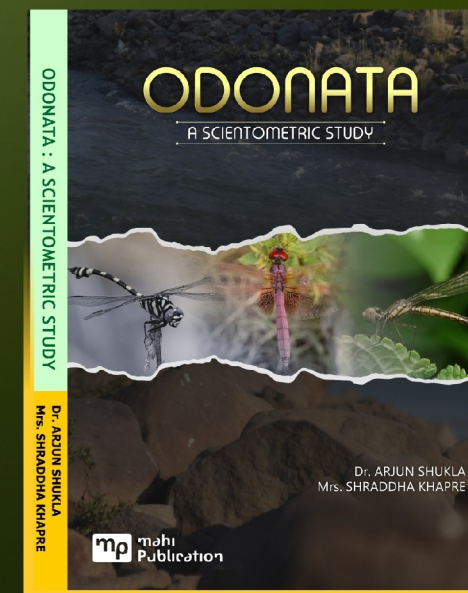
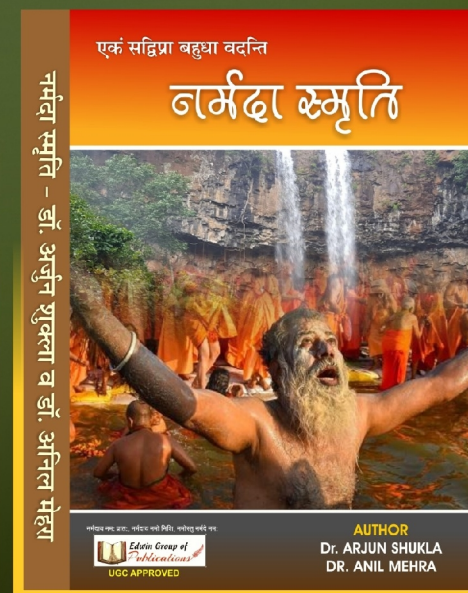
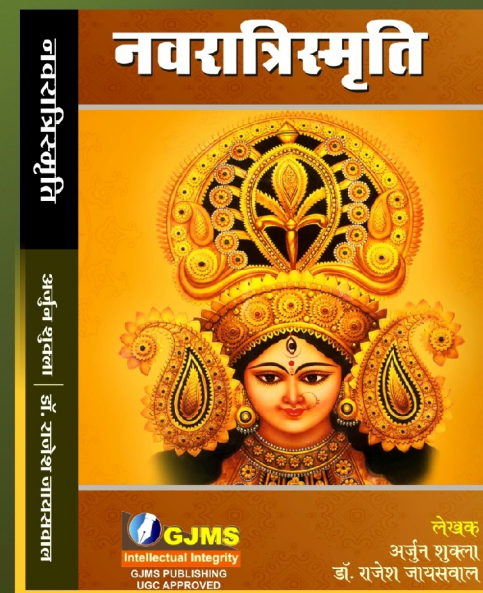
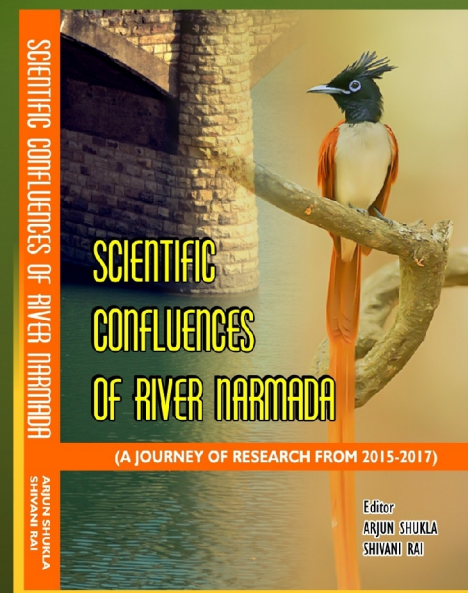
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**Dr. Anuradha Dave** is a distinguished academician serving as the Professor and Head of the Department of Botany and Microbiology at Government M.H. College for Science for Women in Jabalpur. Her academic journey is marked by notable qualifications including B.Sc, M.Sc, M.Phil, and Ph.D, with a specialization in Plant Pathology. Dr. Dave is recognized as a subject expert in Genetics and Biotechnology, with an impressive teaching experience spanning 38 years at both undergraduate and postgraduate levels. She commenced her career as an Assistant Professor on April 19, 1986. With a robust research background, Dr. Dave has contributed significantly to her field with over 20 research papers and book chapters published in various national and international journals. She has also presented more than 15 papers orally in seminars, workshops, conferences, and webinars. Dr. Dave has mentored numerous postgraduate (Microbiology) students in their dissertation work and guided two young scientist research scholars and participants of Youth Scientists Fellowship schemes. Additionally, she has served as Chief Editor/Assistant Editor for various journals and magazines. Dr. Dave's commitment to academic excellence extends beyond research and teaching. She has completed two Minor projects with MPCOST Bhopal, currently supervises one Ph.D. student, and has organized numerous seminars, webinars, workshops, and lecture series.

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## 5~ Review of Lac Production in Madhya Pradesh

**Dr. Nisha Dehariya**  
Rani Durgawati University, Jabalpur

43/136

### Abstract

Lac production is a traditional and economically significant activity in India, particularly in the state of Madhya Pradesh (MP). This paper provides an overview of lac production in MP, examining its economic importance, ecological impact, traditional practices, challenges, and future prospects. The study highlights the role of lac in supporting rural livelihoods, particularly among tribal communities, and explores the potential for growth in the sector through government intervention and technological advancements.

### 1. Introduction

Lac is a natural resin secreted by the lac insect (*Kerria lacca*), which is primarily cultivated on specific host trees such as Palas (*Butea monosperma*), Kusum (*Schleichera oleosa*), and Ber (*Ziziphus mauritiana*). India is the world's largest producer of lac, with Madhya Pradesh being one of the leading states in lac production. This review aims to analyze the current status of lac production in MP, its economic significance, and the challenges faced by the industry.

### 2. Economic Importance of Lac Production in Madhya Pradesh

Lac production is a critical source of livelihood for many rural and tribal communities in MP. The state contributes significantly to India's total lac production, with key production areas located in Chhindwara, Balaghat, and Mandla districts. The lac industry provides income to thousands of farmers and laborers, many of whom rely on this activity as their primary source of revenue. Lac is used in various industries, including the production of shellac, varnishes, dyes, and in the pharmaceutical and cosmetic sectors.

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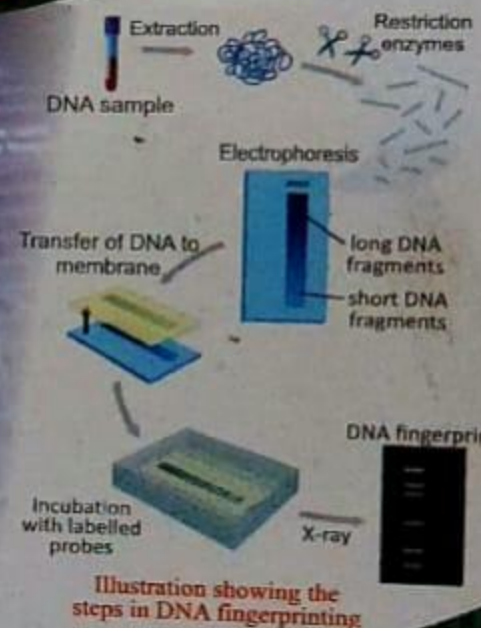
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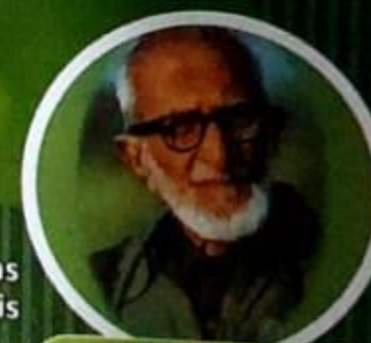


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## Chapter - 21

### THE ALOE VERA PLANT - AN OVERVIEW

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For millennia, people have known and used the aloe vera plant for its benefits to their health, appearance, and skin. The Arabic word "Alloeh," which means "shining bitter substance," is the source of the name Aloe vera, while the Latin word "vera" signifies "true." Greek scientists believed that aloe vera was a universal cure-all 2000 years ago. Aloe was known to the Egyptians as "the plant of immortality." The aloe vera plant is used in dermatology nowadays for a variety of treatments. Aloe barbadensis miller is the name of the plant that produces aloe vera. It is a shrubby or arborescent, perennial, xerophytic, succulent, pea-green plant that is a member of the Liliaceae family. Africa, Asia, Europe, and America's dry climates are where it primarily grows. It exists in Rajasthan, Andhra Pradesh, and Tamil Nadu.

Aloe vera has been used for medicinal purposes in several cultures for millennia: Greece, Egypt, India, Mexico, Japan and China. (1) Egyptian queens Nefertiti and Cleopatra used it as part of their regular beauty regimes. Alexander the Great, and Christopher Columbus used it to treat soldiers' wounds. The first reference to Aloe vera in English was a translation by John Goodyew in A.D. 1655 of Dioscorides' Medical treatise De Materia Medica.<sup>2</sup> By the early 1800s, Aloe vera was in use as a laxative in the United States, but in the mid-1930s, a turning point occurred when it was successfully used to treat chronic and severe radiation dermatitis. (2)

The use of natural products in the prevention and treatment of oral conditions have increased recently and could be of benefit to low socioeconomic level in urban and rural communities. Among the various currently available herbal agents the most popular and currently receiving a lot of scientific attention is Aloe vera. The name Aloe vera is derived from the Arabic word "Alloeh" meaning "shining bitter substance," while "vera" in Latin means "true". The plant Aloe vera has a history dating back to biblical times. It is a perennial succulent xerophyte, which develops water-storage tissue in the leaves to survive in dry areas of low or erratic rainfall. The plant has stiff grey-green lance-shaped leaves containing clear gel in a central mucilaginous pulp. Benefits associated with Aloe vera have been attributed to the polysaccharides contained in the gel of the leaves.

#### **ANATOMY**

The plant has triangular, fleshy leaves with serrated edges, yellow tubular flowers and fruits that contain numerous seeds. Each leaf is composed of three layers: 1) An inner clear gel that contains 99% water and rest is made of glucomannans, amino acids, lipids, sterols and vitamins. 2) The middle layer of latex which is the bitter yellow sap and contains anthraquinones and glycosides. 3) The outer thick layer of 15–20 cells called as rind which has protective function and synthesizes carbohydrates and proteins. Inside the rind are vascular bundles responsible for transportation of substances such as water (xylem) and starch (phloem). (3) Active components with its properties: Aloe vera contains 75 potentially active constituents: vitamins, enzymes, minerals, sugars, lignin, saponins, salicylic acids and amino acids. (4-6)

**1. Vitamins :** It contains vitamins A (beta-carotene), C and E, which are antioxidants. It also contains vitamin B12, folic acid, and choline. Antioxidant neutralizes free radicals.

**2. Enzymes :** It contains 8 enzymes: aliiase, alkaline phosphatase, amylase, bradykinase, carboxypeptidase, catalase, cellulase, lipase, and peroxidase. Bradykinase helps to reduce excessive inflammation when applied to the skin topically, while others help in the breakdown of sugars and fats.



## Chapter - 20

### TULSI (OCIMUM SANCTUM L.) - AN OVERVIEW

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Holly basil, also known as tulsi (*Ocimum sanctum* L.), is a native of the Indian subcontinent and is highly revered for its restorative applications in the Ayurvedic and Siddha medicinal frameworks. Numerous in vitro, animal, and human studies have shown that tulsi has a variety of restorative properties, such as adaptogenic, antimicrobial, calming, cardioprotective, and immunomodulatory effects. However, there have been no precise surveys of human studies on tulsi's clinical suitability and safety to date. All investigations detailed ideal clinical results without any examinations revealing any noteworthy antagonistic occasions. The explored examinations strengthen customary uses and propose tulsi is a viable treatment for way of life related constant maladies including diabetes, metabolic condition, and mental pressure. Further examinations are required to investigate instruments of activity, explain the dose and portion structure, and decide the populaces well on the way to profit by tulsi's helpful impacts. *Ocimum tenuiflorum* (synonym *Ocimum sanctum*), commonly known as holy basil or tulsi, is an aromatic perennial plant in the family Lamiaceae. It is native to the Indian subcontinent and widespread as a cultivated plant throughout the Southeast Asian tropics. Tulsi is cultivated for religious and traditional medicine purposes, and for its essential oil. It is widely used as a herbal tea, commonly used in Ayurveda, and has a place within the Vaishnava tradition of Hinduism, in which devotees perform worship involving holy basil plants or leaves. *Ocimum sanctum* described as sacred and medicinal plant in ancient literature, Tulsi is known as the “Queen of plants” which is derived from ‘Sanskrit’, which means “the incomparable one” or “matchless one”.

#### DISTRIBUTION

This species is globally distributed in the Paleotropics. Within India, it is cultivated in pots or on pedestals at all Hindu homesteads and temples and frequently found run wild throughout upto 2000 m. in the Himalayas.

#### IN HINDUISM

The holy basil plant is revered in Hinduism as a manifestation of the goddess Lakshmi (Tulsi), the principal consort of the god Vishnu. The plant is especially sacred to Vaishnavites (devotees of Vishnu), and the Lord Krishna, an avatar of Vishnu, is said to wear a garland of holy basil leaves and flowers around his neck. The plant is grown in many Hindu homes, often in the courtyard in a dedicated four-sided structure, and the presence of a holy basil plant is believed to increase piety, foster meditation, purify, and protect. Devotees commonly worship in the morning and evening with mantras and offerings of flowers, incense, or water from the Ganges, and Tuesdays and Fridays are considered especially sacred. Even the ritual act of watering and caring for the plant, usually undertaken by the women of the house, is considered worshipful and meritorious.

Holy basil is cultivated at many temples, and the woody stems of plants that have died are used to make beads for sacred japa mala (rosaries). The beginning of the Hindu wedding season is marked by a festival known as Tulsi Vivah, in which homes and temples ceremonially wed holy basil to Vishnu.

Water infused with the leaves is often given to the dying to help elevate their souls, and funeral pyres are commonly fitted with holy basil twigs with the hopes that the deceased may obtain moksha and be liberated from the cycle of rebirth.

#### MORPHOLOGY





## Chapter - 19

### MIRACLE OF AYURVEDIC MEDICINE - NYCTANTHES ARBORTRISTIS (PARIJAT)

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The Oleaceae family includes the valuable medicinal plant *Nyctanthes arbortristis* (also known as *N. arbortristis*). Tropical and subtropical regions are where the plant typically flourishes. Common names for *N. arbortristis* include Night Jasmine, Harsinghar, and Parijat. After midnight, the blossoms begin to wilt, and by daybreak, the plant looks lifeless. 'Nykhta' (Night) and 'anthos' (Flower) are two Greek words that were combined to form the generic name 'Nyctanthes'. It is typically a tiny shrub or tree with beautiful, incredibly fragrant flowers that bloom at night and fade before daybreak, creating a lovely contrast between the red and white of the ground below. The plant is referred to as the "Tree of Sadness" (*arbor-tristis*) since it completely loses its brightness during the day. It is also known as Harsinghar, Coral Jasmine, Parijat, queen of the night and night flowering jasmine. It is a *Nyctanthes arbortristis* of India, distributed in sub-Himalayan region and also found in Indian garden as ornamental plant. The plant is tolerant to moderate shade and can grow on rocky ground in dry hill shades, dry deciduous forests or at sea-level up to 1500 m altitude with a wide range of rainfall patterns, from seasonal to non seasonal and is tolerant to moderate shade. It is often cultivated in gardens due to its most pleasant and peculiar fragrance.

In India, it grows in the outer Himalayas and is found in tracts of Jammu and Kashmir, Nepal to East of Assam, Bengal, Tripura extended through the Central region up to Godavari in the South. Flowering usually occurs from July to October. *N. arbortristis* prefers a secluded and semi-shady place to grow.

One of the well-known medicinal plants is *N. arbortristis*. It is a typical little tree or large, hardy shrub in the wild. In Indian medical systems, various portions of this plant are employed for a variety of pharmacological effects, including anti-leishmaniasis, anti-viral, anti-fungal, anti-pyretic, antihistaminic, anti-malarial, anti-oxidant, anti-inflammatory, and many more. Herbs have been always the main principle form of medicine since traditions in India and now a day it becomes most popular throughout the world. Important large shrub of tropical and subtropical regions of the world that has been traditionally used to provoke menstruation, for treatment of scabies and other skin infections as hair tonic, chalogogue and Herbal medicines are not only providing traditional and ethnic medicine but also promising for highly efficient novel bioactive molecules. Since ages, man has been dependent on *N. arbortristis* for curing various body diseases. From ancient civilization various parts of different plants were used to pain, control suffering and counteract disease. Most of the drugs used in primitive medicine were obtained from plants and are the earliest and principle *N. arbortristis* source of medicines.

*N. arbortristis* is a deciduous tree grows up to 10 m tall, with quadrangular branches and grey or greenish-white rough bark. The leaves are rough, hairy, decussately opposite, and simple. The flowers are arranged at the tips of branches. It grows well in loamy soils. The plant requires conditions varying from full sunlight to partial shade and needs to be watered regularly. Flowering usually occurs from July to October. The whole plant is of medicinally useful.

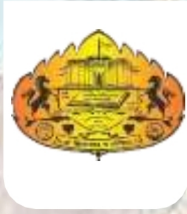
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### HEDYOTIS DIFFUSA : AN MULTIEFFECTIVE HERB

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Herbs play an important role in our day to day life. In the ancient days the herbs were only the main source of medicine. Now also in this 21<sup>st</sup> century herbs are equally important to modern drugs as they have less side effects as compared to synthetic drugs. *Hedyotis diffusa* Willd (H. diffusa) is one of the early known Chinese traditional medicine possessing beneficial activities. It is one of the renowned medicinal plants used to treat human ailments as mentioned in Ayurveda, Charaka Samhita, and Sushrita Samhita. Till now, nearly about 171 compounds have been reported from H. diffusa, in which it includes 32 iridoids, 26 flavonoids, 24 anthraquinones, 26 phenolics and their different derivatives. Nearly 50 volatile oils and 13 miscellaneous compounds are also obtained. The in vitro and in vivo studies show that phytochemicals and plant extracts to exhibit a range of pharmacological activities. It has many ethnobotanical uses (the leaves are used in the form of vegetable; the root juice is in the treatment of the asthma, urinary disorders, leukorrhea, rheumatism, and encephalitis), and is also medicinally used in the traditional Ayurvedic system.

The current review is based upon the various pharmacological as well as their uses, different tests and their microscopic studies. *Hedyotis diffusa* Willd (H. diffusa, Family Rubiaceae), known as *Oldenlandia diffusa* (Willd) Roxb, is a well-known Chinese medicine used for the treatment of inflammation-linked diseases, such as hepatitis, appendicitis and urethritis, for thousands of years in China. Recently, *H. diffusa* has gained increasing attention for its properties of anti-proliferative activity in cancer cells and anti-tumor activity in tumor-bearing animals. It has been proved as the most commonly prescribed single Chinese herb used for colon cancer and breast cancer patients. according to the statistics from the medicine in India. It occurs abundantly as a weed throughout India. In India, the plant is used National Health Insurance Research Database of Taiwan.<sup>(1)</sup> is a significant drug of Ayurvedic system of as a medicine with multiple actions such as stomachic, antileprosy, diuretic, antiasthmatic, diaphoretic, anthelmintics, febrifuge, antiscabies and antiurethritis. The ethanolic extract of this plant has exhibited antiproliferative and immunomodulatory properties. The major chemical constituents C- methyl flavones characterized as 5, 7-dihydroxy 3, 4 -dimethoxy-6, 8-dimethyl flavone, rotenoid analogs, boeravinone A-F have been reported from the roots of *B. diffusa*.<sup>(2)</sup> It has been recorded in history that Medicinal herbs have been used as form of therapy for the relief of pain.

The exploration of the chemical constituents from plants, pharmacological and phytochemical screening would provide the basis for developing the new lead molecules in strategic favour of natural product drug discovery.<sup>(3)</sup> *Oldenlandia corymbosa* (L.) Lam. syn *Hedyotis corymbosa* (L.) Lam. (Rubiaceae) is a weedy annual herb, found especially during monsoon in fields throughout India, Sri Lanka, tropical East Asia to Java and the Phillipines. It is commonly known as, "Parppatakappullu" in traditional medicine of Kerala. The plant is known to clear heat and toxins, activate blood circulation, promote diuresis and relieve stranguria (urinary obstruction).

It is also known to act against tumors of the digestive tract lymphosarcoma and carcinoma of the liver and larynx.<sup>(4)</sup> Oxygen free radicals produced as a result of metabolic processes in our body, induce damage to biomembranes and genetic materials leading to many chronic degenerative diseases and aging. Oxidative stress, an unbalance between prooxidants and antioxidant mechanisms, directed the use of dietary or medicinal supplements particularly during disease attack.<sup>(5)</sup>

**Scientific Name :** Linn. Syn. *B. repens*, *B. repens*<sup>(3)</sup>

**Sanskrit:** Boerha aviadiffusa, Boerha aviarepens Linn; Punarnava<sup>(6)</sup> Punarnava, Raktakanda, Shothaghni, Varshabhu<sup>(3)</sup>



- Hindi:** Lal Punarnava, Beshakapore,<sup>(6)</sup> Snathikari<sup>(3,6)</sup>  
**English:** Spreading Hogweed, Shothagni, Red Hogweed, Raktapunarnava<sup>(6)</sup>  
**Malayalam:** Thazhuthama.<sup>(6)</sup>  
**Bangali:** Punarnnava<sup>(3,6)</sup>  
**Kanarese:** Kommegeida<sup>(6)</sup>  
**Gujarati:** Vakhakhaparo, Dholia-saturdo<sup>(3,6)</sup>  
**Marathi:** Tambadivasu<sup>(3)</sup> Ghetuli<sup>(3,6)</sup>  
**Tamil:** Chattarani<sup>(6)</sup> Mukaratee-Kirei<sup>(3)</sup>  
**Telugu:** Galijeru<sup>(6)</sup> Punernava,<sup>(3)</sup>  
**Oriya :** Lalapuiruni Nalipuruni<sup>(6)</sup>  
**Punjabi :** Itcit<sup>(6)</sup>  
**Ial:** Khattan<sup>(6)</sup>  
**Kannada:** Komma<sup>(3,6)</sup>  
**Kashmiri:** Vanjula Punarnava<sup>(6)</sup>  
**Assamese:** Ranga Punarnabha<sup>(6,7,8)</sup>

**COMMON NAMES**

Erva Tostão, Erva Toustao, Pega-pinto, Atikamaamidi, Biskhapra, Djambo, Etiponia, Fowl's Lice, Ganda'dar, Ghetuli, Katkatud, Mahenshi, Mamauri, Ndandalida, OulouniNiabo, Paanbalibis, Patal-jarh, Pitasudu-pala, Punar-nava, Punerva, Punnarnava, Purnoi, Samdelma, San, Sant, Santh, Santi, Satadi Thikedi, Satodi, Spreading, Tellaaku, Thazhuthama, Thikri, Touri-touri, Tshrana, Yoegbe, Beshakapore, Raktapunarnava.<sup>(6)</sup> Hog Weed, Pig Weed, Horse purslane, Tarvine<sup>(9)</sup>

**GEOGRAPHICAL DISTRIBUTION AND HABITAT**

It mainly consists 40 species that are distributed in tropical and subtropical regions and warm climate. It occurs in the Ceylon, Australia, Sudan and Malay Peninsula, extending to China, Africa, America and Islands of the Pacific. Among 40 species of Boerhaavia,<sup>(10)</sup> species are found in India, namely *B. diffusa*, *B. erecta*, *B. rependa*, *B. chinensis*, *B. hirsute* and *B. rubicunda*. *Boerhaavia diffusa* is seen in India is found in warmer parts of the country and throughout up to 2,000 m altitude in the Himalayan region. It is a perennial, spreading hogweed, commonly occurring abundantly in waste places, ditches and marshy places during rains. The plant is also cultivated to some extent in West Bengal. *Oldenlandia corymbosa* is native to Africa and India, but now with pantropical distribution; throughout Malaysia.<sup>(3,4,6)</sup>

**TAXONOMICAL CLASSIFICATION**

- Botanical Name:** Boerhaaviadiffusa L.<sup>(6,9)</sup>  
**Family:** Nyctaginaceae<sup>(6)</sup> rubaceae<sup>(4,9)</sup>  
**SubFamily:** rubioidiae<sup>(4)</sup>  
**Kingdom:** plantae<sup>(4)</sup>  
**Phylum:** angiosperms<sup>(4)</sup>  
**Class:** Magnoliopsida<sup>(6)</sup> dicotyledeonae<sup>(4)</sup>  
**Subclass:** aasteridaen<sup>(4)</sup>  
**Division:** Magnoliophyta<sup>(6)</sup>  
**Order:** Caryophyllales<sup>(6)</sup> gealentianes<sup>(4)</sup>  
**Genus:** Boerhaavia<sup>(6)</sup> oldenlandia<sup>(4,9)</sup>  
**Species:** B. diffusa<sup>(6)</sup> corymbosa<sup>(4,9)</sup>

**PLANT DESCRIPTION**

**Stem**

It is greenish purple in colour, stiff, slender, cylindrical, swollen at the nodes ends, minutely pubescent, prostrate divaricately branched, often more than a meter long. Ascending, 4-10 cm long.<sup>(6)</sup>

**Root**

Roots are well developed, fairly long, somewhat tortuous, cylindrical, 0.2-1.5 cm in diameter, yellowish brown to brown in the colour, surface soft to touch but rough due to minute longitudinal striations and



root scars, short, no distinct odour, slightly bitter, sweet, pungent.<sup>(6)</sup> The roots are stout and fusiform with a woody root stock. It has a large root system bearing rootlets. The tap root is tuberous, cylindrical to narrowly fusiform to conical<sup>(3)</sup> It is thick. These roots contained 0.15% alkaloid punarnavine. Increase in levels of indole- acetic acid (IAA) in MS medium reduced the number of roots regenerated from the leaf segment, their length and alkaloid content<sup>(9)</sup>

#### Leaves

Opposite in unequal pairs, larger ones 25-37 mm long and smaller ones 12-18 mm long ovate-oblong or suborbicular, apex rounded or slightly pointed, base subordinate or rounded, green and glabrous above, whitish below, margin entire or sub-undulate, dorsal side pinkish in certain cases, thick in texture, petioles nearly as long as the blade, slender.<sup>(6)</sup> The shape of the leaves varies considerably - ovate-oblong, round, or subordinated at the base and smooth above. Margins of the leaves are smooth, wavy, or undulate. The upper surface of the leaves are green, smooth, and glabrous, whereas it is pinkish white and hairy beneath. Leaves are up to 5.5 ×3.3 cm<sup>2</sup> in area.<sup>(9)</sup>

#### Flowers

Flowers are minutely small, pink coloured nearly sessile or shortly stalked, 10-25 cm, in small umbrellas, arranged on slender long stalks, 4-10 corymb, axillary and in terminal panicles, bracteoles, small, acute, perianth tube constricted above the ovary, lower part greenish, ovoid, ribbed, upper part pink, funnel-shaped, 3 mm long, tube 5 lobed, stamen 2-3.<sup>(6)</sup> Usually fascicled or sub umbellate on the ultimate branchlets, pink, and about 1.5 mm long. A perianth is present in the place of a calyx and corolla, which is tubular in shape, the tube being short and narrow at the base and funnel-shaped at the top and constricted above the ovary. There are five lobes, which are small and acute. Two or three stamens are present and are slightly exerted. The stigma is peltate.<sup>(9)</sup> In pendunculate, glomerulate clusters arranged in slender, long stalked, axillary or terminal corymbs

#### Fruit

One seeded nut, 6 mm long clavate, rounded, broadly and bluntly 5 ribbed, viscidly glandular.<sup>(6)</sup> The achene fruit is detachable, ovate, oblong, pubescent, five-ribbed and glandular, anthocarpous, and viscid on the ribs. Fruit is glandular, narrowly oblongobovoid, about 3 mm long. about 3 mm long. These are hermaphrodite, pedicellate, and white, pink, or pinkish-red in color. Bracts are deciduous and involucrate.<sup>(9)</sup> Fruiting Throughout the year in Indian conditions Ovoid or sub-ellipsoid, rounded above, slightly cuneate, below, broadly and bluntly 5-ribbed, very glandular throughout<sup>(3)</sup>

#### TRADITIONAL USES

Each part has a different therapeutic value and must be prepared in its own way for maximum benefits. This plant rejuvenates liver, male reproductive system and other organ system, detoxifies liver and skin; aphrodisiac; increases libido, erection and quality and quantity of semen; reduces cough, asthma etc. It is used in Vajikarana preparations. This plant cleanses the kidneys and helps to get rid of renal calculi (kidney stones). Mainly, the roots and the whole plant is used for the medicinal purpose, externally punarnava is used for alleviate the pain and swelling. The fresh juice of its roots instilled into eyes, mitigates the ailments of the eyes like night blindness and conjunctivitis. The paste applied on the wounds, dries up the oozing. Internally, punarnava is beneficial to treat a wide range of diseases. Punarnava is the most commonly used and the best herb to alleviate swelling, due to its potent diuretic property. It boosts up the filtration, rejuvenates the renal functions and takes out the excessive fluids and Kelda by augmenting the urinary output. The sesame oil, medicated with punarnava is very useful as an adjunct to operating enemas in the treatment of ascites of vata type aflatulence. In large doses, punarnava acts as a purgative. Punarnava effectively reduces fever, especially in malaria. The decoction of rasna, sunthi and punarnava is the best panacea for rheumatic swollen joints, as rasna alleviates the pain and vata, sunthi destroys ama and punarnava reduces the swelling. Punarnava enhances the quality of 6 of the 7 categories of bodily tissues, including nutrient plasma (Rasa Dhatu), blood (RaktaDhatu), muscle (MamsaDhatu), fat (MedaDhatu), bone marrow and nerves (MajjaDhatu), and reproductive fluids (ShukraDhatu).<sup>(6)</sup>



### CONCLUSION

*Oldenlandia corymbosa* is an interesting example of a plant used in traditional medicine for many years and the reported phytochemical and pharmacological studies supports its traditional uses and proved to be useful for clinical commercial studies. The multiple benefits of *Boerhaavia diffusa* made it a true miracle of nature. Numerous studies have been conducted on different parts of *Boerhaavia diffusa* plant has not yet developed as a drug by pharmaceutical industries. A detailed and systematic study is required for identification, cataloguing and documentation of plants, which may provide a meaningful way for the promotion of the traditional knowledge of the herbal medicinal plants.

### REFERENCES

1. Rui Chen, Jingyu He, Xueli Tong, Lan Tang and Menghua Liu. *The Hedyotis diffusa* Willd. (Rubiaceae): A Review on Phytochemistry, Pharmacology, Quality Control and Pharmacokinetics, *Molecules journal* 2016, 21, 710; [www.mdpi.com/journal/molecules](http://www.mdpi.com/journal/molecules).
2. Khushbu Sharma and Mahendra Sahai, *Chemical constituents of Boerhaavia diffusa leaves*, *Journal of Medicinal Plants Studies* 2017; 5(4): 166-169.
3. AR Mahesh, Harish Kumar, Ranganath MK and Raviraj Anand Devkar, *Detail Study on Boerhaavia Diffusa Plant for its Medicinal Importance- A Review*, *Research Journal of Pharmaceutical Science Res. J. Pharmaceutical Sci.* Vol. 1(1), 28-36, September (2012), Available online at: [www.isca.in](http://www.isca.in)
4. Tanvi Patel, Vineet Jain and Rajesh Dodia, *Oldenlandia corymbosa L.: A Phytopharmacological review*, *International Journal of Phytopharmacy*, Vol. 4 (3), pp.79-82, May-Jun 2014.
5. G R Juna Beegum, S Suhara Beevy, V S Sugunan, *Natural Antioxidant Activity of Boerhaavia diffusa L.*, *International Journal of Pharmacognosy and Phytochemical Research* 2016; 8(1); 8-13
6. Laxmi Banjare, Anand kumar Prasad and M.L. Naik, *Boerhaavia diffusa from Traditional Use to Scientific Assessment- A Review* *International Journal of Pharmaceutical & Biological Archives* 2012; 3(6):1346-1354 [www.ijpba.info](http://www.ijpba.info).
7. Rituparna Nandi *Phytochemical and Biological Importance of Boerhaavia diffusa: A Plant of Ethnopharmacological knowledge*, *International Journal of Pharma Sciences and Research (IJPSR)* iRajat Ghosh Vol 7 No 03 Mar 2016.
8. *Emblica Officinalis, Terminalia Chebula, Terminalia Bellirica, Withania Somnifera*, P. K. Praveen Kumar, M. Swarnalakshmi And M. Sivanandham, *phytochemical Analysis of Boerhaavia Diffusa*, *World Journal of Pharmaceutical Research*, Vol 4, Issue 05, 2015, 1747-1756.
9. Krishna Murti, Mayank A. Panchal, Vijay Lambole, *Pharmacological Properties of Boerhaavia Diffusa - A Review*, Volume 5, Issue 2, November – December 2010.



### JAYANTI (SESBENIA GRANDIFLORA) : AN ALL-ROUND TREE

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The history of herbal medicines are as old as human civilization. *Sesbania sesban* Linn. (fabaceae) is to be found in all geographical plains of India and is commonly are known to be Jayanti. The leaves of *Sesbania Sesbanhastra* are been designed as a purgative, demulcent, maturant, Anthelmintic and for also for all inflammation and related pains. It a herb which is used in traditional system of medicine to carry all the leaves of *Sesbania grandiflora* have been used in local traditional medicine since ancient times. The various traditional medicinal plants are casted in the treatment of diabetes mellitus and many other diseases since past decade. The antioxidant property of Agati is due to the presence of phytochemical constituents making it a potent anticancer and hepatoprotective agent. In India, we are using plants and herbs as the basic source of medicine as they are very rich in medical content. *Sesbani sesban* Linn., commonly known as 'Egyptian Susan' is one of the six species of genus *Sesbania* that is commonly found in tropical region of India. The plant is grown due to its property of nitrogen fixing ability and as wind shades.<sup>(1)</sup> Small trees are mostly seen in the India or Southeast Asia and needs hot and humid tropical climate areas in the world. In Australia and India, plantations have attained heights of about 8m in under 3 years. *Sesbania* is grown as a cover crop and green manure in the summer months. When the process of growing cover of the crop or the plant the soil incorporation is an important factor in case of the *sesbania* it does well incorporation while becomes green or soon after flowering for the purpose of soil improvement. The major plus point obtained from growing *Sesbania* is the addition of organic matter that is needed to be added in the desert soils. During the breakdown of organic matters by microorganisms, compounds are formed which are resistant to decomposition – such as gums, waxes and Resins. The trees are useful in the forage, firewood, pulp and paper, food, green manure and landscape decoration.<sup>(2)</sup> The phytochemicals are mostly important resources for medicinal uses. The plant products are becoming more popular than the synthetic drugs due to the property of low toxicity and long standing experience of exposure of these drugs in ethnic medicine system like Ayurveda. It is cultivated as an ornamental plants, grows wild in hedges and shady forests.<sup>(3)</sup> The leaves are widely used in detoxification process of *manacle*. *S. grandiflora* leaves are highly nutritious and have been shown to contain significant amounts of proteins, fat, carbohydrates, fiber, and minerals such as iron, calcium, and phosphorus. The new grown leaves are edible and quite often used as a part of the meals. In the rural areas of the Tangail district of Bangladesh, the villagers use it as a remedy for diarrhea. Oral administration of crude ethanolic extracts of *Sesbania grandiflora* reduces the number and duration of defecation episodes.<sup>(4)</sup> Nutraceuticals are the emerging era in the treatment and prevention of cancer, neurodegenerative diseases, cardiovascular diseases, and diabetes mellitus. In 2014, WHO reported the global prevalence of diabetes mellitus was estimated 9% among adult and 1.5 million deaths.<sup>(5)</sup> The whole plant parts from the top to the bottom of *Sesbani grandiflora* posses different therapeutic values. They also play a role in the preparations of different dosage forms such as paste, cream, powder, tablets, capsules, tincture, extracts, and tonic. Steamed flowers are used as a traditional Indonesian dish.<sup>(6)</sup> It was certainly introduced into the Philippines. This tree occurs also in India to the Mascarene Islands, through Malaya to tropical Australia, and is planted in other tropical countries<sup>(7)</sup> It is well adapted to hot, humid environments and does not grow well in the subtropics particularly in areas with temperatures below about 100C.<sup>(8)</sup> Wound healing involves various steps like coagulation, formation of granulation tissue, coagulation and acquisition of wound strength.<sup>(9)</sup>



**SYNONYMS**

*Robinia grandiflora* (L),  
*Aeschynomene grandiflora* (L),  
*Agati grandiflora*(L.)<sup>(6)</sup>  
*Sesban grandiflora* Poir<sup>(7)</sup>

**COMMON NAMES**

Australian Corkwood tree, Tiger Tongue, West Indian Pea, White Dragon Tree.<sup>(6)</sup>  
Arabic: Sesaban  
Bengali: Jainti, Jayant  
Burmese: Yay-tha-kyee, Yethugyi<sup>(10)</sup>  
Chamorro: caturay, katurai.<sup>(7)</sup>  
English: Common sesban, Egyptian rattle pod, Frother, River bean, Sesban, *Sesbania*, Corkwood tree, Scarlet wisteria, Sesban, Vegetable hummingbird  
French: Agati a grandesfleurs.<sup>(10)</sup>  
Hawaiian: Ohaike‘oke‘o.<sup>(7)</sup>  
Hindi: Jainti, Jait, Rawasan  
Indonesian: Janti, Jayanti, Puri  
Javanese: Janti  
Luganda: Mubimba, Muzimbandeya<sup>(10)</sup>  
Marathi: Hadga  
Palauan: Katurai.  
Samoan: Sepania.<sup>(7)</sup>  
Sanskrit: Jayanti, Jayantika  
Spanish: Añilfrancés, Tamarindillo<sup>(10)</sup>  
Tahitian: Afai, Ofai, Ouai, Oufai.  
Tamil: Agathi, Agati<sup>(7)</sup>, Champai, Chithagathi, Karunchembai  
Thai: Sami, Saphaolom  
Vietnamese: Dien-dien<sup>(10)</sup>

**MORPHOLOGICAL CHARACTERS**

*S.grandiflora* is a small, erect, fast-growing perennial (4-5 m in just 6 months), and sparsely branched tree that reaches an average height of about 10-15 m and a diameter up to 12 cm (fig. 1A). The leaves are pari-pinnately compound up to 15-25 cm long with 20-50 leaflets in pairs, dimensions 12-44x5-15 mm, oblong to elliptical in shape and opposite arrangement. Single leaflet is 2-4 cm long and 10-15 mm in breadth, linear, oblong, mucronate, deciduous, stipulus lanceolate or setaceous deciduous (fig. 1B-C). The bark is light gray, corky and deeply furrowed and the wood is soft and white (fig. 1D). The flower clusters hanging at the leaf base. They are fleshy with 2-5 large or giant showy white petals. They are 7.5-10.0 cm long with short axillary racemes, curved about 3 cm wide before opening. Flowers are arrangement to pea flowers with five petals that are differentiated into a standard, wing, and keel petals. The standard petal of the flowers is seen usually upright, the wing of the petals spread out on opposite if the flower and the keel is when observed was found to be boat-shaped and in this species is curved down and away from the flower. The Fruit, The fruit looks like flat, long and thin green beans. Pod looks like sub-cylindrical, straight or slightly curved up to 30-45 cm long and 5-8 mm wide, straw-colored or reddish-brown, containing from 15-50 pale-colored seeds. Seed: The seed is 3-4.5 mm x 2 mm x 2 mm, sub-cylindrical or bean like, elliptical, olive-green or red brown, 6-8 in a pod. There are 55-80 seeds per gram.

**MEDICINAL USES**

The following are the few medicinal uses of the plant *Sesbania grandiflora* used in the various field of medicine -





- In Ayurveda, it can act as a remedy for various infections and diseases.
- Fresh leaves are used as an ailment for migraine, sinusitis, rheumatism, arthritis, gout and wound healing.
- Leaves are also used as tonic or paste to treat oral and throat infections.
- The juice extracted from the flowers of *Sesbania grandiflora* are used for treating night blindness, headache and constipation.
- Bark is used to treat diarrhea, small pox, malaria, eruptive fever and gonorrhoea.
- The roots of red flowered variety *Sesbania grandiflora* can act as remedy to cure the rheumatism.
- The oil of *Sesbania grandiflora* seed has anthelmintic activity.<sup>(6)</sup>
- Pods pale yellow, linear, usually 10-20 cm long, cylindrical or compressed, rarely oblong; up to 40 seeds are found in a pod; seeds oblong or sub quadrate, brown or dark green mottled with black.
- The leaves and tender branches of *sesban* are high in protein content (20-25% crude protein) and have high digestibility when consumed by ruminants, such as cattle and goats. Particular Anti-nutritional factors are found to be present in *sesban* fodder. Feeding *sesban* fodders to monogastric animals (such as chickens, rabbits, and pigs) is not recommended.
- Reports of feeding *sesban* to ruminant's conflict:-Trials in Australia feeding *sesban* to heifers showed live weight gains, but trials with young goats in Samoa found a lack of weight gain. Till the further research gives a clear guideline caution should be followed in feeding ruminants with *sesban* fodder at more than 10-20 percent of diet.

### TRADITIONAL USES

In the Folk Medicine it is resorted to be aperient, diuretic, emetic, emmenagogue, febrifuge, laxative, and tonic. Agati is a commercially used remedy for bruises, catarrh, dysentery, eyes, fevers, headaches, smallpox, sores, sore throat, and stomatitis many more diseases. Different parts of these plants are used in Siddha system of Indian traditional medicine for the treatment of the various ailments including anemia, bronchitis, fever, headache, ophthalmia, nasal catarrh, inflammation, leprosy, gout and rheumatism. In addition, *S. grandiflora* is mentioned as a potent antidote for tobacco and smoking-related diseases.<sup>(7)</sup> The root-bark obtained from the bark of the red-flowered is useful in vitiated condition of vata and arthralgia. The bark has the astringent, cooling, bitter, tonic, anthelmintic and febrifuge properties. The scabies can be treated by the pounded bark. The juice of the bark is good for dyspepsia, diarrhea and gastralgia. The leaves are acrid, bitter, sweet, cooling, aperient, tonic and diuretic and contain a non-poisonous saponine like substance. The leaf juice is used in nasal catarrh, nyctalopia and cephalgia. Disinfection of the mouth and throat and also in the stomatalgia can be cured by chewing the leaves.<sup>(5)</sup> The flowers possess a cooling, bitter, astringent, acrid and antipyretic. The juice of the flowers is applied to the eyes to cure the nyctalopia and is immensely used in the treatment of the intermittent fevers. The fruits are sweet, bitter, laxative and alexiteric and are useful in flatulent-colic, astringent, cooling, bitter, tonic, anthelmintic, febrifuge, cure scabies, dyspepsia, diarrhea and gastralgia, astringent, antipyretic, for nyctalopiaemia, emaciation and vitiated conditions of tridosa.<sup>(2)</sup>

### OTHER USES

Various medicinal uses for *Sesbania Sesban* has been mostly recorded in Africa and Asia. The leaves and flowers are used in the medicinal poultices and teas, which are said to possess an effect of astringency, or contraction of body tissues. Gum production from the bark is use of the tree. Leaf of *Sesbania Sesban* has traditionally been used as purgative, demulcent, maturant, anthelmintic and for all pains and inflammation.

### CONCLUSION

Medicinal plants or ethno medicines are in practice from Ancient times in many cultures and *Sesbania grandiflora* is one among them. As the pharmacologists are looking forward to develop new drugs from



natural sources, development of modern drugs from *Sesbania grandiflora* can be emphasized for the control of various diseases. In recent years, ethno medicinal studies received much response as thus leads to the numerous little known and unknown medicinal qualities seen in the plant parts. The new trend of the antimicrobial drug preparation will help to be an alternative medicine for the novel synthetic drugs.

### REFERENCES

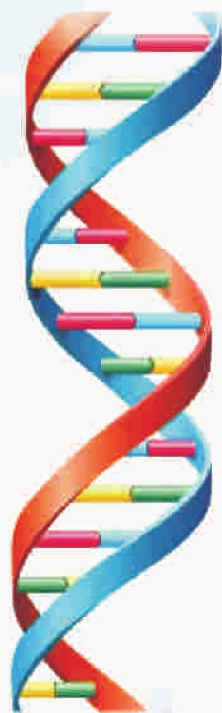
1. Usman MRM, Shital BP, Shwetal SP, Rajshri S P, *Sesbaniasesban* Linn.: An overview, *International Journal of Pharmacy & Life Sciences*: (2013), Vol. 4, Issue 5: 2644-2646
2. Dayananda B, Jaya D, A Review on Pharmacological Activity of *Sesbania grandiflora* Linn, *Columbia Journal of Pharmaceutical Sciences*, 2014, 1, 40-43
3. Arunabha M, Nayak S, *Phytochemical and Preliminary Toxicity Study of Sesbania grandiflora* (Linn.) Flowers, *International Journal of Biomedical and Advance Research*:(2011), 2 11, 445-447.
4. Nafisa BA, Azima SJ, Mohiuddin AK, *Medicinal Properties of the Sesbania grandiflora Leaves*, Shah AK, Zubair KL, *World University of Bangladesh, Ibnosina Journal of Medicine and Biomedical Sciences*.:2016, 8, 6, 273-277 ([www.ijmbs.org](http://www.ijmbs.org))
5. Kanitta J, Wannee J, *Sesbania Grandiflora: New Nutraceutical Use As Antidiabetic*, *International Journal of Pharmacy and Pharmaceutical*.: 2015:Vol 7, Issue 7, 26-29
6. Janani M, Aruna A, A Review on Nutraceutical Value of *Sesbania grandiflora* (Agati)*World Journal of Pharmaceutical Research* .:2017Volume 6, Issue 7, 804-816,
7. Vijay D. W, Kalpana V. W, Yogyata N. T, Shubhangi A. S, Vijay D. Wagh et al. / *Journal of Pharmacy Research*.:2009, 2(5), 889-892.
8. Abbs F R, Rixin N, *Phytochemical study on Sesbania grandiflora*, *Journal of Chemical and Pharmaceutical Research*.: 2013, 5(2):196-201.
9. Aijaz .A.S, Zaferuddin S, Siddiqui A.R, Pratapwar AS, Sameer S, *Wound healing activity of Sesbania grandiflora Linn flower ethanolic extract using excision and incision wound model in wistar rats*, *International Journal of Pharm Tech Research CODEN (USA)*.:2011: 3,2,896-897
10. Pravin G, Priti G, Anjum S, Shakil S, Shahnavaj K M, *Sesbaniasesban* Linn: A Review on Its Ethnobotany, Phytochemical and Pharmacological, *Asian Journal of Biomedical and Pharmaceutical Sciences*.:2012:Volume 2, Issue 12, 11-13.

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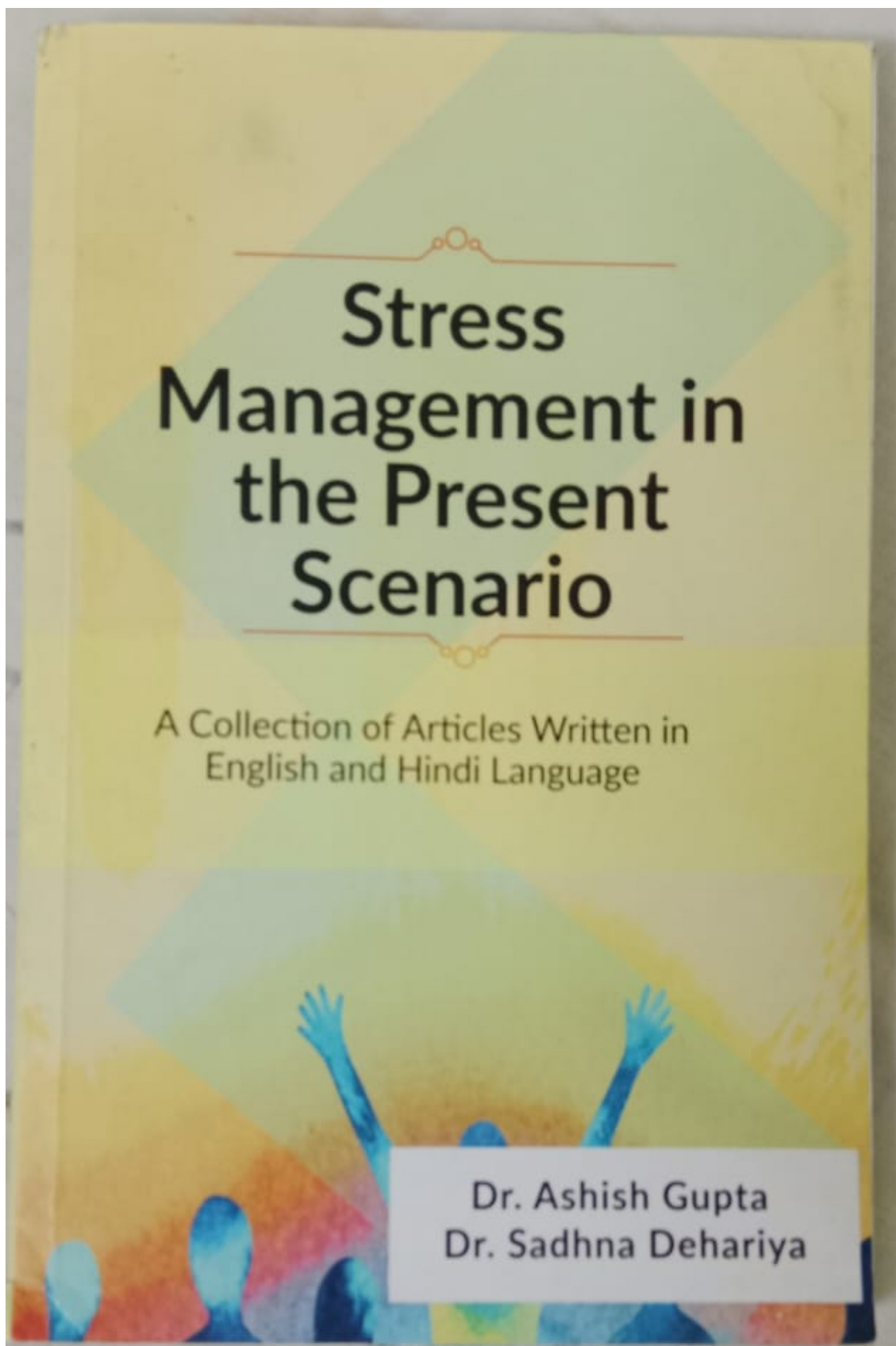
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## **Dr. Reena Bhairam**

Book Chapter

A study on stress management amongst private school teachers, affected by financial crisis due to Covid-19 pandemic

# गृह प्रबंधन

## नियोजन के महत्व

गृह-उपकरण का मुख्य उद्देश्य पारिवारिक तर्कों को प्राथमिकता में रखना है, जिसके द्वारा उपकरणों को चयनित, संगठित, स्थायीता का निर्माण करना एवं उपकरणों का उपयोग किया जाता है। व्यक्ति सबसे पहले उनसे उनसे जुड़े हुए उपकरणों को स्थायीता से परिचित होना अत्यंत आवश्यक है। गृह-उपकरण के लिए बहुत आवश्यक है कि हर गृहिणी पारिवारिक समस्याओं का भली प्रकार से ज्ञान रखे, तभी वह पारिवारिक तर्कों को संतुलितपूर्वक रूप में संभाल सकती है। पारिवारिक जीवन का एक महत्वपूर्ण पहलू है गृह व्यवस्था। परिवार में रहकर उसके सदस्यों की विभिन्न शारीरिक, मानसिक व सामाजिक आवश्यकताएँ पूरी होती हैं; इन आवश्यकताओं को पूरा करने के लिये निर्दिष्ट सामग्री को सफल ढंगों से प्राप्त करना है। गृह-उपकरण में प्रतिदिन जाने वाले सामानों, परिवार के अन्दरने में लगातार-विचारविनिर्माण से। सबसे जीवन का खर्च में वे विद्युत्, जल की पर्याप्तता, परिवार के सदस्यों, स्वस्थता, अति धर्मिता, उत्तम शौचालय, अर्थव्यवस्था, सफाई, स्वच्छता, आदि जिनके प्राप्ति में निश्चित रूप से भाग्य देना पड़ेगा। आधुनिक गृह-उपकरण में होने वाले बदलावों और विचारधाराओं को अपनाने की कोई भी व्यक्ति अपना परिवार और वह सफलता प्राप्त करेगा। कठोर प्रयास, सरकारी को जवाबदेही का महत्त्व पर ध्यान, उच्च वातावरण, स्वस्थ, स्वच्छ, आराम-सुख में रहनेवाले, खाद्य-पदार्थों की मात्रा, गृह-सदस्यों आवश्यकताएँ, उचित समय पर खरीदारी, अच्छे खरीदारों से खरीदें सभी के लिये अवैधान्त का ज्ञान होना अति आवश्यक है। इस पुस्तक की रचना विचारधारा को ध्यान में रखकर की गयी। पुस्तक में हर विद्युत् पर बड़े ही यत्न से अध्ययन किया गया है, जो अपने आप में बर्तक एवं सफल गृहों में जो पाया जाता है।

### विषय सूची

गृह प्रबंधन की परिभाषा; गृह विज्ञान; गृह व्यवस्था; गृह बजट और गृह प्रबंधन; गृह: सुरक्षा, उपयोग एवं आवश्यकताएँ; गृह-उपकरण एवं संरक्षण; गृह परिसर; रसोई; पाकघर एवं उपकरण; शौचालय, पोषण और स्वास्थ्य; स्वच्छता और सफाई-सफाई; पारिवारिक एवं मानव समापन

### लेखक के बारे में

डॉ. आरती मल्होत्रिया, वर्तमान में शासकीय कन्या पी.जी. कॉलेज, विदिशा, मध्य प्रदेश में सहायक प्राध्यापक पद पर कार्य कर रही हैं। अपने 2008 में एणएससी (एड एंड नुट्रिशन) विषय में स्नाकोत्तर उपाधि प्राप्त की। अपने 2008 में नेट (एह विज्ञान) राष्ट्रीय स्तर की परीक्षा अच्छे रैंक के साथ पास की। अपने बरकतल्लाह विश्वविद्यालय, भोपाल में 2013 में गृह विज्ञान विषय में पीएचडी उपाधि प्राप्त की। अपने 2013 मध्य प्रदेश काउंसिल ऑफ साइंस में टेक्नोलॉजी द्वारा को माईस्ट्रट अवार्ड मिली। अपने 2009 से 2019 तक शासकीय गीताजीलि कन्या पी.जी. कॉलेज, भोपाल में अनुभवों विद्यान शिक्षक के रूप में कार्य किया। अपने 2 पुरस्कार प्रकाशित की जो जर्मनी में चल रही हैं तथा अपने राष्ट्रीय तथा अंतरराष्ट्रीय स्तर पर शोध पत्र प्रकाशित किये हैं। आप ज्ञान पत्र व दैनिक पत्रों में महत्वपूर्ण विषय को लेकर पत्राव और भोपाल में बड़े राष्ट्रीय स्तर पर सेमिनार करा चुकी हैं। आप जर्नल ऑफ सोस एंड टेक्नोलॉजिकल रिसर्च, भोपाल की लेखाधिकारी हैं। आप अपने शोध क्षेत्र से सम्बंधित छात्राति प्राप्त करने की

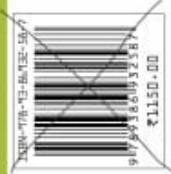


श्रीमती चंद्रकांता मौर्य, वर्तमान में शासकीय मोहनलाल हरगोविंददास गृह विज्ञान एवं विद्यान महाविद्यालय, जबलपुर में सहायक प्राध्यापक के पद पर पदस्थ हैं। अपने बरकतल्लाह विश्वविद्यालय, भोपाल में 2008 में एणएससी (एड एंड नुट्रिशन) विषय में स्नाकोत्तर उपाधि प्राप्त की। अपने 2008 में नेट (एह विज्ञान) राष्ट्रीय स्तर की परीक्षा पास की। अपने 2009 से 2018 तक शासकीय गीताजीलि कन्या पी.जी. कॉलेज, भोपाल में अनुभवों विद्यान शिक्षक के रूप में कार्य किया। अपने राष्ट्रीय स्तर पर शोध पत्र प्रकाशित किये हैं। आप जर्नल ऑफ मांस एंड टेक्नोलॉजिकल रिसर्च, भोपाल की सदस्य हैं। आपके शिक्षण कार्य के साथ-साथ सामुदायिक शासकीय कार्यक्रमों में कार्य का भी अनुभव है।



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# गृह प्रबंधन नियोजन के महत्व

डॉ. आरती मल्होत्रिया  
चंद्रकांता मौर्य



# गृह प्रबंधन

## नियोजन के महत्व

डॉ. आरती मल्होत्रिया  
चंद्रकांता मौर्य





## डॉ. साधना केशरवानी

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एम.एससी., पी.एच.डी., एफ.एल.एससी  
शासकीय मो. ह. गृह विज्ञान एवं विज्ञान महिला  
महाविद्यालय, जबलपुर (म.प्र.)

डॉ. साधना केशरवानी, शा.मो.ह.गृहविज्ञान एवं विज्ञान महिला महाविद्यालय जबलपुर में प्राणीशास्त्र विषय में प्राध्यापक एवं जैव प्रौद्योगिकी विषय की समन्वयक के रूप में कार्यरत हैं। आपने एम.एस.सी., पी.एच.डी., एफ.एस.एल.एस.सी (FSLSC) की उपाधि अर्जित की है। 1990-93 वर्ष तक आप रानी दुर्गावती विश्व विद्यालय में प्राणीशास्त्र विषय की बोर्ड ऑफ स्टडी की सक्रिय सदस्य रही हैं। आपको नेशनल एन्वायरमेंट साइंस एकेडमी, नई दिल्ली द्वारा सन् 2011 के एन्वायरमेंट ऑफ द ईयर अवार्ड से सम्मानित किया गया है। आपने लगभग 70 राष्ट्रीय एवं अंतरराष्ट्रीय संगोष्ठि/कार्यशाला/सेमिनार इत्यादि में प्रतिभागिता की है। आपने 15 शोधपत्रों का वाचन एवं 65 शोध पत्रों का राष्ट्रीय एवं अंतरराष्ट्रीय रिसर्च जर्नल्स में प्रकाशन किया है। आपने विभिन्न (06) कार्यशालाओं एवं राष्ट्रीय सेमिनार के आयोजन में आयोजक की भूमिका का निर्वहन किया है। आपके पास 04 शोध छात्र पंजीकृत हैं जिसमें से 03 के शोध प्रबंध जमा हो चुके हैं। आपने वायोटैक्नोलॉजी विषय पर 02 एवं प्राणीशास्त्र विषय पर 01 पुस्तक के लेखन कार्य के अतिरिक्त 04 पुस्तकों में अध्याय लेखन का कार्य भी किया है। हिन्दी साहित्य में रहकर रूचि होने के कारण आप कविताएँ भी लिखती हैं। माननीय वेगड़ जी की नर्मदा यात्रा वृत्तान्त इतने इहय स्पष्टी है कि लेखक ने उन यात्राओं पर मानसिक रूप से स्वयं को उपरिश्त पाते हुए समीक्षायक कलम चलाने का छोट सा प्रयास किया है, जिससे स्वर्गीय वेगड़ जी ने अपनी स्वीकृति व आशीर्वाद प्रदान कर प्रकाशन हेतु प्रेरित किया था। उसी आशीर्वाद का परिणाम है यह पुस्तक जो साबर माननीय अभुतलाल बेगड़ व माननीय श्रीमती कौता वेगड़ जी को समर्पित है।

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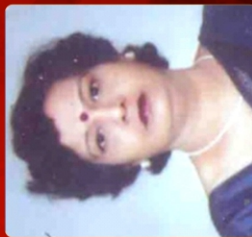
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