EXPLORING MEDICINAL PLANTS

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ETHNOBOTANY AND ETHNOPHARMACOLOGY OF MEDICINAL AND AROMATIC PLANTS

Steps Towards Drug Discovery

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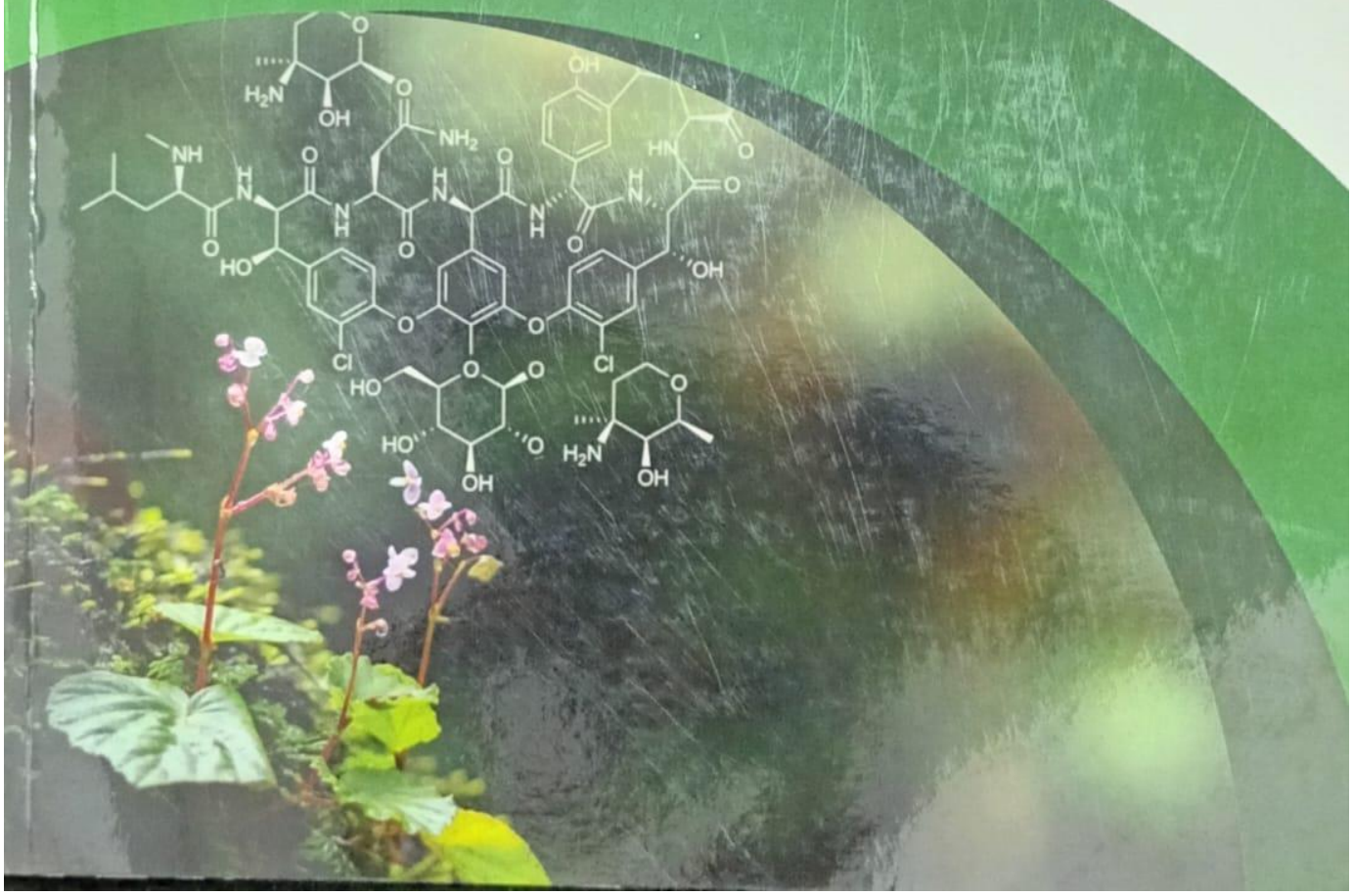

ETHNOBOTANY AND ETHNOPHARMACOLOGY OF MEDICINAL AND AROMATIC PLANTS

Steps Towards Drug Discovery

Medicinal and aromatic plants are beneficial to human health. Plant-derived molecules possess biological activities that can be used to prevent many infectious diseases and metabolic disorders. ***Ethnobotany and Ethnopharmacology of Medicinal and Aromatic Plants*** summarizes techniques and methods used to study the biological activities of plant-derived extracts and compounds to study ethnobotanical and ethnopharmacological features of medicinal and aromatic plants.

This Book:

- Includes computational approaches to study the pharmacological properties of biomolecules in medicinal and aromatic plants.
- Details methods in ethnopharmacology including chromatographical and analytical techniques.
- Demonstrates trends in sustainable use and management of medicinal and aromatic plants.
- Features information on databases and tools used in computational phytochemistry for drug designing and discovery.
- Elucidates the importance of phytochemicals as immunomodulators in herbal drug development including their nanoformulations.

A volume in the Exploring Medicinal Plants series, ***Ethnobotany and Ethnopharmacology of Medicinal and Aromatic Plants*** will be of interest to those working with plant extracts, including botanists and ethnobotanists, pharmacologists and ethnopharmacologists, as well as scientists and researchers interested in natural compounds and their potential applications.

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Mahima Verma, Shireen Fatima, Prakriti Mishra, and Irfan Ahmad Ansari
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6.1 INTRODUCTION

Medicinal and aromatic plants (MAPs) contain aromatic compounds used before history was documented for traditional medicinal uses worldwide. Humans and plants have had a symbiotic relationship since the dawn of time. Since its inception, humans have relied on wild plants for food, housing, energy, and health. Plants and plant products have gradually gained additional intangible niches of value, such as cultural and religious significance as humans have evolved and civilizations have developed. Aromatic plants include odorous volatile chemicals such as essential oil, exudate gum, balsam, and oleo gum resin in many parts of the plant, including bark, wood, root, leaves, stem, flower, and fruit. There are many complicated chemical compounds present in wild edible and medicinal plants responsible for the characteristic aroma. In the case of citrus fruits, essential oils can be obtained using various physical and chemical techniques like hydrodistillation, steam distillation, and expression. To separate volatile components, enfleurage, a procedure that utilizes odorless fats that are stable at 37 degrees, is used to catch fragranced molecules released by plants. Flavors and fragrances are the most common applications for volatile compounds and essential oils as they reproduce the active components of the plants. Essential oils account for approximately 17% of the global flavoring and fragrance market. The global output of essential oils ranges from 40,000 to 60,000 tons per year. The demand for spice oils is 2,000 tons annually (Sadanandan, Peter, and Hamza 2002).

The number of industries has increased the use of medicinal plants for human consumption, including cosmetics, pharma industry, healthcare system, organic food industry, and pesticides. Natural compounds have been used extensively to formulate approximately 40% of newly approved drugs in the last two decades. More and more patents are getting filed for medicinal plants from

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