Phytochemistry of Medicinal Plants

Medicinal plants are the focus of intense study, in particular whether their traditional uses are supported by real pharmacological effects, or merely based on folklore. Piper capense L.f. (Piperaceae) is used traditionally for the treatment of infectious diseases, and has the potential to be a source of novel antimicrobial compound(s). Crude solvent extracts (water, methanol, hexane and acetone) and sequentially extracted subfractions of the root-bark of P. capense were prepared, of which the hexane-soluble subfraction MsAsHs was identified as the most promising antimicrobial subfraction. Phytochemical analyses of the various extracts and subfractions using TLC with numerous mobile phases and compound selective visualising reagents revealed the presence of quinones in all of the crude solvent extracts. Alkaloids, lipids/sterols/steroids, phenolic compounds and amino acids/peptides were detected in select subfractions. Gradient reverse phase HPLC analyses using 0.1% formic acid and methanol indicated three major peaks in MsAsHs. IR spectroscopy indicated that carbonyl and hydroxyl functional groups, and aromatic characteristics were present in the major compound present in MsAsHs. Further analysis using targeted LC-MS Q-TOF and quadrupole LC-MS/MS analyses indicated an empirical formula of C11H8O3. This formula was confirmed for the isolated compound by GC-MS (HP5-MS column) that identified the compound as 5-hydroxy-2-methyl-1,4-naphthoquinone (C11H8O3 MW: 188.18) with 98% certainty using the database. Although 5-hydroxy-2-methyl-1,4-naphthoquinone (also known as plumbagin) is well-known, this is the first time that the presence of this compound is reported in the Piper genus. Antimicrobial activities of P. capense root-bark extracts and the subfractions were determined against Gram-negative and Gram-positive bacteria and a yeast strain using the disk diffusion and broth micro-dilution assays. Antimicrobial activity was observed against Gram-positive bacteria, Gram-negative bacteria as well as a yeast strain, indicating broad spectrum activity. The antimicrobial activities of the crude solvent extracts decreased in the order: acetone > methanol > hexane > water. The MsAsHs subfraction demonstrated the highest antimicrobial activity with an MIC of 29??g/ml against both Staphylococcus aureus (ATCC 12600) and Candida albicans (ATCC 10231). HPLC eluents of this subfraction that were collected in a drop-wise fashion onto silica TLC plates and assayed by bioautography, indicated that the major compound eluting at 13.6 minutes accounted for most of the antimicrobial activity. Antioxidant activity was observed for the crude water extract, crude methanol extract, crude acetone extract, MsAsAs subfraction as well as the MsAsHs subfraction. Cytotoxicity against mammalian cells in culture was observed for the crude methanol extract, crude acetone extract, crude hexane extract and the MsAsHs subfraction when determined using C2C12 cells as well as resting and PHA stimulated lymphocytes. Stability testing of the MsAsHs subfraction revealed that the antimicrobial compounds found in this subfraction appear to be stable up to 30 days at both 25ºC and 40ºC when assayed against S. aureus. However, when assayed against C. albicans, there was an increase in antifungal activity from 29??g/ml to

The project was initiated by Meyanungsang Kichu, a Nagaland person, who conducted an ethnobotanical study of medicinal plants used by Chungtia villagers and documented 135 plants for their various ethnomedical and ethnobotanical applications. This MPhil study completed an up to date literature review of the 135 medicinal plants, then investigated the antimicrobial potential of those plants used by Chungtia villagers for skin conditions, conducted antimicrobial screening of a selection of these, and finally investigated in detail one plant for its antimicrobial activity and bioactive constituents.
As volume 2 of this three-volume set on phytochemistry, this book features chapters that comprehensively review a selection of important recent advances in ethnopharmacology and alternative and complementary medicines. It also presents many informative chapters on the medicinal potential of phytochemicals in the treatment and management of various diseases, such as cancer, diabetes, diabetic nephropathy, autoimmune diseases, neurological disorders, male infertility, and more.

Scientific Study from the year 2017 in the subject Chemistry - Bio-chemistry, grade: 1.5, Mar Augusthinson College, language: English, abstract: The experiment was carried out to extract and analyze the phytochemical constituents of the Baccara courtallensis fruit to find out the cholesterol lowering efficacy of the extract. The water extracts of Baccara courtallensis fruits were subjected to preliminary phytochemical analysis and they showed the presence of alkaloids, flavonoids, terpenoids, saponins, phlobatannins, coumarin, anthocyanin, leucoanthocyanin, phenols and carbohydrates. The extract was evaluated for cholesterol lowering efficiency against different fatty food materials like egg yolk, pork and chicken fat, ghee and cod liver oil by Zak's method. The maximum efficiency was observed on egg yolk and chicken fat followed by pork fat and ghee. In cod liver oil no beneficial change were noticed.

This book discusses the scope and limitations of the antimicrobial and antioxidant properties of foods as medicines or medicinal coadjuvants in traditional Indian herbal therapies. The first chapter introduces readers to the relevance of the Ayurveda system, its holistic classification approach, applications of selected herbs and the demonstrable efficacy of herbal extracts in terms of antimicrobial susceptibility. In turn, the second chapter discusses the antimicrobial properties and kinetic mechanisms of inhibition ascribed to selected vegetable extracts. The third chapter addresses the antioxidant power of phenolic compounds from vegetable products and herbal extracts. The book closes with a review of natural antioxidant agents' role in the treatment of metabolic disorders. Written from an Indian perspective, this book unravels the chemistry of the traditional Indian diet and its impact on health. Further, it can serve as a reference for other traditional products with similar health claims.

The Ashtavarga is a vitality enhancing, revivifying of youthful condition, body nourishing, antioxidant and invigorating group of rare medicinal plants of Himalaya which are considered as best anti-aging herbs when taken as formulation called 'Chayavanprash'. Phytochemical analysis has proven to provide simple and reliable results with a small amount of plant part extract. It provides a valid phytochemical basis of identification and may be used as legitimate evidence of novelty. Compared to morphological results, phytochemical results are noteworthy because they are more reliable for identification. Among phytochemical studies, detection techniques like Sepbox, UV-VIS spectral scanning and GC/MS are useful for molecular mass characterization as these do not require prior information of the target compound particularly when we study rare spices which were rarely studied before. Preliminary phytochemical screening gives an idea about common phytochemicals present in plants.

Phytochemicals are the individual chemicals from which the plants are made and plants are the key sources of raw material for both pharmaceutical and aromatic industries. The improved methods for higher yield of active compounds will be the major incentive in these industries. To help those who are involved in the isolation of compounds from plants, some of the essential phytochemical techniques are included in this book. The theoretical principles of various instruments, handling of samples and interpretation of spectra are given in detail. Adequate chemical formulas are included to support and explain various structures of compounds and techniques. The book will prove useful to students, researchers, professionals in the field of Plant Physiology and Pathology, Pharmaceutical and Chemical Engineering, Biotechnology, Medicinal and Aromatic Plants and Horticulture.

Plants have always occupied a prominent position in the life of every living being. Plants are the primary source of food, shelter and medicines. The global inclination toward herbal medicine has advanced the expansion of plant-based pharmaceutical industries to a vast extent. The production of traditional medicine at global market has been estimated to touch US $5 trillion by 2050. Some of the useful plant-based drugs include vinblastine, vincristine, taxol, podophyllotoxin, camptothecin, digoxigenin, morphine, codeine, aspirin, atropine, capsicicine, alllcin, curcumin, artemesinein and ephedrine. Genus Sapindus is an important economical and medicinal trees, distributed over the world. Soap nuts contain higher amount of saponin, a natural detergent which can be used to clean clothes and hairs. Sapindus species possesses various pharmacological properties including antimicrobial, antioxidant, anti-inflammatory, anticancer, hepatoprotective, anti-trichomonas activity. Extracts of this plant are rich in various phytochemicals and polyphenolic compounds. All the pharmacological properties are due to presence of saponins. Biotechnological techniques can improve the saponin content; thus this chemical content can be produced at large scale and can be used as phytemedicine. We hope that this book would be of great use to under graduates, postgraduates, scientists, researchers and faculty members who are studying, teaching or working in the field of Biotechnology, Phytochemistry and Ethnopharmacology. The techniques explained in this book could be of immense use for the researchers working in this area. We shall deeply appreciate receiving any critical comments and suggestions from the readers from the different parts of globe which would help us improve the first edition of this publication.

Medicinal herbs are the local heritage with global importance. World is endowed with a rich wealth of medicinal herbs. The different variety of plants with different therapeutic properties is quiet astonishing. Herbs have provided us some of the very important life saving drugs. Among the estimated 4,00,000 plant species, only 6% have been studied for biological activity, and about 15% have been investigated phytochemically. This shows a need for investigation of herbal drugs and its phytochemical analysis. In present work, Jatropha gossypifolia Linn, it's phytochemical analysis include medicinal uses, chemical constituent(specialiy terpenoids), morphological characters, physical evaluation, extractions using different solvents, phytochemical screening, separation and isolation by using TLC, column chromatography, HPTLC, quantitative estimation of active compound by HPTLC and UV, Structure elucidation of isolated compound by GCMS,1H NMR, IR, and finally pharmacological screening. Importance of Phytochemical analysis is modification of inactive natural products by suitable biological and chemical means into patent drug.

Nowadays multiple drug resistance has developed due to the indiscriminate use of chemosynthetic drugs for the treatment of infectious diseases. In addition to this antibiotics are sometimes associated with several adverse effects after administration. This situation may have motivated scientists to search for new alternatives to chemosynthetic drugs, which have been found in herbs.
Therefore there is the need to continually explore plant samples. Exploitation of medicinal values and scientifically validating folkloric claims by those who locally use plants serve two important purposes: to discover candidate drugs of natural origin from the plants; and also to justify their continued administration to human patients most especially in developing worlds. Such scientific evaluations will help to establish the safety margin in terms of dosage, toxicity and side effects. This book contains scientific investigation of the stem-bark of a selected Apocynaceae plant family species (Adenium obesum). The work includes isolation of chemical compounds from the plant, structure determination of the isolates and testing of pharmacological activity of the plant extractives.

Medicinal plants have been the source of remedies for healthcare for the majority of people in Africa. In Sudan there is little scientific information available on the nature and chemical composition of the most of these medicinal plants. This book has focused mainly on preliminary screening of antibacterial and antiviral activity of some Sudanese medicinal plants as well as phytochemical studies of three selected species; Diospyros mespiliformis, Croton zambesicus and Caralluma retropisciens. Isolation and characterization of some chemical constituents in the three species, were comprehensively explained, the techniques employed in the isolation of the compounds and the elucidation of their structure are based on chromatographic and spectroscopic data. Following their isolation, the book has highlighted the antibacterial, cytotoxicity, phytotoxicity, antioxidant activities, alpha-glucosidase enzyme inhibition, in addition to acetylcholinesterase and butyrylcholinesterase inhibiting activities of the isolated compounds.

The book contains 150 papers on Ethnobotany, Medicinal Plants and Economic Plant of Indian Sub-continent.

Medicinal flora plays an important role in health care systems across the world. Out of the half million flowering plants, around 50,000 species are valued for their therapeutic properties. During the last few decades, 20% of the world’s population used plants and/or their derived products as a source of medicine. WHO stated that 80% population around the globe, specifically the rural communities, depend on medicinal plants for their basic healthcare needs. To this end, plant-based phytochemicals are known to have hepato-protective, anti-carcinogenic, anti-allergic, anti-inflammatory, antimicrobial, antidepressant actions. This book is a guide to ~280 plant species of medicinal flora that demonstrates global relevance. Our goal is to share local knowledge about phytomedicines to a worldwide audience. It is an illustrated reference that documents and preserves the existing knowledge on these plant taxa, with a social and cultural (ethnobotanical) emphasis. This book also provides comprehensive and useful information about traditional uses of medicinal plants by the local communities for the treatment of various prevalent diseases. It contains comprehensive descriptions of each species including family, synonyms, English name, distribution, altitude, habitat, morphological description, life form, part used, mode of utilization, diseases category, recipes, other medicinal uses, phytochemical activity and toxicity.

This book is carefully written to assist undergraduate and postgraduate researchers in the area natural product chemistry, traditional medicine practice, biological sciences, medical sciences, medicinal plant science, organic chemistry, Pharmacologist, pharmacognosy, botanist, microbiologist, pathologist with the knowledge of different phytocompounds present in each of the parts of plants covered by the writer, different antibacterial and antifungal action of each fraction of plant parts covered by the researcher, method of phytochemical analysis, structure elucidation, chromatographic method of isolation of active component in plants method of interpreting different spectroscopic chart to deduce structure and finally the book will be useful as a reference point to all scientist interested in the study of medicinal plants.

Mentha (also known as mint, from Greek míntha (Palaeolexicon) is a genus of plants in the family Lamiaceae (mint family) (Harley et al., 2004). The species are not clearly distinct and estimates of the number of species varies (Bunsawat et al., 2004). Hybridization between some of the species occurs naturally. Many other hybrids, as well as numerous cultivars, are known in cultivation. The genus has a subcosmopolitan distribution across Europe, Africa, Asia, Australia, and North America (Brickell et al., 1997). Mints are aromatic, almost exclusively perennial, rarely annual, herbs. They have wide-spreading underground and overground stolons and erect, square (Rose, Francis, 1981) branched stems. The leaves are arranged in opposite pairs, from oblong to lanceolate, often downy, and with aserated margin. Leaf colors range from dark green and gray - green to purple, blue, and sometimes pale yellow. The flowers are white to purple and produced in false whorls called verticillasters.

Due to the increase in the consumption of herbal medicine, there is a need to know which scientifically based methods are appropriate for assessing the quality of herbal medicines. Fingerprinting has emerged as a suitable technique for quality estimation. Chemical markers are used for evaluation of herbal medicines. Identification and quantification of these chemical markers are crucial for quality control of herbal medicines. This book provides updated knowledge on methodology, quality assessment, toxicity analysis and medicinal values of natural compounds.

Ethnomedicinal Plants with Therapeutic Properties provides detailed information on locally important medicinal plants, discusses the pharmacological properties of selected medicinal plants, and looks at the phytodrug aspects of selected plants. In 24 important chapters, the volume covers ethnomedicinal, pharmacology, and pharmacognosy of selected plants. Medicinal plants are an important part of our natural health. They serve as important therapeutic agents as well as valuable raw materials for manufacturing numerous traditional and modern medicines. The history of medicinal plants used for treating diseases and ailments dates back to the beginning of human civilization. Our forefathers were compelled to use any natural substance that they could find to
ease their suffering caused by acute and chronic illnesses, wounds and injuries and even terminal illness. This volume highlights recent scientific evidence of therapeutic properties of traditionally used medicinal plants in relation to clinical outcomes and remedies for promotion of human well-being. The authors have endeavored to convey the therapeutic knowledge of ethnomedicinal plants clearly and concisely.

Because of increasing antibiotic resistance, stronger antibiotics are reserved for serious active infection, paving the way for a greater use of herbal antibiotics. This book helps dentists in implementing safe and effective natural medicine therapies to complement the current practice guidelines. Oral diseases continue to be a major health problem world-wide. Oral health is integral to general well-being and relates to the quality-of-life that extends beyond the functions of the craniofacial complex. The standard Western medicine has had only limited success in the prevention of periodontal disease and in the treatment of a variety of oral diseases. The dentist needs to be more informed regarding the use, safety and effectiveness of the various traditional medicines and over-the-counter products. Herbal extracts have been used in dentistry for reducing inflammation, as antimicrobial plaque agents, for preventing release of histamine and as antiseptics, antioxidants, antimicrobials, antifungals, antibacterials, antivirals and analgesics. They also aid in healing and are effective in controlling microbial plaque in gingivitis and periodontitis and thereby improving immunity. The 26 chapters in this unique book explore all the measures to utilize the natural oral care obtained from plants, animals and mineral drugs for dental care.

Legumes are the second source of proteins, carbohydrates, vitamins and minerals after corn. Legumes produce primary and secondary metabolites and other phytochemicals such as pharmaceuticals, pesticides and industrial products. They are also an excellent source of nuetrachemical constituents such as fibre, protease inhibitors, phytic acid and polyphenols like flavonoids, isoflavones, lignans and tannins. These compounds have antioxidant, immunomodulatory and anticancerous activities and also free radical scavenging properties. A systematic search for useful bioactivities from medicinal plants possessing antioxidant potential is now considered to be a rational approach in pharmaceuticals and drug research. The phytochemical analysis of the medicinal plants are important and have commercial interest both in research institutes and pharmaceutical companies for the manufacturing of new drugs for the treatment of various diseases. This work therefore explores the phytochemical constituents and antioxidant activity of the legume Indigofera hochstetteri.

Scientific Study from the year 2016 in the subject Agrarian Studies, grade: 1.5, Mar Augusthinose College, language: English, abstract: This study aims at the attributes of the Annona reticulata and its medical and biological value. Annona reticulata belongs to the family Annonaceae, commonly known as honey apple. Qualitative phytochemical analysis of chloroform and water extracts of Annona reticulata fruit, leaf and stem bark was conducted in order to detect the presence of various secondary metabolites using standard procedures. The results of phytochemical screening indicated the presence of secondary metabolites such as tannins, betacyanins, carbohydrates, alkaloids, terpenoids, phenols, quinines, saponins, cardiac glycosides etc. Also the comparative antimicrobial activity of chloroform and water extracts of fruit, leaf and stem bark of Annona reticulata was evaluated against four bacterial species namely Escherichia coli, Pseudomonas aeruginosa, Serratia marcescens and Micrococcus luteus and two fungal species namely Candida albicans and Rhizopus. Agar well diffusion method and disc diffusion method were selected to check the antimicrobial activities of the extracts. The study revealed that the chloroform extracts of leaf, stem bark and fruit of Annona reticulata has activity against the bacterial strains and fungal strains. Whereas, the water extracts of leaf, fruit and stem bark of Annona reticulata has more activity towards the fungal species. The findings of this study have identified that Annona reticulata extracts acts as a promising source of antimicrobial agent which could be useful in the modern medicine.

Plants are a very important source of nutrients and a very important part in the human diet. They provide us carbohydrates, protein, vitamins, cholesterol lowering compounds, antioxidants and other important sources of biologically active substances. Many nutritional values of plants have been discussed in the literature but there is very limited research in the biologically active compounds that are present in them. These biologically active compounds are called as phytochemicals. These phytochemicals are derived from every part of the plant including roots, stem, leaves, flowers, fruits, seeds etc. These phytochemicals are sometimes used as such and in some cases they form the raw materials for a variety of medicinally important compounds. Medicinal plants are a gift to us from the nature as they provide numerous health benefits to us. In India these medicinal plants are used for about centuries for their properties and are still used to this date. India has a variety of traditional medical systems like Ayurveda, siddha, unani and a huge class of ethnomedicine. This knowledge of medicine was disappeared due to the modernisation that has been on us on the past and is reappearing again as their importance have been realized and lack of side effects are also an important aspect in these types of traditional medicine. Medicinal plants are very important in health care of individuals and communities in many developing countries. Medicinal plants are believed to be much safer and are used in treatment of various ailments. The plants provide the basic nutrients needed for the growth of animals and humans like proteins, carbohydrates, fats, vitamins and oils minerals. These plant compounds are used as alternative medicine and have become popular all over the world. They are also used in everyday medicines that we take in our daily life without even knowing that these plant compounds are present, the plant are also used as nutraceutical supplements for improving nutritional intake. This book deals with the methods that are involved in the identification and analysis of such novel compounds that are useful in the field of drug discovery and other application of these valuable plant compounds.

This thesis investigated the pharmacology and phytochemistry of Achillea millefolium L. (yarrow) flowers, roots, stems, and leaves based on ethnobotanical reports in North America, with a focus on applications in a respiratory model. Seasonal changes in the phytochemical profile of yarrow were also assessed. A comprehensive dataset of medicinal Asteraceae was created after collecting ethnobotanical reports from the Native American Ethnobotany (NAEB) database. Using residual and binomial analyses, 14 tribes of Asteraceae were quantitatively evaluated and ranked within ten therapeutic categories as either over- or under-selected for treatment by North American indigenous peoples. Flora belonging to the Anthemideae tribe were over-utilized as pulmonary aids, particularly species of Achillea. Yarrow was selected for further analysis in the subsequent chapters of this thesis. The respiratory pharmacology of yarrow was examined by testing the
immunomodulatory effects of four plant parts in an in vitro assay using BEAS-2B human bronchial epithelial cells. Concentrations of the pro-inflammatory cytokines IL-6 and IL-8 were quantified using ELISA kits. Flowers demonstrated significant anti-inflammatory activity at 40 μg/ml in both assays, and also at 20 μg/ml in the IL-8 assay, suggesting a dose-dependent response. Roots displayed significant pro-inflammatory activity at all concentrations. A second mechanism of action via the endocannabinoid system was tested through inhibitory enzyme assays for fatty acid amide hydrolase (FAAH) and monoacylglycerol lipase (MAGL), in which the flowers and roots were most active. Since extracts of the four plant parts exhibited significantly different bioactivities, active metabolites previously identified in yarrow were quantified in each part through the targeted profiling of phenolics and alkalylamides using the tayctic chromatographic techniques. Phenolic compounds were found at highest concentrations in the flowerheads, while alkalylamides were detected predominantly within roots. An accompanying phenological analysis of alkalylamides and phenolic levels in all parts was explored. Collectively, this research provides the first integrated comparison of yarrow ethnotbanicity, bioactivity, and phytochemistry across different parts of the plant, contributing novel insights into the traditional, contemporary, and future uses of one of North America's most important medicinal plants.

Computational Phytochemistry explores how recent advances in computational techniques and methods have been embraced by phytochemical researchers to enhance many of their operations, thus refocusing and expanding the possibilities of phytochemical studies. By applying computational aids and mathematical models to extraction, isolation, structure determination and bioactivity testing, researchers can extract highly detailed information about phytochemicals and optimize working approaches. This book aims to support and encourage researchers currently working with, or those who are considering implementing computational methods into their phytochemical work. Topics in this book include: computational methods for predicting medicinal properties, optimizing extraction, isolating plant secondary metabolites and building dereplicated phytochemical libraries. The role of high-throughput screening, spectral data for structural prediction, plant metabolomics and biosynthesis are all reviewed, before the application of computational aids for assessing bioactivities and virtual screening are discussed. Illustrated with detailed figures and supported by practical examples, this book is an indispensable guide for all those involved with the identification, extraction and application of active agents from natural products. Includes step-by-step protocols for various computational and mathematical approaches applied to phytochemical research Features clearly illustrated chapters contributed by highly reputed researchers Covers all key areas in phytochemical research, including virtual screening and metabolomics

There are over 750,000 plants on earth; relatively only a few of these have been studied scientifically. Modern pharmacology looks for one active ingredient and seeks to isolate it to the exclusion of all the others. Most research on plants continues to focus on identifying and isolating active ingredients rather than studying the medicinal properties of the whole plant. The isolation, purification and identification of active ingredients of one of such medicinal plants that was studied is Ficus platyphylla (Moraceae). Phytochemical analysis of Ficus platyphylla was uniquely designed to give professionals on natural products studies and students an overview of the phytochemical compounds, accepted analytical methods for the isolation of pure compounds and the spectroscopic techniques required for their identification. The research protocols adopted in an impecunious system leading to the isolation of a compound for the first time from the bark of Ficus platyphylla is discussed.

Ayurveda is the medical system which promotes knowledge about the effect of everything existing in the universe reference with reference existing in the universe with reference to their qualities and pharmacological activities and whether beneficial activities and whether beneficial to the life or otherwise. Durg or dravya being one of the requisites of treatment is considered to be genuine, not just by its identification but also by its availability in abundance, manifold activities and enabling the vaidyas to use it in multiple dosage forms. Today, we need standardization of drugs and medicines to control and maintain their qualities in international market. The present book Phytochemicals; Potential Therapeutant for Critical Diseases Management is the compilation of papers, most of which dealt with the pharmacy and pharmaceutical aspects of the medicinal plants. Major focus is given on the qualitative and quantitative analysis of various drug plant. There are also contributions on traditional herbal formulation used in various parts of the country for different diseases and standardization and therapeutic potential of ayurvedic drugs. We hope the book will serve as a base for developing some standards on bioproducts and the ability of these agents. Today, we need standardization of drugs and medicines to control and maintain their qualities in international market. The present book Phytochemicals; Potential Therapeutant for Critical Diseases Management is the compilation of papers, most of which dealt with the pharmacy and pharmaceutical aspects of the medicinal plants. Major focus is given on the qualitative and quantitative analysis of various drug plant. There are also contributions on traditional herbal formulation used in various parts of the country for different diseases and standardization and therapeutic potential of ayurvedic drugs. We hope the book will serve as a base for developing some standards on bioproducts and the ability of these agents.

Ayurveda is the medical system which promotes knowledge about the effect of everything existing in the universe reference with reference existing in the universe with reference to their qualities and pharmacological activities and whether beneficial activities and whether beneficial to the life or otherwise. Durg or dravya being one of the requisites of treatment is considered to be genuine, not just by its identification but also by its availability in abundance, manifold activities and enabling the vaidyas to use it in multiple dosage forms. Today, we need standardization of drugs and medicines to control and maintain their qualities in international market. The present book Phytochemicals; Potential Therapeutant for Critical Diseases Management is the compilation of papers, most of which dealt with the pharmacy and pharmaceutical aspects of the medicinal plants. Major focus is given on the qualitative and quantitative analysis of various drug plant. There are also contributions on traditional herbal formulation used in various parts of the country for different diseases and standardization and therapeutic potential of ayurvedic drugs. We hope the book will serve as a base for developing some standards on bioproducts and the ability of these agents. Today, we need standardization of drugs and medicines to control and maintain their qualities in international market. The present book Phytochemicals; Potential Therapeutant for Critical Diseases Management is the compilation of papers, most of which dealt with the pharmacy and pharmaceutical aspects of the medicinal plants. Major focus is given on the qualitative and quantitative analysis of various drug plant. There are also contributions on traditional herbal formulation used in various parts of the country for different diseases and standardization and therapeutic potential of ayurvedic drugs. We hope the book will serve as a base for developing some standards on bioproducts and the ability of these agents.

The research protocols adopted in an impecunious system leading to the isolation of a compound for the first time from the bark of Ficus platyphylla is discussed.
Read Book Phytochemical Analysis Of Some Medicinal Plants

Jangwan, V P Joshi and R P Chamoli; Chapter 28: Anti-feedant Activity of Neem (Azadirachta indica A Juss) Against IInd Instar Larve of Spilosoma obliqua (WIK) by Dinesh Kumar Bhardwaj, Ashish Panwar and S K Tyagi; Chapter 29: A New Flavone Glycoside from Lantana camara Linn by Monika Srivastava and Mohammad Aslam; Chapter 30: Phytochemicals Showing Pharmacological Activity of Morus alba Linn by Renu Sharma, Monika Srivastava and Mohammad Aslam; Chapter 31: Biological Control of Mosquitoes by Developing Guidelines to Establish Systemic Larvivorous Fish Network by K K Gaur and Vishal Tiwari; Chapter 32: Potency of Medicinal Plant Resources by Anil Singh, Harshad Masrur and B Sundaar Singh; Chapter 33: Current Status on Application of Medicinal Plants in Alternate Medicines by Sarita Kaushik, Richa Sharma and B Sundaar Singh; Chapter 34: Antimycotic Nature of Slected Medicinal Plants Against Human Pathogenic Fungi by Sadhna Sharma, Sunita Dodia and B Geetha Singh; Chapter 35: Standardization and Therapeutic Potential of Sida spinosa Linn (Malvaceae) by Juhi Agrawal, Rashmi Sharma, Sanjeev Kumar and kaushal Kumar; Chapter 36: The Physico-chemical and Therapeutic Potential of Trikatu and Turmeric Herbs by Rashmi Sharma, Juhi Agrawal, Kumresh and Kaushal Kumar; Chapter 37: Detection of Elements in Butea monosperma, Cassia fistula, Tinopora cordifolia, Quercus infectoria and Cedrela toona by Navneet and Archha; Chapter 38: Utilizing Scope of Jaribooti in Uttarakhand and Commercialization of Medicinal Herbs, Crude Plant based drugs by Pawan K Sagar; Chapter 40: Standardization Characteristics having Medicinal Value of Plant Pongamia pinnata (Vent) by Pawan Kumar Sagar; Chapter 41: Mentha spicata Leaf Powder Affecting Growth and Reproduction of Trogoderma granarium (Everts) by Sudhakar Gupta, M Srivastava and S Srivastava; Chapter 42: Medicinal Perspective of Some Rare Plants of Bihar by Ashok Kumar Roy, Chandan Kumar, Naheed Ahmad and Archanaa Kumar; Chapter 43: Reproductive Biology of Tribulus terrestris L by Vandana Singh and Rekha Gupta; Chapter 44: Flavonoid from Acidic Leaves of Asparagus racemosus (Willd) by Umprti Vichnoi; Chapter 45: Ethnobotanical Study of Some Herbaceous Medicinal Plants of Sagar District Modii Simmi and S P Bajpai; Chapter 46: Ethnomedical Botanical Surveys of Bundelkhand Area of Sagar Region of Madhya Pradesh by Yogendra Thakur, S P Bajpai and Kaushlesh Pathak; Chapter 47: Achyranthes aspera L: An Important Ethnomedical Herb for Several Aliments by Manjulilla Srivastava, Babli Singh and S C Tripathi; Chapter 48: Medicinal Use of Plant Solanum pseudocapsicum Fourn in Garhwali Himalaya by Prasanna Bauguna, P P Badoni, H K Joshi and Pankaj K Bahuguna; Chapter 49: Chemical Analysis of Inorganic Elements in Traditional Medicinal Plants by Prabhat, Navneet, Sanjay and P Kumar; Chapter 50: Studies on Antimicrobial and Antioxidant Activities of Allium sativum, Allium cepa and Citrus limon by Ajay Singh, Harish Chandra, Deepak Shrestha, Jatin Srivastava, Nishant Rai and Sachin Chauhan; Chapter 51: Processing and Value Addition of Medicinal Plants: Need of Hour S K Goyal, Samsher and Suresh Chandra; Chapter 52: Van Muri: A Magical and Astonishing Ethnmedicine for Carbuncle and Cellulities by T P Mall, Babli Singh and D P Singh; Chapter 53: Role of Plant in Battle Field of Canncr by: Critical Study by Usha Dwivedi and Shashank Dwivedi; Chapter 54: The New Genotype of Kalmegh (Androgaphis paniculata) by D K Srivastava; Chapter 55: Herbal Contraceptives Used by the Ethnic Society of Khargone District of Madhya Pradesh by Bari M Thare, Tripa Sapru and S K Mahajan; Chapter 56: Sulphur Dioxide: Induced Changes in Photosynthetic Pigments and Nucleic Acid Contents of Medicinal Plant Azadiracta indica (Neem) by D R Khanna and Neetu Saxena; Chapter 57: Studies on Effect of Bacopa monniera (Linn) Leaves Extract on Heart Protein of Ovariectomised Mice (Mus Musculus) by S B Waghmare, R J Chavan, N D Padwal and B V Jadhav; Chapter 58: Revival of Traditional System of Medicine through Information Technology by Mannan Mamagat, P P Bhoyal and Ranjana Dobriyal; Chapter 59: Inhibitory Effect of Allelochemicals Produced By Medicinal Plants on Dermatophytes by Richa Sharma, Shalini Upadhyaya, B Sundaar Singh and B Geetha Singh; Chapter 60: Inhibitory Effects of Medicinal Plant Extracts Against Keratinofish by Shalini Upadhyaya, Richa Sharma and B Sundara Singh; Chapter 61: Application and Optimization of Natural Mordants in Modern Dyeing by A Bamilok, S Semwal, D Semwal and U Rawat; Chapter 62: Response of Different Auxins Towards Shooting in Zanthoxylum alatum Roxb by N S Bish and Snehilika Bhandari; Chapter 63: Anti-tumor Activity of Three Herbs in Delton Lympoma Ascities Bearing Mice and their Short-term in vitro Cytotoxicity on DLA-Cell-line by Meghna R Adhavaryu, Bhashker Vakharia, M N Reddy and Minoo Parabia; Chapter 64: The Hemorrhoid Management by S S Singh and S K Singh

Phytochemicals from medicinal plants are receiving ever greater attention in the scientific literature, in medicine, and in the world economy in general. For example, the global value of plant-derived pharmaceuticals will reach $500 billion in the year 2000 in the OECD countries. In the developing countries, over-the-counter remedies and "ethical phytomedicines," which are standardized toxicologically and clinically defined crude drugs, are seen as a promising low cost alternatives in primary health care. The field also has benefited greatly in recent years from the interaction of the study of traditional ethnobotanical knowledge and the application of modern phytochemical analysis and biological activity studies to medicinal plants. The papers on this topic assembled in the present volume were presented at the annual meeting of the Phytochemical Society of North America, held in Mexico City, August 15-19, 1994. This meeting location was chosen as another way to celebrate the closer ties between Mexico, the United States, and Canada. The meeting site was the historic Calinda Geneve Hotel in Mexico City, a most appropriate site to host a group of phytochemists, since it was the address of Russel Marker. Marker lived at the hotel, and his famous papers on steroidal saponins from Dioscorea composita, which launched the birth control pill, bear the address of the hotel.

Doctoral Thesis / Dissertation from the year 2012 in the subject Chemistry - Analytical Chemistry, grade: 3, Kachchh University (Department of Chemistry), course: MSc, language: English, abstract: Moringa oleifera, an important medicinal plant is one of the most widely cultivated species of the family Moringaceae. It is highly valued from time immemorial because of its vast medicinal properties. The present study provides all necessary information regarding of four parts such as flower, leaves, seed and pulp of moringa like biochemical, phytochemical, mineral, antibacterial activity and its nutritional value. The benefits of essential nutrients and minerals for maintaining good health were also highlighted in this study. The results of proximate analysis of Moringa oleifera revealed that the protein (9.37%), carbohydrate (7.33%), ascorbic acid (2.10%) and total soluble sugar (0.73%) were highest in flower as compared to leaves, seed and pulp. While free amino acid (9.84%) was found to be higher in seed, total phenol (0.29%) was higher in leaves and reducing sugar (0.43%) higher in pulp of the moringa. The result of qualitative analysis of amino acid represented that lysine, glycine, threonine, valine, isoleucine, tryptophan, alanine and cystein were present in moringa. The flower also contained higher amounts of crude fibre (0.23%) as well as moisture (90.56%), while fat (15.53%) content was found higher in seed. The dry matter (30.40%) and total ash (2.12%) content were higher in leaves. The ash content represented minerals in different amounts. The higher amount of potassium was found in flower (50.9%), seed (40.7%) and pulp (77.0%). Leaves contained higher amount of Calcium (57.18%), However Aluminium (10.00%) and Magnesium (6.07%) were found only in leaves. The result of heavy metal (zinc, lead and cadmium) and phytochemical analysis and representation that flower, leaves, seed and pulp have zinc (Zn), lead (Pb) and cadmium (Cd) found in lower amount then permissible limit for human body. The results of phytochemical analysis showed that terpenoids and steroids were present in all parts of moringa. Alkaloids present only in leaf. Flavonoid was present in flower and seed, saponins was present in leaves, and tannin was present in leaves and seed. The result of antibacterial activity of
different types of sample (flower, leaves, seed and pulp) of moringa showed that salmonella typhiil was effectively inhibited to all the extracts studied. But Escherichia coli were not inhibited by any extract. Methanolic extract of flower, leaves, seed and pulp were highly sensitive against the salmonella typhiil bacteria

The cultivation of avocado fruits (Persea americana Mill.) is expanding around the world. Major producer of this crop is Mexico. In Mexican and African ethnomedicine decocts of avocado seeds are used as a potent remedy against different diseases such as muscle paint, menstruation disturbs and diabetes (Adeboye et al., 1999; Adeyemi et al., 2002). This was one of the initial points for conducting a thorough phytochemical investigation on avocado seeds with the focus on analysis of extractable natural products in respect to their potential use for pharmaceutical and food applications. During avocado fruit processing, the residual seeds will be deposited as waste material. Aim of the study was to analyze the chemical composition of avocado seeds, including preparative isolation and complete structural characterization of the isolated natural products by spectroscopical tools. Bioactivities of crude extracts and also of purified structures were screened by efficient and relatively inexpensive assays. During this research on avocado seeds, the implementation of ‘high-speed countercurrent chromatography’ (HSCCC) technique proved to be a versatile tool for efficient fractionation and isolation of natural products. The combination with other classical separation methods (i.e. size exclusion gelchromatography, preparative HPLC) resulted in the isolation of 22 natural products from avocado seeds. Isolation procedures were guided by using the TEAC-assay (antioxidant capacity) and the ‘brine-shrimp’-assay with Artemia salina L. (cytotoxic activity) directing to the bioactive principles. The structure elucidation of the isolated compounds was performed by means of 1D-NMR (1H, 13C, DEPT135, diff-NOe), 2D-NMR (1H/1H-COSY, HMOC and HMBC), UV/Vis-spectroscopy and circular dichroism (CD), mass spectrometry (GC-EI/MS, direct EI-MS, DCI-MS, and HPLC-ESI-MS/MS) were also applied. Chemical derivatization such as acetylation, enzymatic hydrolysis and thiolysis reaction were conducted for structural confirmation of complex natural products. The recovered compounds from avocado seeds ranged in their polarity from extremely polar (i.e. proanthocyanidins) to very lipophilic acetylglucogenins (i.e. persin) (cf. Fig. A to C). The results of our phytochemical study are coherent with the ethnomedical knowledge from the indigenous people of Mexico and other cultures. The use of avocado seeds for certain diseases are at least in part explainable by the recovered natural products and their known and investigated activities. Interestingly, the use of avocado seed as antioxidants in some traditional foods and dishes of the Mexican people was proved by the high antioxidative activity of some of the isolated compounds (26, 94, 95, 28 and 29). Interestingly, substances 94, 95, 28 and 29 (recovered from the ethyl acetate partition) demonstrated a higher antioxidative activity than the common synthetic antioxidants. Natural avocado compounds from the polar extracts seem to be non-toxic, therefore the ethyl acetate extract or its purified compounds could be also used as potent antioxidant formulations by the food industry. The lipophilic extracts (PE) and fractions were found to be extremely cytotoxic, hence the use in food industry is not appropriate. Evaluation of these compounds against cancer cell lines could result in new bioactive anti-tumor agents. More research in this field remains to be done in the future for deepening the insights into the potentials of avocado seed natural products. Further natural compounds from avocado seeds are waiting to be isolated and to be tested in specific bioassays. Avocado seeds already applied in ethnomedicine by the traditional healers of the ancient Aztec cultures in Mexico may provide potential novel drugs of the future.

Biotechnology refers to the use or manipulation of an organism or parts of an organism. While the early applications were certainly simpler (though still relevant), modern plant biotechnology is primarily associated with molecular biology, cloning and genetic engineering. Over the last 50 years, several key discoveries have revolutionized the biological sciences and enabled the rapid growth of the biotechnology industry. This book gathers handpicked articles presented by national and international scientists at the International Conference on Biotechnology and Biological Sciences, BIOSPECTRUM 2017. It highlights the works of researchers and students in India and abroad on plant biotechnology and its applications in addressing various agricultural and food production-related issues. The respective papers explore a range of advances in plant biotechnology, e.g.: the cytotoxic potential of Moringaoleifera lam; the use of the entomo-pathogenic fungi Cordyceps sp. as unique and valuable sources of bioactive compounds; and strain improvement strategies for Cordyceps sp. In addition, they discuss the use of low-cost blue green algal biofertilizer comprising four blue green algal strains in rice fields; and the use of lignocellulosic materials as potential renewable energy resources for the production of fuels. This book will be extremely useful for researchers and students of biotechnology and plant science, providing an essential update on the latest findings and trends.

Copyright code : 955f27756df95768368c5ab5c5c5bfa6