

Antimicrobial Acitivity of Some Medicinal Plant

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Abstract - People in the past relied more on the environment for their survival. Because of how reliant they were on plants for survival, they learned to use the economic and therapeutic potential of several plant species. The "Rig Veda," considered by many to be the oldest storehouse of human knowledge, has the first references to the usage of plants for therapeutic purposes in Hindu culture. India has an extensive historical background in the use of plant-based medicines for medicinal and preventative purposes. In the study review the antimicrobial acitivity of some medicinal plant.

Keywords - Medicinal plant, Plant species, Antimicrobial activity, Survival.

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INTRODUCTION

Nature, put humans together, and bestows them with an abundance of preferences. Strangely, the rate of growth of health problems such diseases, disorders, complications, disputes, and illnesses has been rather modest. It is impossible for God to have sanctioned the existence of an illness that is not curable. It rescued him and bestowed upon him the ground's abundance of medicinal plants. The desire of man led to the discovery of the natural remedy. Herbal medicine is in high demand because of its secure place in both fundamental and/or everyday health care in both developing and developed nations. Traditional medicines play an important role in the lives of the vast majority of Indians, who either have access to them or use them regularly for preventative care and medical care. [1]

When it comes to preventing and treating mental, physical, or social inequality, traditional medicine is a synthesis of all applicable knowledge and techniques. Practical reality and observation passed down from one generation to the next are the only sources of information. Herbs fall under this category, and they may be used either alone or in combination with other treatments. The absence of standardization, identification, and pharmacopeial standards presents the greatest obstacles for these preparations. Because of this, it makes sense to have uniform standards for herbal medicines utilized throughout healthcare systems. In addition, medicines are often made from unrefined, naturally occurring ingredients that might be altered in their composition or contaminated throughout the preparation process. Therefore, there is an immediate need for the testing and analysis of herbal medical items utilizing cutting-edge methods.[2]

India is one of the world's most significant countries in terms of plant diversity. Roughly 54% of the land is

used for growing food, cosmetic, or medicinal plants, while about 19% of the land area is covered by forests of varying densities. Land-based development projects improve people's standard of living, health, and access to the labor market. In terms of alternative medicine, India is a world leader. About 90% of the herbal medicinal products used in the manufacture of herbal medicinal goods come from a restricted and wild source. The wide range of climatic conditions is responsible for the abundance of plant life. Although only around 3,000 plants have been publicly recognized as having medicinal potential, traditional practitioners employ over 8,000 of them in their practice. India is the world's leading source of many different types of medicinal plants, so much so that the country has earned the nickname "botanical paradise". The majority of Indian doctors develop and maintain their own recipes, which calls for a robust infrastructure and extensive study. About 2,50,000 people have chosen to practice Ayurveda, with a total of about 2,91,000 enrolled in all traditional systems, compared to little over 7,000 in contemporary medicine. A growing percentage of people in the West are turning to herbal medicine for treatment, with some estimates putting the number of people who use herbs to treat illness at 40 percent.[3]

RESPECTED TRADITIONAL MEDICINE

Traditional medicine, also known as ethnomedicine, is being studied by both medical experts and anthropologists in places like Africa, Russia, and several European regions. Many efforts have been made in post-revolutionary Russia to do practical research on herbal and natural medicines. If a Russian home remedy is shown to be effective against a certain condition, it receives widespread publicity and praise there. There is no such movement in any other country. When caring for its

people, the Chinese government combined traditional and modern medicine. Having less access to healthcare as a result of living in poverty has a major impact on the health of people in developing nations. Due to budgetary constraints, the current healthcare system is unjust, and the vast majority of people lack access to competent medical treatment.[4-5]

PROPOSITIONS MADE BY CONVENTIONAL MEDICINE

The medicinal claims and recommendations of traditional Indian and African healers for conditions including herpes zoster (for which conventional medicine offers no treatment), hypertension, psoriasis, rheumatism, and bronchial asthma have been subjected to rigorous laboratory testing. Domestic remedy development for common ailments is active in several regions of India. The World Health Organization's (WHO) efforts to preserve the world's supply of useful medicinal plants have been accepted for primary health care as a technique used by people everywhere, but especially in poor countries. [6]

HISTORICAL PLANT PRODUCTS OF SIGNIFICANCE

Clinical and pharmacological research are used to support the use of most existing medical medicines based on traditional treatments. For example, aspirin (acetylsalicylic acid) is an anti-inflammatory substance derived from salicin extracted from the bark of the Willow tree. The extraction of the alkaloids (morphine) from the *Papaver somniferum* L. plant, a commercially useful medicine, was studied in 1803. Codeine, a painkiller, was developed in 1970 by boiling morphine with acetic anhydride to get heroin, which is then readily transformed into codeine. Arabs investigated opium addiction, whereas the Sumerians and Greeks described the poppy as a medical substance. *Digitalis purpurea* L. has an active element called digitoxin that improves the efficiency of the heart's electrical conduction system and, in turn, strengthens the heart's ability to contract. [7]

However, different medical medicines with similar effects to digitoxin are used to treat cardiac problems now that researchers have discovered its long-term side effects. Historically, quinine, which is extracted from the *Cinchona pubescens* tree, has been used to cure malaria. Also, for over a century, *Pilocarpus jaborandi*'s L-histidine alkaloids have been utilized to treat open-angle and acute angle-closure glaucoma. In 1994, the Food and Drug Administration authorized an oral version of pilocarpine for the treatment of dry mouth (xerostomia), a side effect of radiation therapy for head and neck cancer. Oral preparations were first approved for use in 1998 for the treatment of Sjogren's syndrome. Salivary and tear glands might be affected by this autoimmune disease. [8]

TRADITIONAL MEDICINES' CONTRIBUTIONS TO BASIC HEALTHCARE

It's important to recognize the role that traditional medicine has had in shaping contemporary medical practice. After analyzing the chemical components of therapeutic plants traditionally used by villages and tribal people, scientists were able to create the effective medical product listed in Table 1.

Table 1 : New medicines derived from ancient remedies

Modern drugs	Plant source	Traditional medicinal use
Aspirin	<i>Salix alba</i> L	Anti-inflammatory
Codeine	<i>Papaver somniferum</i>	Relax from pain
Ipecac	<i>Psychotria ipecacuanha</i>	Checks vomiting
Ephedrine	<i>Ephedra sinica</i>	Lowering nostril congestion
Digitoxin	<i>Digitalis purpurea</i>	Dropsy, relieves heart congestion
Quinine	<i>Cinchona pubescens</i>	Encounter malaria
Scopolamine	<i>Datura stramonium</i>	Relaxes sickness motion
Theophyllin	<i>Catharanthus roseus</i>	Clearing passage of bronchial
Diosgenin	<i>Dioscorea floribunda</i>	Acts as contraceptive
Pilocarpine	<i>Pilocarpus jaborandi</i>	Lowering the eyes pressure

STRATEGIES REQUIRED FOR THE ADVANCEMENT OF TRADITIONAL MEDICINE

If we want to see progress in traditional medicine, the government must take the lead in promoting the use of conventional treatment as a complementary form of primary health care. The government should foster an atmosphere where citizens feel comfortable taking charge of their health. An emphasis should be placed on public health education, particularly in respect to the usage of traditional herbal remedies. The use of medicinal plants to treat a wide range of conditions is an area where primary care may stand to grow in knowledge and expertise. Herbs and crude extract samples used in traditional medicine don't necessarily need in-depth monitoring and verification of their uses in order to assess their therapeutic potential. Government funding should be made available to encourage the use of traditional medicine as a viable option for basic health care. It is

important to continue expanding our documentation and inventory of medicines used in the treatment of different disorders. [9-10]

For the sake of a steady supply of low-cost, high-quality medicinal herbs, it is crucial to cultivate gardens and kitchen gardens devoted to growing them. Traditional therapeutic traditions have been bolstered by the efforts of several NGOs and the government in recent years. People in underdeveloped countries may benefit more from this kind of proactive action than they would from continuing to rely on expensive delivered pharmaceuticals with varying side effects. [11]

Properties of medicinal plants

Effective traditional (Ayurvedic massage, Chinese, Homeopathic, and Unani) and contemporary (western) medicine all trace their roots back to medicinal plants. As described by, medicinal plants provide a wide range of benefits during therapy:

1. Medicine based on "synergies," in which many plant components work together to either amplify or mitigate the drug's effects, is increasingly being recognized as a viable treatment option.
2. In the treatment of serious diseases like cancer, plant ingredients have shown to be very effective and have received government funding support.
3. Constituents of defensive drugs-plants have the potential to protect the court against several diseases. Medicines derived from plants are used to lessen the need for chemically-synthetic treatment and to lessen the unwanted consequences of such treatment.

PLANT EXTRACTS AS POSSIBLE ANTIBACTERIAL INGREDIENTS

Gathering and drying plant parts (leaves, stem, root, flower, etc.) that are ingested as a crude or raw medicament is one method of using plant-based medicines in this raw form. Medications and pharmaceuticals are the result of chemical purification methods that isolate the active ingredients or principles. Active ingredients or principles having same structure and effects are manufactured chemically and used in allopathic or contemporary forms of medicaments to create the chemically synthetic medications. Research into the phytochemical and pharmacological properties of plants is proceeding at a rapid pace across the globe in order to identify plants with therapeutic potential and to create novel pharmaceutical products. Due to these advancements, many new ethical and legal questions concerning intellectual property rights have arisen. There is an immediate need to find a fair solution if the research and development of plant-based pharmaceuticals, either traditional, contemporary, or more likely a combination of the two, is ever to satisfy the varied health care demands of our global society in the years and decades to come.[12]

Around the globe, scientists are using the tool to conduct extensive studies in the fields of phytochemistry and pharmacology in order to screen potential therapeutic compounds. The problematic, ethical, and legal concerns of intellectual property rights have been brought to light by these recent incidents. There is an immediate need to create a fair solution in the situation that the future development of herbal-based medication usage, whether traditional, contemporary, or likely to be the two, yet to be employed for diverse health requirements of our nation.[13-14]

Human health may be negatively impacted momentarily or permanently by repeated contact with any of a large variety of bacterial species. The pathogenicity of bacteria is what gives them their reputation as potential infectors of human beings. The dynamic between host and pathogen is often rather intricate. The invasion and destruction of dermal structure, toxin production, and other host reactions are all caused by certain pathogenic bacteria. Antibiotics are a group of substances that inhibit the growth, division, and sometimes death of bacteria. They may have a natural or synthetic chemical origin. Additionally, certain bacteria may be unaffected or stay. Bacterial resistance to antibiotics may develop inwards or be acquired from other bacteria laterally or laterally. [15]

Horizontal gene transfer, which includes transition, transduction, and conjugation, is a major contributor to the spread of antibiotic-resistant bacteria among pathogens. Therefore, resistance is very dangerous to one's health. Many scientific studies at universities and pharmaceutical businesses have taken on the task of finding new sources of antibacterial compounds as a means of countering this issue. One method for addressing this issue is analyzing plant-based biologically active chemicals.[16]

Various ancient medical systems owe a great deal to the curative power of plants and plant products, which has been recognized for millennia. Many pharmaceuticals now in use are derived from plants, either in their purest form or with some modification of their natural synthesis. About 25% of Western pharmaceuticals are derived from plants.

Plants create a wide variety of substances that aren't necessary for their basic metabolism but that help them survive in harsh environments. All of the aforementioned organic molecules, collectively known as secondary metabolites, are hypothetical biological chemicals found in the product or intermediate of the secondary metabolism of plants. They may have consequential effects on a wide variety of creatures, including plants, microorganisms, and animals. In addition to playing a role in giving plants their distinctive qualities—the fragrance of flowers, the hue of fruits, and the pungent aroma of spices, for example—secondary metabolites also contribute to the active activities of plant species, both in terms of pharmacological and

biological activity. This is why we may thank secondary metabolites—found in plants—for their curative effect. The antibacterial action of the secondary metabolites produced by plants is well established. There are three primary classes of antibacterial secondary metabolites: (i) phenols, (ii) terpenes, and (iii) alkaloids.[17]

The screening of diverse plant crude extracts used for treatment of the various illnesses caused by bacteria has attracted a great deal of scientific attention for the inventing of unique and prospective chemical. Both the direct and indirect antibacterial properties of plant extracts are well-documented. Both direct and indirect actions, such as alterations of the components necessary to build the antibiotic-resistant, boost the effectiveness when used in conjunction with antibiotics, with direct actions having an effect on bacterial divisions and metabolism.

The literature is replete with accounts of the testing of crude and refined extracts of many plants for their antibacterial properties. Some countries that have published similar studies include Brazil, Australia, Colombia, Greece, Turkey, Africa, Serbia, and India. Plant extracts have been shown to have antibacterial action against both gram-positive and gram-negative bacteria, according to published studies. Plant components extracted using conventional techniques. Plant matter was broken up in the solvents and the chemicals were removed according to their relative polarity. The solvent is rapidly evaporated upon extraction, leaving behind a concentrated crude extract combination rich in active ingredients. Water, acetone, ethanol, ethyl acetate, chloroform, methanol, etc., are all viable solvent options that may be used for successful extraction.

To evaluate the solvent extracts' antibacterial properties, researchers might perform either a diffusion or dilution sensitivity test. The categorization of bacterial species as sensitive or resistant on evaluated the sample of plant extract is based on the diameter of the zone of diffusion (inhibition) technique, which is a qualitative test. Despite the fact that the minimum inhibitory concentration (MIC), a dilution approach, is often used to measure the activity of plant extracts. The minimal inhibitory concentration (MIC) is the smallest concentration at which bacterial growth is significantly slowed down. Sub-culturing the samples at concentrations one above the MIC on agar plates yielded the MBC preparations, which were used to determine the minimum bactericidal concentration (MBC). The minimal bacteriological concentration (MBC) was defined as the concentration of solvent at which no bacteria could grow.[18]

CONCLUSION

This article aimed to broaden our knowledge of naturally occurring antibacterial compounds by analyzing general information and folk usage of certain historically significant medicinal plants. Plants are a

vast reservoir of untapped resources that have the potential to provide a wide range of compounds and phytochemicals for the betterment of all other forms of life. As a result, they have potential as antibacterial agents in the creation of new medicines. More research is needed before they can be used as secure substitutes.

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