PERSPECTIVE

Effectiveness of specific Indian medicinal plants in terms of medicine and therapy

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ABSTRACT

Traditional herbal remedies are used to cure a variety of acute and chronic illnesses with little to no hazardous side effects. They have played a significant part in health systems around the world. Numerous health issues, including as hypertension, cancer, diabetes mellitus, wound healing, asthma, pharyngitis, and tuberculosis, can be treated naturally with herbal plants. Because of their numerous pharmacological qualities, plants with high concentrations of bioactive phytomedicine components, such as alkaloids, flavonoids, tannins, and polyphenols, have been utilized to treat diseases. India has long been recognized as a rich source of therapeutic plants, and many herbal medicine methods are regarded as "living traditions." However, a comprehensive assessment on the important Indian medicinal plants and their present state of medical plant research is lacking.

INTRODUCTION

Since around a thousand years ago, various plant species have been investigated as potential sources for creating medicinal compounds, and even now, the majority of medicines used today are still derived from plants. The possibility of developing drugs based on plants and natural products has been made possible by reports that written documents describing the medicinal properties of herbs and plants date back to 2600 BC. The "Ebers Papyrus," an Egyptian traditional medicine record from 2900 BC, is one of the best preserved records and contains information on 700 plant-derived medicines. The history of both traditional Chinese medicine and the Indian Ayurveda system dates back to the first millennium BC. It is quite amazing the variety of medicinal plants that are found all over the world. Approximately 70,000 plant species, ranging from lower level lichens to higher level trees, have reportedly been shown to have the ability to treat a variety of diseases. 21,000 medicinal plants are used for a variety of medical purposes, according to the WHO. Even today, traditional herbalists are known to use the herbal medicine system in rural regions, employing about 2500 plants to cure common illnesses—a practice that has long been regarded as one of the greatest in Indian medicine. India is the home to more than 100 genera of plants that are used in traditional medicines throughout the world. India ranks second in terms of exports and offers the highest quality and quantity of medicinal plants. With 16 agro-climatic zones and an estimated 45,000 plant species, it is one of the world's top 12 mega biodiversity hotspots. Of these, 7000 plant species are known to have medicinal properties. Natural medicines frequently have a lengthy history of use in the treatment of many human illnesses. The continued use of these medications has increased their influence on contemporary medical and healthcare services on a global scale. Because natural product-based libraries can be complicated, the pharmaceutical industry is known to rely mostly on inorganic chemical libraries and high-throughput screening for the discovery of innovative medications. However, this strategy was responsible for a decline in the introduction of new pharmaceuticals to the market. In order to produce innovative medications based on natural materials, wide interdisciplinary techniques were essential. One of the most significant scientific foundations for both the traditional and modern medical systems is regarded to be herbal medicine. Due to their higher cultural acceptability, compatibility with the human body, and

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lack of negative side effects, natural products-based medicine is used by about 75 to 80% of the world's population in the major developing nations. Consequently, throughout the past few decades, major developing countries have significantly increased their research into and use of herbal medicines. The World Health Organization (WHO) has said that the use of traditional medicines, including herbal remedies, is regarded as a therapeutic practice that first emerged hundreds of years ago and is still in use today. Herbal medication development is exclusively reliant on conventional medicine, which consists of therapeutic plant formulations. According to historical evidence, herbal medicine has been used for over 5000 years in Syria, Egypt, China, and India. According to global statistics, 80% of the world's population relies primarily on ethnobotanical treatments and herbal medicine, such as analgesics like morphine and codeine, antineoplastics like camptothecin and taxol, antidiabetic drugs like allicin and quinine, antimalarial drugs like artemisinin, quinine, and cardiac depressants like quinidine and colchicines, and stimulants like nicotine and caffeine for brain functions The quantity and quality of an active ingredient, which is typically a secondary metabolite, will differ depending on the location of the plant's growth. Both primary and secondary plant metabolites exist. Every living cell contains similar primary metabolites that play a role in growth and development, such as amino acids, proteins, sugar, nucleic acids, and polysaccharides. Secondary metabolites are derived from the primary metabolic pathways but are not necessary for growth. The biological effects of secondary metabolites have been demonstrated to be diverse. Indian herbal plants can refer to a single plant's many therapeutic efficacies or a group of plants that are useful against a specific ailment. To be more specific, the clinical effectiveness of the widely used Indian herbal plants with regard to various types of plant parts, screened phytocompounds, and a potential relationship between the phytocompounds and various clinical applications has not been well reviewed. The most widely used herbal plants that can grow in all seasons in India are discussed in this paper, with special emphasis on the therapeutic efficacy of their parts, screened metabolites, and a thorough evaluation of their therapeutic efficacy in a variety of clinical applications, from straightforward wound healing to cancer therapy. Plants like T. populnea (Analgesic, hepatoprotective, neuroprotective, immune-modulatory, and wound healing) and G. sylvestre (anti-diabetic, anti-microbial, antioxidant, anti-inflammatory, and lower LDL cholesterol and triglycerides) have demonstrated a range of clinical advantages. Among the 20 plants, S. auriculata is recognized to be well-liked by the Indian populace and is also showing the most medical benefits (anti-diabetic, leprosy, asthma, anti-cancer, antioxidant, wound-healing, and hepatoprotective, among others).