



# Ancient evolution of medicinal and aromatic plants as drugs

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## DESCRIPTION

Medicinal and Aromatic Plants (MAPs) are vegetal materials that have pharmacological properties and also have aromatic and gastronomic uses. The use of MAPs for drug preparation dates from approximately 5000 years ago, but nowadays, phytochemicals are involved in the formulation of medicines, food supplements, cosmetics, and other health related products. In fact, approximately 50% of all drugs currently in clinical trials are derived from plants. It is estimated that more than 80% of the world's medicinal plants grow in Asia and America. The well-known Egyptian pharmaceutical record is the Ebers papyrus dating from 1500 BC, a document that defines around 700 drugs (generally from plants). It includes formulas for gargles, snuffs, poultices, infusions, pills and ointments. MAPs may exert several biological functions, for instance, extracts from MAPs could act as antimicrobial agents and reduce significantly the viability of pathogens of clinical and plant pathology interest. Due to such diverse biological activities and medicinal potentials of natural products, civilizations have gathered experience and knowledge of their use. Complementary and Alternative Medicine (CAM) has grown to be a group of diverse medical and health care systems, practices and products that are not generally considered part of conventional medicine. CAM may also be referred to as traditional medicine (also recognized as indigenous or folk medicine) that include Ayurveda, Unani, Siddha medicine, Islamic medicine, ancient Iranian medicine, traditional Korean medicine, traditional Chinese medicine, traditional African medicine, acupuncture and other pseudo-medical knowledge and practices all over the world. Beyond this system, another system existed, which can be called as folk medicine. Just like to the Ayurvedic system, the medicinal practitioners of folk medicinal systems are also famous in Eastern India as Kavirajes. The improvement of modern medicine has somehow diminished the role of medicinal plants in favor of synthetic drugs. Actually, it has only been during the

past decades that natural products have taken a secondary role in drug discovery and development, after the arrival of molecular biology and combinatorial chemistry made possible the rational design of chemical compounds to target specific molecules. Three approaches, which are closely related to diet (foodstuffs), medical practice (folk and traditional medicines), and scientific research (phytochemical analysis), can be adopted to explore the value of herbal preparations. Based on the experience from random trials and observations in animals, ancient people acquired the knowledge of using herbs for treating illness. In this connection, Chinese Herbal Medicine (CHM) and Indian Herbal Medicine (IHM), which was highly developed in ancient China, Japan, Korea, and India, are still influencing the modern healthcare. The World Health Organization (WHO) estimates that herbal medicines provide primary healthcare for approximately 3.5 to 4 billion people and about 85% of traditional medicine involves the use of plant extracts, which may be called "modern herbal medicine." Until now, plants/herbs are still highly esteemed all over the world as a rich source of therapeutic agents for the treatment and prevention of diseases and ailments; at present, more than 35,000 plant species are used for medicinal purposes around the world. In conventional Western medicine, 50%-60% of pharmaceutical commodities contains natural products or is synthesized from them; 10%-25% of all prescription drugs contain one or more ingredients derived from plants. The medicinal value of herbs/plants depends on the presence of biological active ingredients with drug-like properties. Recent research has identified a lot of biologically active substances/ingredients from both terrestrial and marine botanicals. The search for new drug from plant/herb has been rapidly increasing in recent few decades, and it has led to the collection of a remarkably diverse array of over 139,000 natural products. All these compounds are potential candidates for drug development. Single chemical entities extracted from herbal medicines or synthetically modified

compounds, are currently in clinical use like huperzine, and bicyclol. Similarly Rauwolfia alkaloids, holarrhena alkaloids, guggulsterons (an herbal supplement made from the sap of the Guggul) and many other steroidal lactones and glycosides have provided positive outcomes in the area of drug discovery drawing on Ayurvedic experiential databases.

## CONCLUSION

With the advances in analytical technology and biological science, many bioactive chemical entities have been identified in plants or foodstuffs through phytochemical and pharmacological studies. For example, taxol (paclitaxel), an important anticancer drug, is isolated from the Pacific Yew tree, Lutein isolated from marigold is known to positively affect visual performance and help

prevent cataracts. Insect–plant, plant–microbe and plant–nematode interactions are well documented ecological phenomena affecting the biosynthetic pathways of various classes of secondary metabolites within plants for defense point of view. Many plants have been known to synthesis active secondary metabolite to protect themselves from microbial attack such as peptide, alkaloid, unsaturated long chain fatty acid, phenolic compound and antioxidant which have potential therapeutic applications. Herbal medicine depends on using a plant's seeds, berries, roots, leaves, bark, flowers and also lichen, insectivorous plants and algae for medicinal purposes. Hence, more extensive collections of natural sources based on ethnomedicine/ethnic practice, could provide many novel compounds in drug discovery.