

The usage of medicinal plants thought history

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Nature has an answer to every question and a medicinal plant for every disease.

Paracelsus (1493-1541) wrote: “Health is all around us, we are part of nature and we should look for the medicine for ourselves in it and not outside of it”.

Plants, despite the fact that they seem to be passive members of our eco-system, have a huge impact on the development of the living world on planet Earth.

They have a complex structure and contain a large number of ingredients that help man in his life.



The beginnings of the medicinal plants' use were instinctive, as is the case with animals.

In view of the fact that at the time there was not sufficient information, everything was based on experience.

In time, the reasons for the usage of specific medicinal plants for treatment of certain diseases were being discovered;

Until the advent of iatrochemistry in the 16th century, plants had been the source of treatment and prophylaxis.

Nevertheless, the decreasing efficacy of synthetic drugs and the increasing contraindications of their usage make the usage of natural drugs topical again.

Times have changed, but the loyalty and affection for medicinal plants still endures.

Hence the importance of researching the history of the use of medicinal plants is enormous.



CHRONOLOGY FROM THE PAST TO THE PRESENT

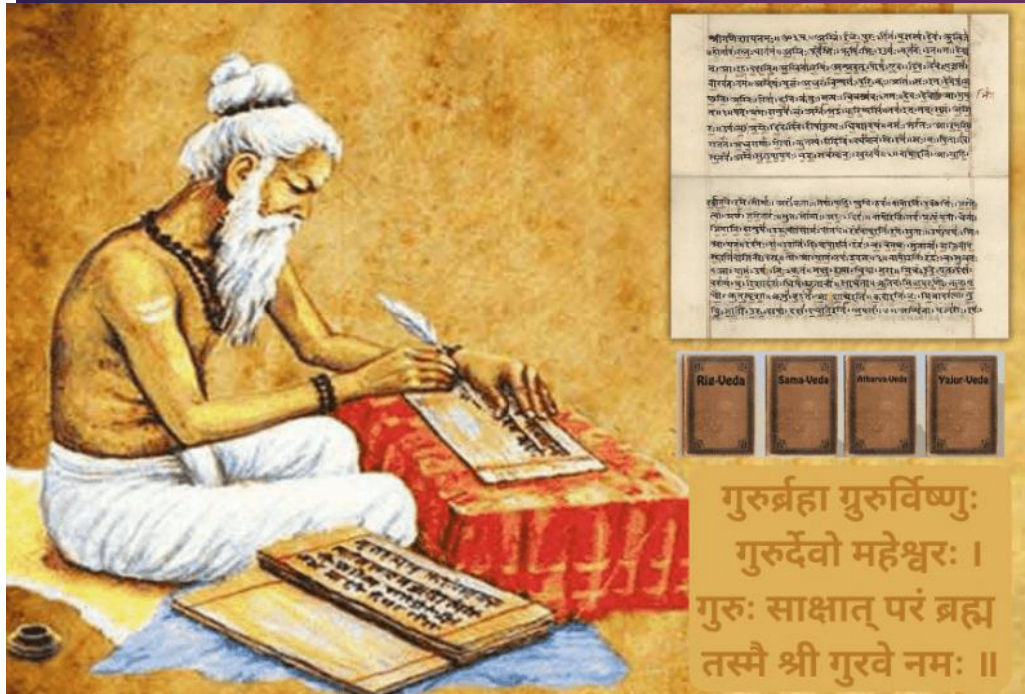


The oldest written evidence of medicinal plants' usage for preparation of drugs has been found on a Sumerian clay slab from Nagpur, approximately 5000 years old. It comprised 12 recipes for drug preparation referring to over 250 various plants.



The Chinese book on roots and grasses “Pen T’Sao,” written by Emperor Shen Nung circa 2500 BC, treats 365 dried parts of medicinal plants, many of which are used even nowadays

Rhei rhisoma, camphor, *Theae folium*, *Podophyllum*, the great yellow gentian, ginseng, *Datura stramonium* L., cinnamon bark and ephedra



The Indian holy books Vedas mention treatment with plants, which are abundant in that country. Numerous spice plants used even today originate from India: nutmeg, pepper, clove, etc

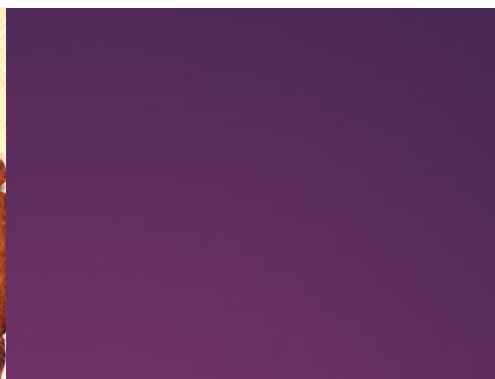


The Ebers Papyrus, written circa 1550 BC, represents a collection of 800 prescriptions referring to 700 plant species and drugs used for therapy

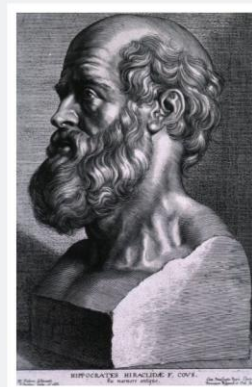
pomegranate, *Ricinus communis* L., aloe, senna, garlic, onion, fig, willow, coriander, juniper, *Centaurium erythraea* Rafn., etc



In Homer's epics *The Iliad* and *The Odyssey*, created circa 800 BC, 63 plant species were referred.



The Father of Medicine: Was Hippocrates an Herbalist?



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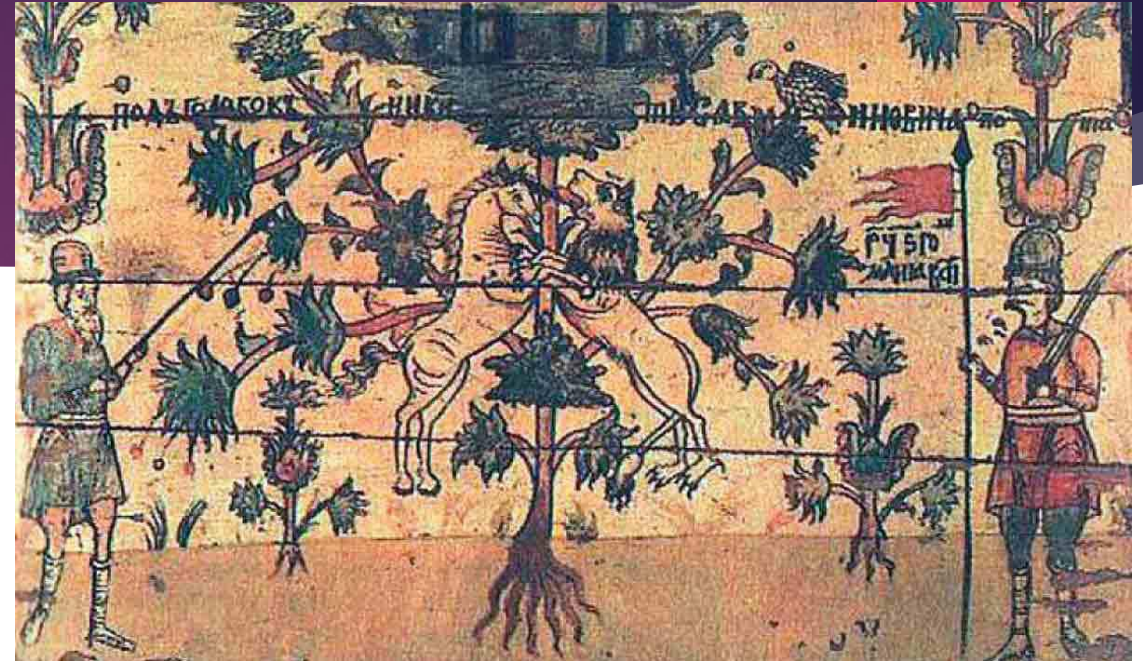
The works of Hippocrates (459–370 BC) contain 300 medicinal plants classified by physiological action:

Centaureum umbellatum Gilib. were applied against fever;
garlic against intestine parasites;
opium, henbane, deadly nightshade, and mandrake were used as narcotics;
fragrant hellebore and haselwort as emetics;
sea onion, celery, parsley, asparagus, and garlic as diuretics;
oak and pomegranate as adstringents



- **“the father of botany”** Theophrast (371-287 BC) founded botanical science with his books “De Causis Plantarum” and “De Historia Plantarum”. In the books, he generated a classification of more than 500 medicinal plants known at the time.

In ancient history, the most prominent writer on plant drugs was **“the father of pharmacognosy”** Dioscorides, who, as a military physician and pharmacognosist, studied medicinal plants wherever he travelled with the Roman Army. Circa 77 AD he wrote the work “De Materia Medica.” Of the total of 944 drugs described, 657 are of plant origin.



► The most distinguished Roman physician, Galen (131 AD–200), compiled the first list of parallel drugs. From today's point of view, some of the proposed substitutes do not correspond in a pharmacological context and are absolutely unacceptable. Galen also introduced several new plant drugs in therapy that Dioscorides had not described,

for instance, *Uvae ursi folium*, used as an uroantiseptic and a mild diuretic even in this day and age.

In the seventh century AD the Slavic people used

Rosmarinus officinalis L., *Ocimum basilicum* L., *Iris germanica* L. and *Mentha viridis* L. in cosmetics,

Alium sativum L. as a remedy and

Veratrum album L., *Cucumis sativus* L., *Urtica dioica* L., *Achilea millefolium* L., *Artemisia maritima* L., *Lavandula officinalis* Chaix., *Sambuci flos* against several insects, and

Aconitum napellus L. as a poison in hunting



- In the Middle Ages, the skills of healing, cultivation of medicinal plants, and preparation of drugs moved to monasteries. Therapy was based on 16 medicinal plants, which the monks commonly grew within the monasteries

as follows: sage, anise, mint, Greek seed, savory, tansy (*Tanacetum vulgare* L.), etc.

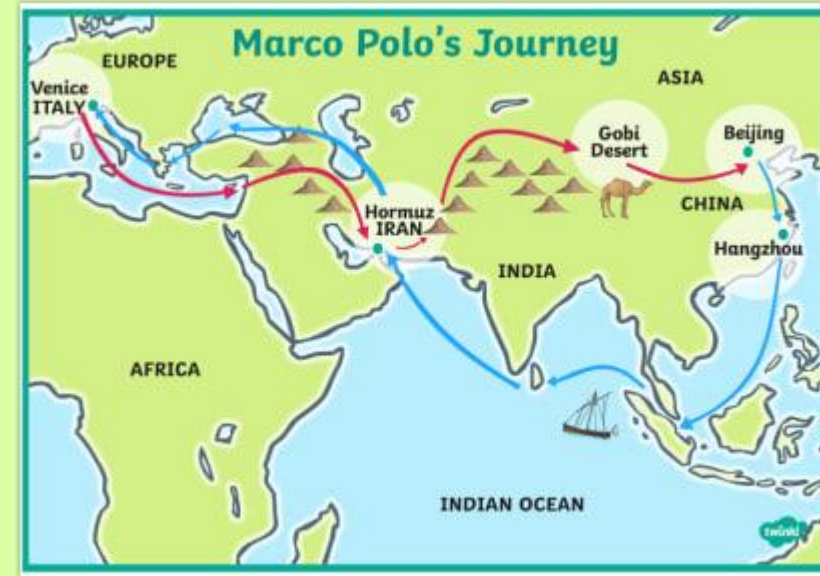


The Arabs introduced numerous new plants in pharmacotherapy, mostly from India. The Arabs used aloe, deadly nightshade, henbane, coffee, ginger, strychnos, saffron, curcuma, pepper, cinnamon, rheum, senna.

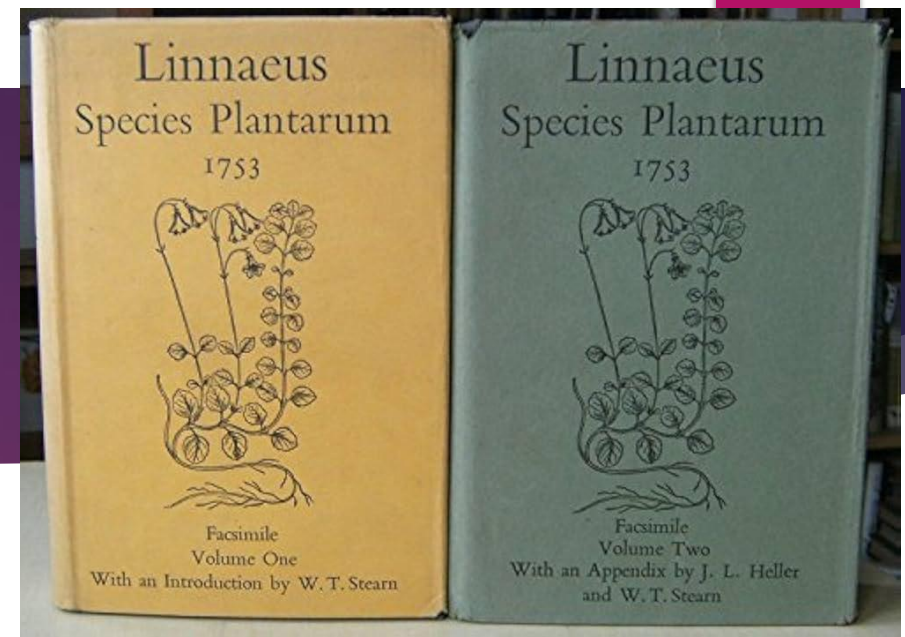
Throughout the Middle Ages European physicians consulted the Arab works “De Re Medica” by John Mesue (850 AD), “Canon Medicinae” by Avicenna (980-1037), and “Liber Magnae Collectionis Simplicum Alimentorum Et Medicamentorum” by Ibn Baitar (1197-1248), in which over 1000 medicinal plants were described



- For Macedonia, St Clement and St Naum of Ohrid's work are of particular significance. They referred to the Nikeian pharmacological codex dating from year 850, and transferred their extensive knowledge on medicinal plants to the people



Marco Polo's journeys (1254-1324) in tropical Asia, China, and Persia, the discovery of America (1492), and Vasco De Gama's journeys to India (1498), resulted in many medicinal plants being brought into Europe. With the discovery of America, materia medica was enriched with a large number of new medicinal plants: *Cinchona*, *Ipecacuanha*, *Cacao*, *Ratanhia*, *Lobelia*, *Jalapa*, *Podophylum*, *Senega*, *Vanilla*, *Mate*, tobacco, red pepper, etc. In the 17th century, the powder obtained from the bark of *Cinchona succirubra* Pavon, under the name Pulvo de la Contesa, was introduced into European medicine.



In 18th century, in his work *Species Plantarum* (1753), Linnaeus (1707-1788) provided a brief description and classification of the species described until then. The species were described and named without taking into consideration whether some of them had previously been described somewhere. For the naming, a polynomial system was employed where the first word denoted the genus while the remaining polynomial phrase explained other features of the plant (e.g. the willow Clusius was named *Salix pumila angustifolia antera*). Linnaeus altered the naming system into a binominal one.

Paracelsus (1493-1541) emphasized his belief in observation, and simultaneously supported the “Signatura doctrinae”. According to this belief, God designated his own sign on the healing substances, which indicated their application for certain diseases.

Asarum europaeum L. is reminiscent of the liver; thus, it must be beneficial for liver diseases;

Hypericum perforatum L. would be beneficial for treatment of wounds

Friedrich Serturner (1783-1841)

as a pharmacist's apprentice he was the first person to isolate morphine from opium



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Early 19th century was a turning point in the knowledge and use of medicinal plants. The discovery, and isolation of

alkaloids from poppy (1806), ipecacuanha (1817), strychnos (1817), quinine (1820), pomegranate (1878), and other plants,

then the isolation of glycosides, marked the beginning of scientific pharmacy.

With the upgrading of the chemical methods, other active substances from medicinal plants were also discovered such as tannins, saponosides, etheric oils, vitamins, hormones, etc.



In late 19th and early 20th centuries, there was a great danger of elimination of medicinal plants from therapy. Many authors wrote that drugs obtained from them had many shortcomings due to the destructive action of enzymes, which cause fundamental changes during the process of medicinal plants drying.

In early 20th century, stabilization methods for fresh medicinal plants were proposed, especially the ones with labile medicinal components.

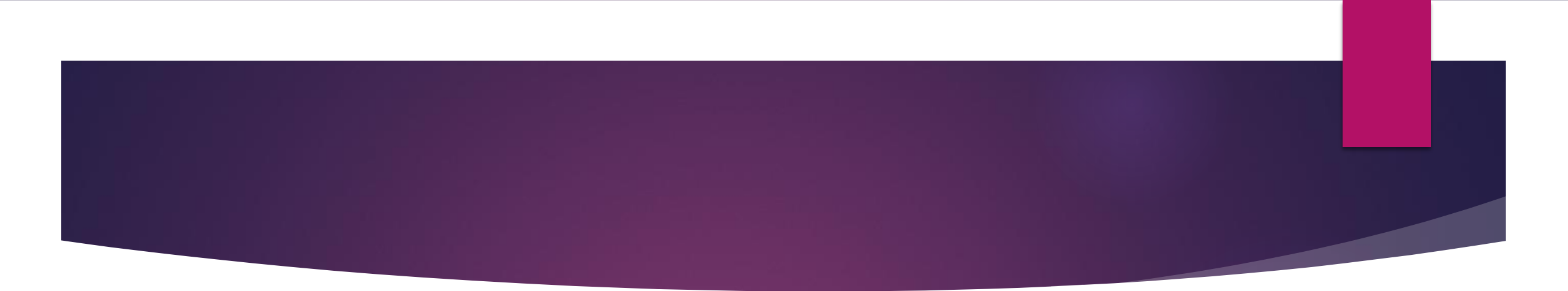
Besides, much effort was invested in study of the conditions of manufacturing and cultivation of medicinal plants

In present days

almost all pharmacopoeias in the world—Ph Eur 11 (European Pharmacopoeia, 2023), USP (The United States Pharmacopoeial Convention, 2025), BP (British Pharmacopoeia Commission, 2025)—proscribe plant drugs of real medicinal value.

There are countries [the United Kingdom (British Pharmacopoeia Commission, 2025), Russia, Germany (Blumenthal, 1998)] that have separate herbal pharmacopoeias.

Yet, in practice, a much higher number of unofficial drugs are always used. Their application is grounded on the experiences of popular medicine (traditional or popular medicine) or on the new scientific research and experimental results (conventional medicine). Many medicinal plants are applied through self-medication or at the recommendation of a physician or pharmacist. They are used independently or in combination with synthetic drugs (complementary medicine).



In the major European producer and consumer of herbal preparations — Germany, rational phytotherapy is employed, based on applications of preparations whose efficiency depends on the applied dose and identified active components, and their efficiency has been corroborated by experimental and clinical tests. Those preparations have been manufactured from standardized plant drug extracts, and they adhere to all requirements for pharmaceutical quality of drugs.

With the new Law on Drugs and Medical Devices dated September 2007 (Official gazette of RM no.106/07) and enacted in the Republic of Macedonia, dry or sometimes fresh parts of medicinal plants (herbal substances) may be used for preparation of herbal drugs, herbal processed products, and traditional herbal drugs. Herbal substances may also be utilized for manufacture of homeopathic drugs. In the Republic of Macedonia herbal preparations are dispensed without a medical prescription, as “over the counter” (OTC) preparations.



CONCLUSION

Medicinal plants are the oldest medicine and original pharmaceutical raw material, once of primitive, and today of civilized peoples. The use of medicinal plants throughout history among every people, in every region and in every era had its own specifics of treatment. Health is an eternal struggle for health, only the methods of struggle have changed and improved over the centuries.