



The history and ups and downs of herbal medicines usage

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In the late 19th and early 20th centuries, there was a steady decline in the therapeutic use of herbal medicines. More recently however, largely due to the potent side effects of modern synthetic drugs and increasing contraindications to their usage, a resurgent trend has emerged towards the use of medicinal plants. Nonetheless, herbal medicines have continued to be in substantial demand in the developing world not only because they are readily available and moderately inexpensive but also because of cultural acceptability.

Knowledge concerning any underlying etiology of illness was limited in the distant past and the nature of plant constituents, together with an inadequate understanding of their mechanistic therapeutic applicability has restricted the use of plants in medicine over the years. Consequently, herbal medicine usage has been based since ancient times almost exclusively on experience coupled with trial and error. Accordingly, the rebirth of herbal medicine, particularly in developed countries, is chiefly centred on renewed interest by society and advancing scientific information regarding plants and their constituents.

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Since time immemorial, mankind has searched for medications to remove pain and cure various diseases. Evidence exists for the use of medicinal plants up to 60,000 years ago but more recently, a 5000 year-old Sumerian clay slab was discovered verifying the utilization of medicinal plants for the preparation of drugs (1). Nowadays it has been estimated that more than 50% of available drugs have originated in some way from plants (2,3).

The Chinese book written by Emperor Shen Nung entitled "Pen Ts'ao" described 365 drugs, many of which including yellow gentian, ginseng, cinnamon bark, Theae folium, Rhei rhizoma, camphor, podophyllum, jimson weed, and ephedra are used even today (4). There are several other age-old books originating from various countries. However, the most prominent one is from the "father of pharmacognosy," Dioscorides which offers substantial data on medicinal plants constituting the basic *materia medica* until the Renaissance (5). It describes more than 1000 drugs, two thirds of them being of herbal origin and it explains their mode of collection, and therapeutic effects. In this book, other than plant descriptions, the

plant names in other languages and the localities where they occur are provided (6).

Throughout the middle ages, European physicians consulted Persian and Arab works such as "De Re Medica" by John Mesue, "Canon Medicinæ" by Avicenna, and "Liber Magnae Collectionis Simplicium Alimentorum et Medicamentorum" by Ibn al-Baitar, in which over 1000 medicinal plants were identified. Marco Polo's journeys (1254-1324) in tropical Asia, Persia and China, the discovery of America (1492), and Vasco De Gama's journeys to India (1498), resulted in the transfer of many medicinal plants to Europe. During this period, Paracelsus (1493-1541) was a leading proponent of chemically prepared drugs from raw plants and mineral substances (7-9).

While medicinal plants were used primarily in simple pharmaceutical formulations such as macerations, infusions and decoctions, between the 16th and 18th centuries, the demand for compounded drugs was very much on the increase. These compounded drugs comprised medicinal plants along with drugs of animal and plant origin. If the drug was prepared from a number

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of medicinal plants, minerals and rare animals, it was highly valued and sold at a premium (1,10).

The 15th to the 17th century was a flourishing era for herbal medicine and their descriptions began to appear in several languages. In the 18th century, Linnaeus devised a scheme for classifying plant species. In order to name plants, 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 then, transformed the naming system into a binominal one. Hence, the name of each species consisted of the genus name, with an initial capital letter, followed by the species name, with an initial small letter (11).

The early 19th century was a turning point in the knowledge base, as well as the use of medicinal plants. The discovery, substantiation, and isolation of alkaloids from the poppy as well as quinine, strychnos, ipecacuanha, pomegranate, and other plants, was followed by the isolation of glycosides and this really marked the beginning of scientific pharmacy. Subsequent to the upgrading of chemical methodologies, other active substances from medicinal plants such as tannins, saponosides, vitamins and hormones were also discovered (12,13).

In the late 19th and early 20th centuries, there was a steady decline in the therapeutic use of herbal medicines. Many authors claimed that drugs obtained from medicinal plants possessed shortcomings mainly due to the destructive action of enzymes. Moreover, in the 19th century, glycosides and alkaloids, isolated in pure form and used in therapeutics were increasingly supplanting the herbal medicines from which they had been derived. Nevertheless, it was soon ascertained that although the action of pure alkaloids was faster, the effects of plant-derived alkaloid drugs were extensive and long-lasting. Early in the 20th century, stabilization methods for the preparation and use of fresh medicinal plants were proposed. Furthermore, considerable efforts were invested in the study of optimal conditions for cultivating and manufacturing medicinal plants (14) since active components are normally more abundant from such well-maintained natural sources (15). Currently, due to the potent side effects of modern synthetic drugs and increasing contraindications to their usage, a popular resurgence has materialized for the use of medicinal plants (16).

Knowledge concerning any underlying etiology of illness has been limited in the past and the nature of plant constituents, together with an inadequate understanding of their mechanistic therapeutic applicability, has restricted the use of plants in medicine to a certain extent. Consequently, herbal medicine usage has been based in the past almost exclusively on experience gained from trial and error. Accordingly, the rebirth of herbal medicine, particularly in developed countries, is chiefly centred on renewed interest by society and advancing scientific information regarding plants. In this context therefore, it is

important that the momentum of research into medicinal plants is maintained or even escalated (1). Thus, present-day studies with medicinal plants have shown promise in several potential disease conditions including for example, diabetes (17), hypertension (18), migraine (19), pain (20) and depression (21). Herbal preparations also have capacities to diminish drug induced adverse effects (22,23) and even heavy metal toxicity (24).

Nowadays, almost all pharmacopoeias in the world catalogue herbal medicines of perceptible medicinal value. In fact, countries such as Germany, the United Kingdom and Russia actually have separate herbal pharmacopoeias. However, in reality, there is a higher incidence and more widespread usage of unofficial herbal drugs. Their application is grounded either in traditional medicine or on modern-day scientific research findings. Many medicinal plants are employed as self-medications or are used upon the recommendation of a physician or pharmacist. They are employed both independently and/or in combination as complementary medicines to synthetic drugs. It is imperative for an adequate and successfully applied therapy that an accurate early diagnosis is made of the illness along with selection of the appropriate pharmacological effects associated with the specific herbal components (15).

Some European producers of herbal preparations invariably adhere to the requirements for the pharmaceutical quality of drugs. However, in certain countries herbal preparations are dispensed without a medical prescription and are regularly supplied as “over the counter” preparations (25).

In summary, since time immemorial, mankind has sought medications to remove pain and cure various diseases. The benefits of herbal medicines to bygone civilizations have often been conveyed to successive generations with improved properties derived from better extraction or isolation and pharmacological elucidation of active principles. The rekindled attention of modern society to medicinal plants has created a concomitant revival in the usage of herbal products to the extent that they make a noticeable contribution to the therapeutic armory.

Authors' contributions

The authors contributed equally.

Conflict of interests

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References

1. Sumner J. The natural history of medicinal plants. London: Timber Press; 2000. pp. 16.
2. Yarnell ND, Abascal JD. Dilemmas of traditional botanical research. *Herbal Gram* 2002; 55:46–54.
3. Fabricant DS, Farnsworth NR. The value of plants used in traditional medicine for drug discovery. *Environ. Health Perspect* 2001; 109 (Suppl 1): 69–75.
4. Wiart C. *Ethnopharmacology of medicinal plants*. New Jersey: Humana Press; 2006. pp. 1–50.
5. Thorwald J. Power and knowledge of ancient physicians. Zagreb: August Cesarec; 1991. pp. 10–255.
6. Katic R. The Chilandar medical codex N. 517. In: Milincevic V, editor. Beograd: National library from Srbija; 1980. pp. 9–80.
7. Dwivedi G, Dwivedi Sh. History of medicine. National Informatics Center. Retrieved 2008; 8-10.
8. Vulgaris Th. PDR for herbal medicine. Montvale NJ, London: Medical Economics Company; 2004. pp. 1184.
9. Jacquart D. Islamic Pharmacology in the Middle Ages: theories and substances. *Eur Rev* 2008; 16(2):219–227.
10. Toplak Galle K. Domestic medicinal plants. Zagreb: Mozaic book; 2005. pp. 60–1.
11. Millie G. Reading Medicine in the Codex De La Cruz Badiano. *J Hist Ideas* 2008; 69(2):169-192.
12. Swerdlow JL. Modern Science Embraces Medicinal Plants. *Nature's Medicine: Plants that Heal*. Washington, DC: National Geographic Society; 2000. pp. 110–57.
13. Brater D, Walter DJ. Clinical pharmacology in the middle ages: principles that presage the 21st century. *Clin Pharmacol Ther* 2000; 67:447–450.
14. Kovacevic N. Fundamentals of pharmacognosy. Beograd: Personal edition; 2000. pp. 170–1.
15. Nelson D, Cox M. *Lehninger Principles of Biochemistry*. 4th ed. New York: W.H. Freeman and Company; 2005. pp. 1–41.
16. Nasri H, Shirzad H. Toxicity and safety of medicinal plants. *J HerbMed Plarmacol* 2013; 2(2):21-2.
17. Akbari F, Ansari-Samani R, Karimi A, Mortazaei S, Shahinfard N, Rafieian-Kopaei M. Effect of turnip on glucose and lipid profiles of alloxan-induced diabetic rats. *Iranian J Endocrinol Metab* 2013; 14(5): 1-7.
18. Asgary S, Keshvari M, Sahebkar A, Hashemi M, Rafieian-Kopaei. Clinical investigation of the acute effects of pomegranate juice on blood pressure and endothelial function in hypertensive individuals. *ARYA Atheroscler* 2013; 9(6):326-31.
19. Mirzaei MG, Sewell RDE, Kheiri S, Rafieian-Kopaei M. A clinical trial of the effect of St John's wort on migraine headaches in patients receiving sodium valproate. *J Med Plants Res* 2012; 6:1519-23.
20. Subhan F, Abbas, Rauf K, Arfan M, Sewell RDE, Ali G. The role of opioidergic mechanisms in the activity of Bacopa monnieri extract against tonic and acute phasic pain modalities. *Pharmacologyonline* 2010; 3: 903-14.
21. Subhan F, Karim N, Gilani AH, Sewell RDE. Terpenoid content of Valeriana wallichii extracts and antidepressant-like response profiles. *Phytother Res* 2010; 24:686-91.
22. Subhan F, Khan N, Sewell RDE. Adulterant profile of illicit street heroin and reduction of its precipitated physical dependence withdrawal syndrome by extracts of St John's wort (*Hypericum perforatum*). *Phytother Res* 2009; 23:564-71.
23. Rauf K, Subhan F, Sewell RDE. A Bacoside containing Bacopa monnieri extract reduces both morphine hyperactivity plus the elevated striatal dopamine and serotonin turnover. *Phytother Res* 2012; 26: 758-63
24. Heidarian E, Rafieian-Kopaei M. Protective effect of artichoke (*Cynara scolymus*) leaf extract against lead toxicity in rat. *Pharm Biol* 2013; 51(9):1104-9.
25. Blumenthal M. *The Complete German Commission E Monographs, Special Expert Committee of the German Federal Institute for Drugs and Medical Devices*. Austin: 1998.