

**REVIEW**

# **Ancient Thought And Doses Of Medicinal Plants: A Review**

Ashraful Kabir<sup>1</sup>

---

Corresponding Author Email: [ashraful.mission@gmail.com](mailto:ashraful.mission@gmail.com)

**Key Words:** *Medicinal Plant, Traditional Medicine, Herbal, Ayurvedic, Ancient Thought, Tribe, Dose*

## **ABSTRACT**

Medicinal plants have a remarkable significance on human health. Not only in the world but also the Asian region is commonly famous for using these plants and medicines. Tribal people are not scanty in the world as a whole. From their core of belief, and for the availability of those plants, they use it in their most ailments. So-called herbal plants have no side effects if those collecting, processing, analyzing, and doses are scientific. Ethnobotany is a branch of medical science as its continuation with modern medicines needs to come out with further justification and clarification. In this regard, more scientific studies on medicinal plants should implement in all medical sectors.

## **INTRODUCTION**

80% of the world population utilizes drugs derived from medicinal plants for their health. Africa, India, and other countries have enriched the floristic yielding of herbal drugs [1]. Around 30,000 plant species are known to have importance where 15,000 are recognized as drugs worldwide. Biodiversity exists in the earth with 8 broad realms and 193 biogeographic provinces [2]. Toxol (anti-cancer) drug derived from *Taxus baccata* was the first herbal drug, worth of million dollars. The use of traditional medicines in most developing countries has been widely observed [3]. According to WHO, health is a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity. The global trade of medicinal plants in the US is \$800 million per year [1]. Based on the current overall situation medicinal plants will continue to play an important role as a health aid [4]. These plants may have secondary metabolites like alkaloids, glycosides, steroids, or other groups of compounds which have marked pharmaceutical action as anti-cancer, anti-malarial, anti-diabetic, anti-dysenteric, etc.

---

<sup>1</sup> Department of Biology, Cantonment Public College, Saidpur Cantonment 5311, Nilphamari, Bangladesh

About 960 species of medicinal plants are estimated in trade of which 178 species have annual consumption levels over 100 metric tons. Modern pharmacopoeia still contains at least 25% of drugs derived from plants and many others which are synthetic analogues. There are estimated to be around 25,000 effective plant-based formulations, used in folk medicine and known to rural communities all over India and around 10,000 designed formulations. Cocaine, codeine, digitoxin, and quinine, in addition to morphine, are still in use [1]. The advanced level of modern drugs is replacing plants as the source of most medicinal agents in industrialized countries [5]. Ethnomedicine deals with medicines derived from plants, animals or minerals that are used in the treatment of various diseases based on indigenous pharmacopoeia, folklore and herbal charm [6]. Two fundamental strengths of applied ethnobotany are – perception of local people and local people are involved with practical follow-up [7]. Local people are fundamentally involved in all stages of research, so there is a better chance to ‘buy-in’ and more robust solutions [8]. Contemporary science has acknowledged their active action, and it has included modern pharmacotherapy, a range of drugs of plant origin, and used throughout the millennia [9]. Over 25% of prescribed medicines in industrialized countries derive directly or indirectly from medicinal plants [10]. The Discovery of drugs from plants has traditionally been time-consuming, so faster methods for plant collection, bioassay screening, isolation, and development of such compounds must be adopted [10]. Various antibiotics and their irrational use have contributed to the emergence of resistance and various side effects have developed among people [11]. Bangladesh is well known for the practice of traditional medicine and ethnopharmacology [12, 13, 14, 15, 16]. Traditional knowledge on medicinal plants in Bangladesh was limited to books and articles, though recently some articles are available whereas online books are not found [17]. India already has developed many medicinal plant databases. Besides, China also has established an online database for traditional Chinese medicine which includes the therapeutic uses for more than 6,000 Chinese medicinal plants [18-26]. In China, about 40% of the total medicinal consumption is attributed to traditional medicines [1]. The objective of this review is to understand the world status for using medicinal plants and enhance to culture it.

### **Uses in Tribal People**

The utility of medicinal plants played an important role in Ayurveda, Unani, Siddha, and also in modern medicine. Jeevani (stimulant) and energy tonic was synthesized from *Trichopus zeylanicus* which became the first patent of tribes in India [1]. Poor families residing in the remote hilly areas are engaged in the collection of medicinal plants [1]. Chakma, Marma, Rakhine, Tipra, Garo, and Khashia are habituated to use many medicinal plants [11] (Table 1).

## Identified Species

Emperor Shah Nung (2700 BC) mentioned 365 drugs in his book, and Aristotle (384-322 BC) enlisted more than 500 plants [1]. Carl Linnaeus (1732) recorded some medicinal remedies in his diary used by the Sami people [1]. Around 2,000 medicinal plants are available in this sub-continent where 449 are enlisted in Bangladesh [27]. A manually curated database mentions 1208 species of medicinal plants in Bangladesh. There are 5,000 plant species, of which approximately 1,500 are considered medicinal plants based on the literature survey [17]. Till now, 747 plants were enlisted as medicinally important [28]. Out of 500 species of medicinal plants in Bangladesh, about 250 species are significant for manufacturing traditional medicines. The majority number of these plants have not yet confirmed their bioactive compounds by chemical, pharmacological, and toxicological studies [29] (Table 1).

## Cured Diseases

People use medicinal plants to treat various ailments based on indigenous knowledge passed to them generation after generation [30]. They use medicinal plants on the advice of wise men, herbalists, and traditional practitioners [30]. Men have used medicinal plants as their food and cure for various ailments [31]. Extracts of some plants are used as a molluscicide to control schistosomiasis [32]. Herbal medicines can be considered safe alternatives to modern drugs and used in some infectious diseases [11] (Table 1).

**Table 1.** Medicinal plants and their major uses

Name of plants	Family	Used parts	Specific activities
Rosary pea ( <i>Abrus precatorius</i> )	Fabaceae	root, leaves, seed	hair tonic
Indian liquorice ( <i>Glycyrrhiza glabra</i> )	Fabaceae	root, stolon	epilepsy, ulcers
Indigo plant ( <i>Indigofera tinctoria</i> )	Fabaceae	root, fruit color	arsenic poisoning, hydrophobia, heart palpitation
Methi ( <i>Trigonella foenumgracum</i> )	Fabaceae	seeds	enlargement of spleen and liver
Garlic ( <i>Allium sativum</i> )	Liliaceae	bulbs	cough, facial palsy, hysteria, leprosy, piles, rheumatism, cardiac diseases
Indian aloe ( <i>Aloe indica</i> )	Liliaceae	leaves juice	amenorrhoea, spleen disorder, jaundice, rectal fissure
Safed musli ( <i>Chlorophytum borivilianum</i> )	Liliaceae	root	piles, tuberculosis, impotency, leucorrhoea
Periwinkle ( <i>Catharanthus</i> )	Apocynaceae	whole plant	anti-cancerous

<i>roseus</i> )			
Rauwolfia ( <i>Rauwolfia serpentine</i> )	Apocynaceae	dried roots	high blood pressure
Indian acalypha ( <i>Acalypha indica</i> )	Euphorbiaceae	whole plant	rheumatoid arthritis, asthma
Rough chaff ( <i>Achyranthes aspera</i> )	Amaranthaceae	whole plant	piles, toothache
Vasaka ( <i>Adhatoda zeylonica</i> )	Acanthaceae	whole plant	asthma, bronchitis, leprosy, pulmonary problems
Neem ( <i>Azadirachta indica</i> )	Meliaceae	bark, leaves	diabetes, jaundice, leprosy, liver complications, lumbago, rheumatism, urticaria
Indian sallaki ( <i>Boswellia serrata</i> )	Burseraceae	gum	dysentery, snake bite, scorpion sting
Ephedra ( <i>Ephedra gerardiana</i> )	Ephedraceae	dried young stem	urinary disorders, sinusitis, diphtheria
Black pepper ( <i>Piper nigrum</i> )	Piperaceae	dried fruits	viral hepatitis
Heart-leaved moonseed plant ( <i>Tinospora cordifolia</i> )	Menispermaceae	leaves, mature stem	kidney complaints
Indian heliotrope ( <i>Heliotropium indicum</i> )	Boraginaceae	leaves	ophthalmic disorders, anti-tumour, leukemia
Shameplant ( <i>Mimosa pudica</i> )	Mimosaceae	leaves	anti-venom activity

Source: [1]

### Causes for Decreasing

In view of the growing population, anthropogenic activities, the plant wealth is eroding rapidly. As a result, many plants are becoming endemic and some might have been lost. Efforts have to be made to protect the loss through in-situ and ex-situ conservation strategies [1]. Human beings only have been mostly responsible for the destruction of habitats through intensive agricultural development, overexploitation of natural resources, urbanization, industrialization, deforestation, population and environmental degradation [33]. Medicinal plants suffer overexploitation, extinction, adulteration, unhealthy processing, storage problems, identification and marketing [1].

### **Organic Farming**

Organic farming with medicinal plants may give solutions to get pesticide-free, nutritious, quality food and this farming keeps us away from junk food which bring us back to our rich traditional food [34].

### **Concluding Remarks**

From the human civilizations, traditional medicines were the only treatment for various diseases. Those plants were available in nature. People could identify those beneficial plants delve into ethnobotany or ethnomedicine. In this modern world, many countries are using significant doses of these drugs. Overpopulation is beset with urbanization and is a common threat to these plants. We can culture medicinal plants in any gardens or nurseries. In the meantime, many plants have consisted of medicinal plants with their mode of action on humans. After growing those plants in the gardens, the herbal pharmaceutical industry can produce medicines for human welfare.

**Table 2.** Studied medicinal plants on human welfare

Features	Examples	References
World statistics	Medicinal plants have great impact in the world's record	Vartak & Madhav, 1980; Khoshoo, 1990; Chopra <i>et al.</i> , 1996; UNESCO, 1996; Hoareau & Dasilva, 1999; Jain & Mudgal, 1999; Arulrayan <i>et al.</i> , 2007; Polur <i>et al.</i> , 2011; Chen, 2011; Petrovska, 2012; Ashfaq <i>et al.</i> , 2013; Xui <i>et al.</i> , 2013; Mamoharachary & Rajithasri, 2014; Islam <i>et al.</i> , 2015; Pathania <i>et al.</i> , 2015; Manoharachary & Nagaraju, 2016; Mumtaz <i>et al.</i> , 2016; Zhang <i>et al.</i> , 2017; Bardhan <i>et al.</i> , 2018; Mohanraj <i>et al.</i> , 2018
Bangladesh statistics	Bangladesh is well-known for its culture	Uddin <i>et al.</i> , 2014; Uddin <i>et al.</i> , 2016; Uddin <i>et al.</i> , 2017; Uddin, 2019; Uddin <i>et al.</i> , 2019
Tribal people	This is very ancient practice among people of the world	Manoharachary & Nagaraju, 2016; Bardhan <i>et al.</i> , 2018
Identified species	Identified medicinal plants are remarkable at all	Manoharachary & Nagaraju, 2016; Ghani 1998, 2003
Cured diseases	Many common or severe diseases, these plants are helpful	Anonymous, 1948-1976; Manilal, 1989; Lemma, 1991; Manoharachary & Nagaraju, 2016; Bardhan <i>et al.</i> , 2018
Causes for decreasing	Human activities are the root cause for decreasing of these plants	Pande, 2014; Manoharachary & Nagaraju, 2016
Organic farming	For avoiding such adulteration, this plants are healthy for living body	Biradar, 2015

## REFERENCES

1. Manoharachary, C. & Nagaraju, D. 2016. Medicinal plants for human health and welfare. *Annals of Phytomedicine* 5(1): 24-34.
2. Khoshoo, T. N. 1990. In; *India Geosphere and Biosphere*, Khoshoo, T. N. and Sharma, M. (eds.), Nat. Aca. Sciences, Allahabad.
3. UNESCO. 1996. Culture and health, orientation texts-world decade for cultural development 1988-1997, Document CLT/DEC/PRO-1996, Paris, France, pp: 129.
4. Hoareau, L. & Dasilva, E. J. 1999. Medicinal plants: a reemerging health aid. *Electronic Journal of Biotechnology* 2(2): 56-70.
5. Chopra, R. N., Nayar, S. L., Chopra, S. C. 1996. *Glossary of medicinal plants*, CSIR, New Delhi, pp: 329.
6. Vartak, V. B. & Madhav, G. 1980. Studies in ethnobotany- a new vistas in botanical science. *Biovigyanam* 6: 151-156.
7. Jain, S. K. & Mudgal, V. 1999. *A Handbook of Ethnobotany*. Bishen Singh Mahendra Pal Singh. Dehradun, pp: 309.
8. Manoharachary, C. & Rajithasri, A. B. 2014. Traditional knowledge and ethnobotanical aspects: Biotechnology and traditional knowledge. by Dr S. K. Jadhav. *Biotech Books Publ.*, pp: 1-6.
9. Petrovska, B. B. 2012. Historical review of medicinal plants' usage. *Pharmacognosy Review* 6(11): 1-5.
10. Islam, M. S., Halder, J., Apu, M. A. I. 2015. A review on traditional Ayurvedic medicinal plants used in the Sundarban mangrove forest in Bangladesh. *Online Journal of BioSciences and Informatics* 1(1): 1-12.
11. Bardhan, S., Ashrafi, S., Saha, T. 2018. Commonly used medicinal plants in Bangladesh to treatment different infections. *Journal of Immunology and Microbiology* 2(1): 1-4.
12. Uddin, M. S. 2019. Nature information. Electronic database of flora, fauna, and nature. Accessible at [/](#) [accessed 2019-2020].
13. Uddin, M. S., Lee, S. W., Choi, S., Paik, J., Kim, S. Y., Lee, C., Park, M. 2019. Traditional knowledge of medicinal plants in Bangladesh. *International Biological Material Research Center (IBMRC), Korea Research Institute of Bioscience and Biotechnology (KRIBB), Daejeon, Republic of Korea.* 151 pp.
14. Uddin, M. S., Lee, S. W., Choi, S., Paik, J., Kim, S. Y., Lee, C., Kim, Y., Park, J., Park, M. 2017. Herbal plants of Bangladesh. *International Biological Material Research Center (IBMRC), Korea Research Institute of Bioscience and Biotechnology (KRIBB), Daejeon, Republic of Korea.* 200 pp.
15. Uddin, M. S., Lee, S. W., Lee, J., Lee 2014. Medicinal plants of Bangladesh. *International Biological Material Research Center (IBMRC), Korea Research Institute of Bioscience and Biotechnology (KRIBB), Daejeon, Republic of Korea.* 238 pp.
16. Uddin, M. S., Uddin, S. B., Lee, S. W. 2016. Ethnomedicine plants of Bangladesh. *International Biological Material Research Center (IBMRC), Korea Research Institute of Bioscience and Biotechnology (KRIBB), Daejeon, Republic of Korea.* 204 pp.
17. Uddin, M. S., Lee, S. W. 2020. A useful medicinal plants database of Bangladesh. *Journal of Advancement in Medical and life sciences* 8(1): 1-4.

18. Mumtaz, A., Ashfaq, U. A., Qamar, M. T. U., Anwar, F., Gulzar, F., Ali, M. A., Saari, N., Pervez, M. T. 2016. MPD3: a useful medicinal plants database for drug designing. *Natural Product Research*.
19. Mohanraj, K., Karthikeyan, B. S., Vivek-Ananth, R. P., Chand, R. P. B., Aparna, S. R., Mangalapandi, P., Samal, A. 2018. IMPPAT: a curated database of India medicinal plants, Phytochemistry and Therapeutics. *Scientific Reports* 8: 4329.
20. Pathania, S., Ramakrishnan, S. M., Bagler, G. 2015. Phytochemica: a platform to explore phytochemicals of medicinal plants. *Database* Vol. 2015: article IDbav075.
21. Polur, H., Joshi, T., Workman, C. T., Lavekar, G., Kouskoumvekaki, I. 2011. Back to the roots: prediction of biologically active natural products from Ayurveda traditional medicine. *Mol Inform* 30: 181-187.
22. Ashfaq, U. A., Mumtaz, A., Qamar, T. U., Fatima, T. 2013. MAPS database: medicinal plant activities, phytochemical and structural database. *Bioinformatics* 9(19): 993-995.
23. Arulrayan, N., Rangasamy, S., James, E., Pitchai, D. 2007. A database for medicinal plants used in the treatment of diabetes and its secondary complications. *Bioinformatics* 2(1): 22-23.
24. Chen, C. Y. 2011. TCM database @Taiwan: the world's largest traditional Chinese medicine database for drug screening in silico. *PLoS One* 6, 15939.
25. Xue, R. *et al.* 2013. TCMID: traditional Chinese medicine integrative database for herb molecular mechanism analysis. *Nucleic Acids Research* 41, D1089-1095.
26. Zhang, R. Z., Yu, S. J., Bai, H., Ning, K. 2017. TCM-Mesh: The database and analytical system for network pharmacology analysis for TCM preparations. *Sci Rep* 7: 2821.
27. Ghani, A. 2003. *Medicinal Plants of Bangladesh: Chemical Constitutes and Uses (2<sup>nd</sup> edn.)*. Asiatic Society of Bangladesh. 138 pp.
28. Yusuf, M., Begum, J., Hoque, M. N., Chowdhury, J. U. 2008. Medicinal plants of Bangladesh. Bangladesh Council of Scientific and Industrial Research (BCSIR) Laboratories, Chittagong, Bangladesh.
29. Ghani, A. 1998. Medicinal plants of Bangladesh: chemical constituents and uses. 467 pp.
30. Anonymous 1948-1976. *The Wealth of India-Raw Materials*. Vol. 1-11. CSIR. New Delhi, pp: 456.
31. Manilal, K. S. 1989. Linkages of ethnobotany with other sciences and disciplines. *Ethnobotany* 1(1 and 2): 15-24.
32. Lemma, A. 1991. The potentials and challenges of endod, the Ethiopian soapberry plant for control of schistosomiasis. In: *Science in Africa: Achievements and prospects*, American Association for the Advancement of Sciences (AAAS), Washington, D.C., USA.
33. Pande, B. N. 2014. Biodiversity: nation's wealth and its conservation: Biotechnology and traditional knowledge. by Dr S. K. Jadhav. Biotech Books Publ., pp: 7-18.
34. Biradar, D. P. 2015. Medicinal plants and phytomedicines. *Ann. Phytomed.* 4(1): 1-5.