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Traditional medicine an Indian Perspective: History and Outlook

Devesh Tewari

School of Pharmaceutical Sciences, Lovely Professional University, Phagwara, 144411, Punjab, India

Abstract: Rig-Veda, considered as one of the oldest treatises of human knowledge which was created during 4500 BC to 1600 BC. Natural products are the backbone, not only for a traditional system of medicine but also for the modern medicine, as the numbers of modern drugs are derived from the natural sources. The success of natural products in our society is overwhelming. Evidence of ancient medicinal systems in India has been traced back to the Indus valley civilization. Archeological evidence of Harappa and Mohanjodaro suggested the presence of a traditional medicinal system at that time. The use of herbal medicines is significantly growing in different parts of the globe in recent years. Herbal medicine has gained tremendous attention in the management of an assortment of chronic diseases like diabetes, chronic CNS disorders, and different types of cancer. This paper is an overview regarding the importance of herbal drugs along with the history and brief overview of the WHO strategy.

1. INTRODUCTION

Rig-Veda, considered as one of the oldest treatises of human knowledge which was created during 4500 BC to 1600 BC. It is supposed as the ancient repository that stated about therapeutic usages of plants of the Indian subcontinent [1]. Caused by changing lifestyle, less exposure of traditional knowledge by folklore healers and negligence of youngsters, substantial traditional wisdom is vanishing and the ethnobotanical information about the usefulness of such a vast pool of knowledge is deliberately needed [2-6].

Natural products are the backbone, not only for a traditional system of medicine but also for the modern medicine, as the numbers of modern drugs are obtained from the natural sources. The success of natural products in our society is overwhelming. Few of the natural products are of tremendous importance and used as an anticancer and anti-infective agent. Over 60% of pre and approved new drug application (NDA) nominees are either originated from natural products or associated to them [7-8].

Dr. A. P. J. Abdul Kalam, the great Scientist of all time, a multi-talented personality, and 11th President of the Republic of India was also shown his keen interest towards the use of traditionally used medicinal plants. In his address to 12th International Congress of Ethnopharmacology, "Dynamics of Ethnopharmacology" he emphasized towards the consciousness and law of nature. He further accentuate the benefits and value of the ancient Indian system of medicine i.e. Ayurveda. Even though the advance technology emerging these days, still number of people are getting ill and cost of healthcare is increasing rapidly which could only be reduced by the prevention, and the best way in this regard is Ayurveda. This is due to the comprehensiveness of this system as it is based on natural medicine which devoid toxicity. Moreover, he also emphasized on the medicinal and aromatic plants as emerging opportunities for farmers for the entrepreneurship. Cultivation of medicinal plants is very good income generation not only for the farmers of the plain area but also for the farmers of the mountain region. Development of genotype for the aromatic plants and to

understand the metabolomics i.e. thorough investigation of the network of the metabolic pathways of plants is very important [https://www.ethnopharmacology.in/files/kalam.pdf].

Another important aspect is the plant genomics, which would make possible the progress in the development of new types of plants with preferred traits require to be obtainable for the service to humanity with no adverse effects on the environment. Dr. Kalam further advocated the research in the area or plant genomics in India to evaluate the genomic signatures of the plants which will facilitate patent of important plants for their therapeutic uses. This will be used for proper protection of the intellectual property rights as well, as India faced struggle on the Neem patenting rights. He also focused towards the development of the designer crops by the interrelation between genomics and metabolomics. This will be able to produce different drug molecules and gather them in large amount for use by different pharmaceutical industries. The crops rich in the nutritional values more specifically towards the development of some macro and micronutrients such as iron and iodine can be produced to overcome the problems associated with their deficiency and same for the vitamins as well.

Another very important point highlighted by him as a challenge in the medicinal plant research is the cultivation of the hill crop to produce in plains and vice-versa. He also highlighted a very interesting and important point which is vital for standardization of the medicinal plants. He told about a book entitled "Ginger" which is written by an American who is a friend of India and he (Author of the book) felt that the ginger based drug can replace aspirin or other analogous medicine without side effects and he is engaged in the propagation of ginger not as a spice but as a drug. When he asked the author that although he was a friend of India, but his company was purchasing the ginger from other countries than India? and according to him the absence of four important phytoconstituents out of six was the main reason for that. This may be due to the inappropriate cultivation time and another agricultural aspect during cultivation which is somehow because of not appropriate training of farmers cultivating ginger in India. This type of situation shows the urgency of proper training to the farmers pertaining to good agricultural and field collection practices (GACP) in India and such problems can be overcome by working in the area of genomics and plant metabolomics [https://www.ethnopharmacology.in/files/kalam.pdf]. Dr. Kalam also told about some important medicinal plants out of them revolutionary plant of *Artemesia annua* was one of them.

History of traditional medicine: Indian perspective

Use of medicinal plants as therapeutic agents and cosmetic preparation traced back since antiquity. A major amount of modern medicinal knowledge has been evolved through trial and error basis among assorted communities and regions. The assimilation and exchange process continues and resulting in the origin of systematic practices of traditional medicine which are indebted to accommodate to the standards of contemporary biomedicine.

Indus valley civilization

Evidence of ancient medicinal systems in India were traced back at the time of the Indus valley civilization. Archeological evidence of Harappa and Mohanjodaro suggested the presence of a traditional medicinal system at that time. It was interpreted that use of plants, animals and mineral based drugs were done by Indus people. Shilajit was also recovered from Mohanjodaro, represents the use of this herbomineral preparation at that time (http://www.thisismyindia.com/ancient_india/ancient-india-medicine.html).

Use of medicinal plants as herbal preparation is also evident from the Indus valley civilization [9-10] (http://www. thisismyindia.com/ancient_india/ancient-india-medicine.html accessed on 17.08.2017). The ancient practice of dentistry and trepanation were practiced at the time of 7000 BCE in Indian subcontinent. The use of medicinal plants in the Middle

Gangetic region is evident from recent archaeo-botanical excavations and the utilization of medicinal plants in this area is believed during 2nd millennium BCE which are still in practice by Folk healers and Ayurvedic physicians [11] (https://www.ncbs.res.in/ History Science Society/ content/overview -indian- healing-traditions accessed on 17.08.2017).

Vedic era

Later in the '*vedic'* period, the first literary basis of information on healing practices in the sub-continent was *Vedic* hymns of the migrant Aryan tribes. Such hymns were related to various diseases widespread during that period and their apparent causes. Physical and mental diseases, were related to malicious spirits and their treatment consisted of various rituals, mantras, charms, medicines and different surgical interventions [12] (https://www.ncbs.res.in/ History Science Society/ content/ overview-indian healing traditions accessed on 17.08.2017).

Use of plant products for the cosmetic purpose also done from long back, cosmetology is believed to be originated from Egypt and India. The earliest record of cosmetic products was found from Indus-valley civilization around 2500-1500 BC. Ancient Indians has highly advanced idea about the self-beautification. The use of various plant-based products in the form of cosmetics were used at that time.

In 1788 AD the king of Tanjore, Tamilnadu Raja Serfoji has a great library known as Sarfoji's Saraswati Mahal situated at Tanjore, which is one of the oldest libraries of Asia and consisted palm manuscripts and a large number of rare books. He also founded a Medical Institute known as "*Dhanwantari Mahal*" for conducting various experiments. Some of the important cosmetic formulations of his time are as follows [13]:

Table 1. Medicinal plants and formulations used as cosmetics and personal hygiene in ancient India

Medicinal plants and formulations	**Product**
Aegle marmelos (L.) Corrêa levigated in woman's milk	Lip balm
Roots of *Saussurea lappa* (Decne.) Sch. Bip., *Seasamum indicum* seeds, leaves of *Albezzia lebbek* Benth., leaves of *Pongamia pinnata* Pierr. *Cedrus deodara* Roxb. and woods of *Berberis asiatica* DC.	Skin lightning
Papaver somniferum L. in milk	Dandruff cure
Azadirachta indica A. Juss., *Eclipta alba* (L.) Hassk., *Sphaeranthus indicus* L., *Vitex negundo* L., and *Trachyspermum ammi* (L.) Sprague	Rejuvenation Process
Phyllanthus emblica L., *Piper longum* L., *Euphorbia nivulia* Buch.-Ham.	Depilatory
Withania somnifera (L.) Dunal, *Scindapsus officinalis* (Roxb.) Schott, *Saussuria lappa*, *Acorus calamus* L., added with the buffalo milk butter.	Breast developers
Lens culinaris Medik. and honey	Face pack
Coriandrum sativum L., *Acorus calamus* L., *Symplocos racemosa* Roxb., *Saussurea lappa*	Pimples
Areca catechu L., *Saussurea lappa, Valeriana wallichii* DC., *Myristica fragrans* Houtt., *Cinnamomum camphora* (L.) J.Presl, *Syzygium aromaticum* (L.) Merr. & L.M.Perry, *Elettaria cardamomum* (L.) Maton	Mouth freshener
Piper betel L. added to mercury	Cure for lice and nits
Eclipta alba (L.) Hassk., *Terminalia chebula* Retz., *Terminalia bellirica* (Gaertn.) Roxb. and *Phyllanthus emblica*	Hair remedy
Mangifera indica L., *Punica granatum* L., *Tamarindus indica* L.	Deodorant powder

Post -Vedic era

In the post *Vedic* era, it was observed that early *Buddhist* and *Jaina* texts was in "*Prakrit*", "*Pali*" and other vernacular languages and described the use of medicines, surgical procedures, purges, trepanation, and emetics, which were practiced from almost all levels of society. Recognition and importance of cultivating, compassion and humanistic values were considered as vital for good health [14]. Healing practices were a major part of the Buddhist monastic tradition in earlier days and now-a-days also [14]. It was also believed that Buddha himself was the "healing guru" (*Bhaishajyaguru*) and it is an integral part of Buddhist monastic tradition.

Abundant source of medical know-how was reported even before the canonical texts of Ayurveda in the Indian subcontinent. Almost every level of the society was involved in the different traditional healing practices as they were closely associated with their environment and nature. Utilization of medicinal plants was done in the number of ways including nutritional properties, mild illness to sophisticated obstetrics, orthopedic procedures, snakebites, mental illness etc. Most of these practices have their specific folklore which were preserved and transmitted the knowledge. Apart from these, some of healing practices were also associated with certain sacred rituals, and interestingly the number of plants were common, also considered as sacred plants and adored. It is also very interesting that Ayurvedic practices were limited to the certain segment of society due to Sanskrit language was not so common to all segments but the folk healers arrived from all levels of society. Later on, the enrichment of classical Ayurveda took place by exchange of knowledge and interactions with regional folk practices [15-16].

Importance of traditional knowledge and herbal medicine

It is a general conception that "traditional knowledge" is vanishing rapidly, but in reality, it is altering due to over-pressures of a globalizing earth. The multidisciplinary approach plays an important role for the sustainable utilization of these assets as medicines of tomorrow. Neglected diseases, like–tuberculosis, vector-borne diseases, diarrhoea, and jaundice are commonly treated with herbal medicines even today. The use of herbal medicines is significantly growing in different parts of the globe in recent years. Herbal medicine has gained tremendous attention in the management of an assortment of chronic diseases like diabetes, chronic CNS disorders, and different types of cancer. The scientific study of multifaceted products originated from traditional knowledge is a major challenge in pharmacology. Some of the unique challenges from extracts of plants, fungi or animals are multicomponent concoction of active, inactive and moderately active substances. Therapeutic effects from such compounds are often not on a single target. This may lead to challenges as well as offer unique opportunities. Natural products possess unbeaten diverse structural and chemical complexity. In certain areas like pain management, anti-cancer and anti-parasitic remedies, natural products form the nucleus of humanity's treatment choices. Some of the "poster children" with the capability and assurance of converting traditional medicines into modern drugs are artemisinin, curcumin, triptolide, taxol, galantamine, rapamycin, celastrol, capsaicin and so on [17-20]

WHO traditional medicine strategy 2014-23 (WHO, 2013)

World Health Assembly resolution on traditional medicine (WHA 62.13, 2009) leads to the development of WHO Traditional Medicine (TM) Strategy 2014–2023. The strategy has been developed with the following objectives:

- Support to Member States for harnessing the probable contribution of TM to people centered health care, health, and wellness.

- To promote safe and efficient use of TM through researching, integrating TM products, practitioners and practice into health systems, regulating wherever suitable.
- Development and implementation of national TM policies and programmes.
- Promotion of the quality TM (ensuring their safety and efficacy) by intensifying the knowledge base, and giving guidance on different quality assurance standards and regulatory issues.
- Increasing the accessibility and affordability of TM, with specific center of attention on access for deprived populations.

The new strategy ascertained priority actions for the duration upto 2023 in the field of possible contribution of traditional and complementary medicine (T&CM) in the proper delivery of health services. Different traditional medicine-based products are being bought in the flesh or over the Internet show the way of the growth and expansion of T&CM. This sector is having a momentous contribution in the economic development of several countries. Simultaneously, by means of prevailing existing international financial constraints, utilization of TM for disease prevention, self-health care and health promotion may reduce healthcare overheads. The role of T&CM in the intellectual property rights is becoming more popular at the present time. Maintaining balance between the necessity to protect the intellectual property rights of indigenous people and local communities and their health care heritage is imperative with ensuring right to use of T&CM and encouraging research, development and innovation (WHA 61.21, 2008; WHO, 2013).

Amplified levels of persistent sickness and increasing health care expenditure are experienced by health systems around the world. It is a demand of patients and health care providers to revitalize health care services, along with emphasis on person-centred/individualized care [21-23]. Significant number i.e. over 100 million Europeans is estimated by WHO, who are presently using T&CM out of these one fifth are frequently using TM and the same amount preferring health care that includes T&CM (http://www.efcam.eu/ accessed on 2.7.2017). Moreover, several other TM users are estimated in Asia, Africa, North America and Australia [24-25].

2. CONCLUSION

The use of traditional medicine is found almost around the globe and its increasing demand is showing the widely emerging interest towards it. Contribution of traditional and alternative medicine of proven safety, quality, and efficacy, is able to contribute to the goal to ensure the access to healthcare to all people. The utilization and globalization is now-a-days becoming more popular for the traditional medicine or plant derived product either in the form of medicine or dietary supplements.

REFERENCE

[1] Singh, A. G., Kumar, A., & Tewari, D. D. (2012). An ethnobotanical survey of medicinal plants used in Terai forest of western Nepal. *Journal of ethnobiology and ethnomedicine*, *8*(1), 19.

[2] Kunwar, R. M., Nepal, B. K., Kshhetri, H. B., Rai, S. K., & Bussmann, R. W. (2006). Ethnomedicine in Himalaya: a case study from Dolpa, Humla, Jumla and Mustang districts of Nepal. *Journal of ethnobiology and ethnomedicine*, *2*(1), 27.

[3] Behera, S. K., & Misra, M. K. (2005). Indigenous phytotherapy for genito-urinary diseases used by the Kandha tribe of Orissa, India. *Journal of ethnopharmacology*, *102*(3), 319-325.

[4] Bussmann, R. W., & Sharon, D. (2006). Traditional medicinal plant use in Northern Peru: tracking two thousand years of healing culture. *Journal of Ethnobiology and Ethnomedicine*, *2*(1), 47.
[5] Longuefosse, J. L., & Nossin, E. (1996). Medical ethnobotany survey in Martinique. *Journal of Ethnopharmacology*, *53*(3), 117-142.
[6] Saikia, A. P., Ryakala, V. K., Sharma, P., Goswami, P., & Bora, U. (2006). Ethnobotany of medicinal plants used by Assamese people for various skin ailments and cosmetics. *Journal of Ethnopharmacology*, *106*(2), 149-157.
[7] Sandsborg, W. R. (1999). Natural products in drug discovery and development. In *Bioassay Methods in Natural Product Research and Drug Development* (pp. 143-149). Springer, Dordrecht.
[8] Demain, A. L., & Zhang, L. (2005). Natural products and drug discovery. In *Natural Products* (pp. 3-29). Humana Press.
[9] Baqar, S. R. (2001). Text Book of Economic Botany. *Rawalpindi: Ferozsons (PVT) Ltd*.
[10] Husain, S. Z., Malik, R. N., Javaid, M., & Bibi, S. A. D. I. A. (2008). Ethonobotanical properties and uses of medicinal plants of Morgah biodiversity park, Rawalpindi. *Pak J Bot*, *40*(5), 1897-1911.
[11] Trivedi, M., Singh, U., & Lahiri, N. (2009). On the Surface Things Appear to Be... Perspectives on the Archaeology of the Delhi Ridge. *Ancient India: New Research*, 39-71.
[12] Zysk, K. G. (1985). Religious Healing in the Veda. With Translations and Annotations of Medical Hymns from the Rgveda and the Atharvaveda and Renderings from the Corresponding Ritual Texts. *Transactions of the American philosophical society*, *75*(7).
[13] Patkar, K. B. (2008). Herbal cosmetics in ancient India. Indian journal of plastic surgery: official publication of the Association of Plastic Surgeons of India, 41(Suppl), S134.
[14] Zysk, K. G. (1998). Asceticism and healing in ancient India: medicine in the Buddhist monastery (Vol. 2). Motilal Banarsidass Publishe.
[15] Jain, S. K. (1981). Glimpses of Indian ethnobotany.
[16] Singh, A., Lin, Y., Liu, W., Yu, S., Pan, J., Ren, C., & Kuanhai, D. (2014). Plant derived cationic dye as an effective corrosion inhibitor for 7075 aluminum alloy in 3.5% NaCl solution. *Journal of Industrial and Engineering Chemistry*, *20*(6), 4276-4285.
[17] Corson, T. W., & Crews, C. M. (2007). Molecular understanding and modern application of traditional medicines: triumphs and trials. *Cell*, *130*(5), 769-774.
[18] di Sarsina, P. R., Alivia, M., & Guadagni, P. (2012). Widening the paradigm in medicine and health: Person-centred medicine as the common ground of traditional, complementary, alternative and non-conventional medicine. In *Healthcare Overview* (pp. 335-353). Springer, Dordrecht.
[19] Tewari, D., Rawat, P., & Singh, P. K. (2019). Adverse drug reactions of anticancer drugs derived from natural sources. *Food and Chemical Toxicology*, *123*, 522-535.
[20] Tewari, D., Samoilă, O., Gocan, D., Mocan, A., Moldovan, C., Devkota, H. P., & Szabo, B. (2019). Medicinal plants and natural products used in cataract management. *Frontiers in pharmacology*, *10*, 466.
[21] Tewari, D., Hohmann, J., Kiss, A. K., Rollinger, J. M., & Atanasov, A. G. (2019). Ethnopharmacology in Central and Eastern Europe in the Context of Global Research Developments. *Frontiers in pharmacology*, *10*, 341.
[22] Singh, J. (2020). Natural Bioactive Products in Sustainable Agriculture.

[23] Tiwari, D., Sah, A. N., Bawari, S., & Bussmann, R. W. (2020). Ethnobotanical investigations on plants used in folk medicine by native people of Kumaun Himalayan Region of India. *Ethnobotany Research and Applications*, *20*, 1-35.
[24] Barnes, P. M., Bloom, B., & Nahin, R. L. (2008). Complementary and alternative medicine use among adults and children; United States, 2007.
[25] NCfH, S. (2008). National health and nutrition examination survey: US Department of Health and Human Services, Centers for Disease Control and Prevention. *National Center for Health Statistics*.