Chapter 8
Pharmacological Activity and Nutritional Potential of *Buchanania lanzan Spreng*

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ABSTRACT

The plant science that studies the historical and current uses of plants is called ethnobotany. Spices and herbs have since medieval times been categorized as having medicinal properties. India is a land of spices, and several spices have been grown in the country. Buchanania lanzan Spreng, commonly known as char, achar, and chironji, is one among these spices. It has been referred to as one having immense value and medicinal use. The chapter discusses the cultivation, uses, chemical constituents, and therapeutic activities of Buchanania lanzan Spreng and emphasizes the need for and importance of pharmacognostic study.

INTRODUCTION

The plant science that studies the historical and current uses of plants is termed as ethnobotany. Since medieval times, spices and herbs have been categorized as having medicinal properties. India is a land of spices, and several spices, such as Buchanania lanzan Spreng,are grown in the country. Buchanania lanzan Spreng is commonly known as char, achar, and chironji. Francis Buchanan-Hamilton, M.D. (1762-1829), was a physician and made significant contributions as a geographer and botanist, is said to have been the first person to describe this plant in 1798. It belongs to the family of anacardiaceae. It is a wild plant, which grows in India's tropical deciduous forests. It mainly grows in the northern, central, and western parts of India. It is mainly cultivated in Chhattisgarh, Jharkhand, Madhya Pradesh, and in the Varanasi and Mirzapur districts of Uttar Pradesh. Apart from India, it is also found in several tropical

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countries, including Asia, the Pacific Islands,and Australia. As an Indian spice it has been referred to as one possessing immense value and medicinal use (Singh, Gupta, Kumar, Singh, & Tiwari,2018). Traditional indigenous knowledge reveals that almost all the parts of the plant possess some pharmacological properties, be it the roots, leaves, fruits, seeds, or the gum. However,today, the spice, having numerous medicinal properties,has made its way into the *Red Data Book* published by the International Union for Conservation of Nature and Natural Resources,(IUCN) as one among the valuablespices (Kirtikar,1935). Nutritionally the spice is found to be a good source of protein with43.24% protein, 38% fat, 18.50% crude fibre,% and 2.20% minerals,which include several minerals ranging from phosphorus, zinc, calcium, iron, copper, magnesium, manganese, to aluminium, boron, barium, tin, and more (Khatoon, Gupta & Tyag, 2015). The oil extracted from this spice has been considered as good as almond oil and is often used as its replacement (Kumar, Vengaiah, Srivastava & Bhowmick.,2012).The chemical constituents of the oil extracted from the spice are 8-cineole, A-pinene, B-pinene, camphene,myrcene, triglycerides (dipalmito-1-olein and triolein), Y-terpinene, and sabinene. The spice has also been found to contain tannins, saponins, glycosides, steroids, flavonoids, and phenol (Kodati, Pareta, & Patra, 2010**).**

Buchanania lanzan Spreng have been reported to have several pharmacological activity such as antioxidant, antimicrobial and anti-inflammatory activity. The plant is used in Ayurveda and the Unani systems of medicine as a nervine tonic, anti-cough, anti-leprotic, and oleation. It has also been found to possess antioxidant and anti-inflammatory activity. Tribes of Chhattisgarh and Jharkhand mainly use it for wound healing, anti-diarrhoeal, analgesic, and anti-ulcer activity (Kodati et al, 2010). In India, the plant has well-known traditional uses and its seeds are used as an expectorant and tonic. The oil extracted from the kernels is applied to soothe skin diseases and also to remove spots and blemishes from the face. The root is used as an expectorant, in biliousness, and also for curing blood diseases. The juice of the leaves is digestive, expectorant, aphrodisiac, and purgative. The rhizome of B. lanzan finds an important place in indigenous medicine as an expectorant, diuretic, and carminative. Sushma et al. (2013) also found it to have anti-cancer, anti-hypertensive, larvicidal, anti-diabetic properties and antibacterial activity. It have been reported that B. lanzan also have broad-spectrum antimicrobial activity and could be a potential source of new classes of antibiotics that could serve as selective agents for infectious diseases and chemotherapy.

The present study discusses the cultivation, uses, chemical constituents, and therapeutic activities of Buchanania lanzan Spreng as well as emphasizes the need and importance of a pharmacognostic study of Buchanania lanzan Spreng. One of the well-established and universally accepted facts is that spices possess medicinal properties, and so are an integral and indispensable part of the traditional system of medicine practiced worldwide, because of their economic viability, easy accessibility, and century's old experience. As nature's gifts, spices are considered to be biocompatible, environment-friendly, non-toxic, much cheaper, and quite freely available in comparison to synthetic substances. They are also amongst the richest renewable source of biopolymers, having enormous potential for uses and applications in numerous industries, such as food, cosmetics, pharmaceuticals, and a host of others. Buchanania lanzan has a high socio-economic value for providing a livelihood to the tribal population of the area besides possessing enormous potentials as a commercial horticulture species. Unfortunately, due to over-exploitation and indiscriminate harvesting (lopping and cutting), a considerable reduction in the population of Buchanania lanzan has been recorded in the recent past, leading to a very severe threat to its becoming extinction, which calls for urgent conservation efforts at all levels.