



Exploring Medicinal Plants

HERBS, SHRUBS, AND TREES POTENTIAL MEDICINAL BENEFITS

Edited by
Azamal Husen



amitamdubey@gmail.com

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14.1 INTRODUCTION

Since ancient times, the cure and treatment of diseases is one of the priorities for the well-being of mankind. In the traditional medicine system of many countries, including India, plant-based products are the main component of drug formulations (Arif et al., 2009). The use of medicinal plants as drugs has gained more importance these days due to fewer side effects in comparison to synthetic medicine (Kala et al., 2006). Out of the total population of vascular plants worldwide, approx. 10% have medicinal significance (Salmerón-Manzano et al., 2020). In India, there are about 17,000 species of higher plants, out of which 7500 are used for medicinal purposes (Kala et al., 2006). According to an estimate reported by the World Health Organization (WHO), about 25% of the total medicines used these days are derived from plant

sources (Singh et al., 2019). Due to the presence of numerous types of bioactive compounds, medicinal plants are highly explored for their therapeutic potential (Raina et al., 2014). Medicinal plants are used for treatment of various ailments including hypertension, liver disorders, respiratory problems, immunodeficiency, cancer, kidney-related problems, and bacterial and fungal infections, etc.

From this vast array of medicinal plants, some have gained immense popularity in traditional pharmacopeias. Two such plants inhabiting different ecological zones are described here. These have not only been extensively used traditionally, but they are also traded in the international market earning foreign exchange for India. The first plant described here is *Saussurea costus* (Kust, Family: Asteraceae). It is the most important species of genus *Saussurea* found in the lap of the Himalayas, and its medicinal significance has been mentioned in the traditional systems of medicine of various countries. The second plant is *Senna alexandrina* Mill. (Senna, Family: Fabaceae), which is now cultivated in about 25,000 hectares in arid and semiarid regions of the country. It is one of the most traded medicinal plants of India, mainly due to its laxative potential. The medicinal significance, botanical description, phytochemistry, and potential uses of both *S. costus* and *S. alexandrina* are discussed in the following sections of this chapter.

14.2 SAUSSUREA COSTUS (KUST)

The Asteraceae family is one of the largest families of plants, which include about 1000 genera and 30,000 species. In India approx. 177 genera and 1052 species are reported that belong to this family (Rao et al., 1988.)

The *Saussurea* genus of this family includes roughly 400 species of medicinal plants in the high-altitude Himalayan region, of which approx. 27 species have medicinal significance (Butola and Samant, 2010; Lipschitz, 1979). The genus is named after Horace Benedict de Saussure, a Swiss philosopher (Dhar et al., 1984; Nadda et al., 2020). Plants of this genus are distributed throughout the Holarctic regions which cover the area from the Arctic to Southeast Asia but are highly populated in Asian regions (Kita et al., 2004). Different species of this genus are found in lowlands and in the zones between 3500 m and 5000 m of the Himalayas (Haffner, 2000; Kita et al., 2004). Different species of genus *Saussurea* are used for various purposes, like medicine, food, fuel, fodder, ornamental, and religious causes (Butola and Samant, 2010). Some of the important species of genus *Saussurea* and their medicinal uses are listed in Table 14.1.

TABLE 14.1 List of Important Species of *Saussurea* with Their Distribution and Uses

Species Name	Common Name	Uses	Distribution	Reference
<i>S. costus</i> (Syn. <i>lappa</i>)	Kust	Treatment of cholera, Cough, skin diseases, rheumatism, Toothache, vermifuge for intestinal worm, tuberculosis, and epilepsy.	3200 to 5000 m (in the subalpine zones); Jammu and Kashmir, Uttaranchal, and Himachal Pradesh.	Pandey et al., 2007; Ajaib et al., 2021
<i>S. involucrate</i>	Snow lotus	Accelerate blood circulation, rheumatoid arthritis, anticancerous, gynecological problems.	High latitude region of the western Tianshan Mountains.	Gong et al., 2020
<i>S. ceratocarpa</i>	Pashka	Treatment of headache, lumbar pain, renal pain, and menorrhoea.	Western Himalayas (3000 to 5000 m); Himachal Pradesh and Jammu and Kashmir.	Butola and Samant, 2010
<i>S. laniceps</i>	Cotton-headed snow lotus	Anti-nociceptive efficacy, analgesic, antioxidant, anti-microbial.	3500 to 5700 m (in open places); Uttaranchal, Himachal Pradesh Jammu and Kashmir, and Sikkim.	Chen et al., 2016
<i>S. affinis</i>	Ganga Mula	Leaves and young shoots are edible, gynecological problem.	East Himalaya (Assam), East Asia, China, Japan.	Butola and Samant, 2010
<i>S. auriculata</i>	PachakKut	Antisyphilitic, purgative.	2000 to 4300 m; Jammu and Kashmir, Himachal Pradesh.	Singh and Hajra, 1997
<i>S. bracteata</i>	PrerakMul	Boils, cough, headache, cold, lung infection, fever, and also as a good soil binder.	3500 to 5600 m Himachal Pradesh, Jammu and Kashmir.	Hajra et al., 1995
<i>S. gossypiphora</i>	Kasturi Kamal	As an essential oil in perfumery, gynecological disorders, hysteria, and menstrual disorders.	Himalayas (3500 to 5700 m); Himachal Pradesh, Jammu and Kashmir, Sikkim and Uttaranchal.	Dhar and Kachroo, 39 1983
<i>S. obvallata</i>	Brahm Kamal	Boils, cuts, and wounds, applied to bruises, and also used as antiseptic and nerve tonic.	3800 to 4600 m (on rocky slopes); Uttaranchal, Jammu and Kashmir, Himachal Pradesh, Sikkim.	Samant et al., 1998
<i>S. medusa</i>	Saw-wort	high blood pressure, headache, menstrual problems, regulate menstrual cycles. Also used as remedy for arthritis and tonic for weakness.	China, India (Kashmir), Nepal, East Tibet, North Pakistan.	Dhar and Kachroo, 1983

Among numerous species of genus *Saussurea*, *S. costus* is the most important species both commercially and medicinally. The medicinal significance of *S. costus* has been mentioned in Ayurvedic, Tibetan, and Chinese systems of medicine as the major ingredient in about 175 herbal formulations (Butola and Samant, 2010). *Saussurea costus* Lipschitz (Falc.), synonymous with *Saussurea lappa* C.B. Clarke and *Aucklandia costus* Falc. is one of the most important species of genus *Saussurea*. *S. costus* also known as costus in English. There are other names in India viz. Kur (in Bengal), Kut (in Gujrat), Postkhai (in Kashmir), Kot (in Punjab), Kushta (in Sanskrit), Kostum (in Tamil), Kushta (in Maharashtra), and Kuth (in Hindi) (Kirtikar and Basu, 2001). *S. costus* is extensively used in indigenous systems of medicine to cure a variety of diseases and has emerged as an important medicinal