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A REVIEW ARTICLE ON CHIRAYATA (GENUS SWERTIA)

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ABSTRACT

In the current scenario the uses of herbal drugs has increased in many folds. For maintaining the optimum health, about 70-80% of the world's population depends on herbal drugs. With the increase in popularity of the herbal drugs and Ayurveda there is exceptional rise in its demand and this leads to the over exploitation of the resources thus making certain species as endangered. Chirayata belongs to the genus Swertia and is known for its medicinal properties. Chirayata is used in fever, liver disorders, indigestion and in many medical conditions as a bitter tonic. According to the International Union of Conservation of Nature (IUCN) criteria, Chirayata conservation status has been categorized as "critically endangered" (Joshi and Dhawan, 2005). It is very important to ensure the cultivation and conservation of Chirayata species so that our future generation also gets the benefit of this wonderful herb.

KEYWORD: *Swertia, chirayata, swertia chirayata.*

INTRODUCTION

Herbal medicines are getting more and more popularity in recent days with the global trend of the people returning to natural therapies. Due to exceptional growth in demand of herbal drugs, required medicinal plants have been randomly over exploited thus leading to shortage of many valuable plant species. Biggest problem arises due to over exploitation or non-availability of the drug, adulteration and substitution. Chirayata is used in fever and indigestion in folklore medicine. In Ayurveda Chirayata (Kiraatatikta) is antipyretic and hepatoprotective. Chirayata is a large genus of family Gentianaceae which include about 180 species in worldwide and over 30 species in Himachal Pradesh. *Swertia chirayita* (Roxb. ex Fleming) H. Karst, is taken officially for Chirayata in Ayurveda.

But due to over exploitation or lack of knowledge *Swertia chirayita* comes in category of criticallyendangered species.

The Genus Swertia

Swertia is an important genus used in Indian medicine. *Swertia* is a large genus of herbs distributed in the mountainous regions of tropical area at an altitude of 1200-3600m. Genus *Swertia* Linn belongs to the family *gentianaceae.* There are about 90 species of this genus & is cosmopolitan in distribution (Kirtikar and Basu, 1975). In India about 40 species of the genus have been recorded. Out of these species *Swertia chirayita* is important for its medicinal uses. Several other species of *Swertia* like *S. purpurascens, S. angustifolia, S. penniculata* etc. are used as substitutes and adulterant of *S. chirayata.*

Botanical description of genus *Swertia*

Members of the genus are annual, biennial or perennial herb. Roots are fibrous or woody. Stem which is more or less 4-angled, usually branching, bearing opposite, sessile (or narrowed in a stalk like base) leaves except *S. alternifolia*. Flower measure to about ½ inch in diameter and are borne in paniculate or corymbose cymes. Calyx is 4-5 parted and the segments are lanceolate with acute tip. Corolla is also 4-5 lobed divided nearly to the base, lobes acute, each bearing near the base 1-2 honey secreting glands. Stamens are as many as the corolla lobes, attached at the base of corolla. Ovary is single celled with several ovules having short or almost absent style terminating in a 2 lobed stigma. Fruit is a capsule which is sessile and oblong (Collett, 1921).

Distribution of the Genus *Swertia* in India

North–West Himalaya, altitude 5-12000ft from Kashmir to Kumaon, abundant in Himachal Pradesh, Uttrakhand, specially mountainous regions of tropical area at an altitude of 3600-13000ft.

Distribution of genus *Swertia in* India

S. No.	Spices Name	Altitude in feet	Distribution	Reference
1.	*S. chirayata*	4000-10000	J&K,HP,UTK	Clark, 1885; Blatter, 1984
2.	*S. purpurascens*	5000-12000	J&K, HP	Kirtikar and Basu, 1933
3.	*S. paniculata*	5000-8000	J&K & HP	Kirtikar and Basu, 1933
4.	*S. tetragona*	5000-8000	J&K, HP,	Hooker, 1883
5.	*S. cordata*	4000-12000	J&K,UTK & HP	Hooker, 1883
6.	*S. alata*	4000-6000	J&K, HP	Kirtikar and Basu, 1933
7.	*S. angustifolia*	1000-6000	H.P. UTK	Ghosal et al.1978
8.	*S. pulchella*	500-4000	HP	Hooker, 1883
9.	*S. alternifolia*	11000-12000	UTK & HP	Hooker, 1883
10.	*S. petiolata*	9000-12000	J&K, HP	Hooker, 1883

Uses of Swertia Species in Medicines

Whole plant collected in flowering stage and dried, can be used as drug. *Swertia chirayita* is considered as the genuine source of drug in API. Chirayata is much prized in India as a tonic and bitter without aroma or astringency. According to the Pharmacopoeia of India, the drug should not contain less than 1.3% of bitter principles. It is usually administrated as concentrated infusion or as tincture. The Pharmacopoeia of India also includes a concentrated compound Chirayata infusion, prepared from Chirayata, dried peals of orange and lemon, and alcohol (25%) by maceration and its dose is 2-4ml (Chopra and Handa, 1961). Several other species of genus Swertia occurring in hilly regions of India are used in similar manner as the Chirayata, they are used either as substitutes or adulterants. Most common species which are used as substitutes or adulterants includes *S. alata*, *S. paniculata*, *S. purpuresence*, and *S. paniculata* etc. Important preparations of Chirayata include Sudarshan Churna, Panchabhadra Kwath, Chandraprabha Vati, Liv – 52 etc. Traditionally, decoctions of these species are used for anthelmintic, hepatoprotective, hypoglycemic, antimalarial, antifungal, antibacterial, cardio-stimulant, anti-fatigue, anti-inflammatory, anti-aging, and antidiarrheal etc.

CONSERVATION

In the current scenario the use of herbal drugs and popularity increase in many folds. Due to this there is over exploitation of the herbal drugs and its habitat. Destruction of plant resources is a normal occurrence. The current speed of extinction through human

interferences is estimated to be approximately 100–1000 times faster than the natural speed of extinction. Due to developmental activities in the Himalayan region, wild populations of many medicinal plants, including Chirayata are reduced to the verge of extinction. Chirayata is traded and used mostly as a traditional drug. Due to its multiple uses the demand is on the rise by both national and international trading, leading to increasing over harvesting of wild populations. This has resulted in drastic reductions of its populations of this herb. Lack of comprehensive data on annual harvested and traded plants of Chirayata is also a major concern. According to the International Union of Conservation of Nature (IUCN) criteria, Chirayata conservation status has been categorized as "critically endangered" (Joshi and Dhawan, 2005). Chirayata is among the 32 most highly prioritized medicinal plants of India as identified by The National Medicinal Plant Board, Government of India. Due to its manifold uses, expansion of cultivation of this plant is recommended. Cultivation practices need to be standardized. Higher mountainous regions in Himalayas specially, in the states of Kashmir, Himachal Pradesh, Uttrakhand are recommended as suitable areas for cultivation of *Swertia* species.

CONCLUSIONS

It is evident that genus *Swertia* has got many uses and is used in different medical condition. Chirayata a traditional Ayurvedic herb is used by the peoples of folklore area in multiple ways for several medicinal purposes. The whole plant is widely used by local people for the treatment of hepatitis, inflammation, and digestive diseases. The wide range of medicinal uses include the treatment of chronic fever, malaria, anaemia, bronchial asthma, liver disorders, hepatitis, gastritis, constipation, dyspepsia, skin diseases, ulcers, scanty urine, hypertension, and certain types of mental disorders, secretion of bile, blood purification, and diabetes etc. Therefore it is very important to ensure the cultivation and conservation of Chirayata species so that our future generation also get the benefit of this wonderful herb.

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