

MEDICINAL USES OF CHIRBILWA (HOLOPTELEA INTEGRIFOLIA): A REVIEW  
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## ABSTRACT

Holoptelea integrifolia Planch of Ulmaceae family is an important tree having medicinal properties, commonly known as Chirabilva in India. It is a large, spreading, glabrous, deciduous tree having foul smell in leaves and bark. Heartwood is light yellow, lustrous, interlocked-grained, even-textured, moderately heavy and strong which contains biomolecules like tannins, flavonoids, pigments and phenolic compounds. Chirabilva is described in Lekhaniya and Bhedaniya Mahakashaya of Charaka Samhita indicating its laxative and purgative action. It has anti-inflammatory, anti-bacterial, anti-oxidant, wound healing and hypolipidemic activities. It is useful in inflammations, colic, intestinal worms, vomiting, wounds, skin diseases, filariasis, obesity and diabetes mellitus.

**KEYWORDS:** Holoptelea integrifolia Planch; Chirabilva; Heartwood.

## INTRODUCTION

Holoptelea integrifolia Planch is an important tree having medicinal properties. It is commonly known as Chirabilva or Chibil in India. Different parts of Chirabilva are used since ages to alleviate many diseases as described in the traditional system of medicine, Ayurveda, popular in Indian subcontinent.

**Synonyms** are Putika, Putikakaranja, Prakirya etc. Its trade name is Indian Elm or Kanju. It has anti-inflammatory, anti-bacterial, antioxidant, wound healing and hypolipidemic activities. It is useful in inflammations, colic, intestinal worms, vomiting, wounds, skin diseases, filariasis, obesity and diabetes mellitus.

**Taxonomical Classification**

Based on Bentham and Hooker system of Classification.

Phylum-	Phanerogams
Class-	Dicotyleydone
Subclass-	Polypetalae
Series-	Calyciflorae
Order-	Rosales
Family-	Ulmaceae
Genus-	Holoptelea
Species-	integrifolia

**Botanical Description**

It is a large, spreading, glabrous, deciduous tree. Bark 6-8 mm thick, grey, pustular, exfoliating in somewhat corky scales. Leaves elliptic-ovate, acuminate, base rounded or sub-cordate. Flowers greenish-yellow, polygamous in short racemes or fascicles on the leafless branches. Fruit sub-orbicular samara with two membranous wings. Seed one, flat. Unpleasant odour appears on cutting the bark and crushing the leaves. The wood is light yellow, lustrous, interlocked-grained, medium and even-textured, moderately heavy and strong. Flowering occurs in February-march and fruiting march onwards.

**Heartwood-** It is the central tough part of stem found in large old trees. The heartwood (also called duramen) is composed of dead cells with their walls heavily impregnated with various compounds such as resins, gums, tannins, pigments or phenolic compounds and hence become unsuitable for conduction but medicinally useful. As the growth process continues the rings of sapwood (also called alburnum) bordering the heartwood keeps on converting into heartwood. Distinction between sapwood and heartwood is not sharp as in case of Holoptelea integrifolia Plant which is the part under study.

**Distribution**

The plant species originated from Pacific Island. Throughout the greater part of India up to an altitude of 660 m and also on the roadside, in lower ranges of Himalaya from Jammu to Awadh, Ruhelkhand, forests of Dehradun, Saharanpur, Orissa, Chota Nagpur, Bihar, West Bengal, hills of Deccan, eastern slopes of Western Ghats and North Circars. Also found in tropical and subtropical region of Asia and Africa.

**Part Used**

Bark, leaf, seed, heartwood.

**Chemical Constituents**

Two triterpenoid fatty acid esters Holoptelin-A and B, 2-amino - $\beta$ -D-glucose (stem bark);  $\beta$ -sitosterol and its  $\beta$ -naphthaquinone, fiedelin, epifriedelinol, -dihydroxyelan-12-en-28-oic acid and hederagenin (heartwood);  $\alpha$ , 3 $\alpha$ -sitosterol-2 -amyrin (leaves); carbohydrates, pigments, oils,  $\beta$ -sitosterol and  $\beta$ -hexacosanol, octacosanol, acids, glycosides, sterols, tannins, proteins, free amino acids, major fatty acids- palmitic acid, -sitosterol and  $\beta$ -oleic acid, myristic, stearic, linoleic and linolenic acids; and steroids- stigmasterol (dried seeds); histamine and 5-hydroxytryptamine (pollens).

**Action and Uses**

The bark and leaves are bitter, astringent, acrid, thermiogenic, antiinflammatory, digestive, carminative, laxative, anti-helminthic, depurative, revulsive and urinary astringent. They are useful in inflammations, acid gastritis, dyspepsia, flatulence, colic, intestinal worms, vomiting, wounds, skin diseases, vitiligo, leprosy, filariasis, obesity, diabetes mellitus, hemorrhoids and rheumatism. Seeds are useful in infected ulcers and as a deodorant for foul smell of body. Chirabilva is described in Lekhaniya and Bhedaniya Mahakashaya of Charaka Samhita indicating its laxative and purgative action. It is also described in Salasaradi Gana of Sushruta which contains woody plants.

**Hypolipidemic Activity**

The methanolic extract of leaf and bark of *H. integrifolia* exert hypolipidemic effect by markedly lowering body weight, serum lipid, HMGR activity and apo-B as well as increasing high-density-lipoprotein-cholesterol and apo-A1 concentration. The fecal analysis indicates the ability of the extract to prevent intestinal fat absorption due to presence of 3-(7ethoxy-4-methyl-2-oxo-2H-chromen-3-yl) compound. Bark contains tannin, lignin, cellulose and hemicellulose having hypolipidemic activity.

**Ayurvedic Properties**

Rasa - Tikta, Kashaya

Guna - Laghu, Ruksha

Virya - Usna Vipaka - Katu

Doshakarma - Kaphapittashamaka

Rogaghnata - Kaphapaittikavikara, Shotha, Agnimandya,

Gulma, Arsha, Krimi, Raktavikara, Prameha, Kustha,

Medoroga.

Karma - Shothahara, Dipana, Anulomana, Pittasaraka, Bhedana, Krimighna, Raktashodhaka, Pramehaghna, Kusthaghna, Lekhana.

Dosage - Decoction - 50 to 100 ml, Bark powder -1-3 g

**DISCUSSION**

The tannins may be used for preventing obesity and reducing the degree of obesity by virtue of the lipase inhibiting properties preventing digestion and absorption of oils and fat. Flavonoids are included under polyphenols. These compounds usually occur as glycosides in which one or more of the phenolic hydroxyl group are combined with sugar residue. Flavonoids or bioflavonoids are named from the Latin word flavus, meaning yellow and are ubiquitous in plants; these compounds are the most abundant polyphenolic compounds in human diet. A number of studies have demonstrated the potential health benefits of natural flavonoids against obesity.

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