

# Caralluma Fimbriata

Botanical Description : Caralluma Fimbriata [ Roxbury ] Family : Asclepiadaceae Synonym : Caralluma Adscendens  
Local Names : Kullee Mooliyan, Kallimudayan [ Tamil ], Karallamu [ Telugu ], Yugmaphallottama [ Sanskrit ], Ranshabar, Makad Shenguli, Shindala Makadi [ Marathi ]

Caralluma's lack of toxicity has been confirmed by a leading Ayurvedic academician : "Considering Caralluma's widespread use as a vegetable and its use in Folklore medicine, no toxicity has been reported in literature. Caralluma cactus is non-toxic and regarded as safe." The Wisdom of Ancient India Caralluma has been in use for centuries in India. It is commonly used even today in semi-arid regions of India. It finds use as a famine food and appetite suppressant in drought-hit villages across the sub-continent. Caralluma's appetite suppressant property is well known to Indian tribals and hunters. Indian folklore records its use as a potent appetite suppressant and weightloss promoter.

## CARALLUMA

SPECIES: Caralluma fimbriata

FAMILY: Asclepiadaceae

PARTS USED: Aerial

### Background Information on Caralluma fimbriata

Distribution. A fleshy, thick, succulent perennial found in the dry hills of Andhra Pradesh, Warangal, and some other districts of India, Caralluma fimbriata Hook. (syn Caralluma attenuata Wight)<sup>1,2</sup> is found at altitudes of up to 600 meters.<sup>2</sup>

Taxonomy of Caralluma fimbriata: The plant itself appears to be a source of much taxonomic confusion, no doubt due to its variability and the early identification of at least 6 different forms.<sup>3</sup> For example, the species Caralluma fimbriata Roxb. is stated to be synonymous with Caralluma adscendens (Roxb.)

Law. var. fimbriata, a plant growing at altitudes of from 600 to 900 meters in Rajasthan.<sup>4</sup> Another assignment is that of Caralluma fimbriata Wall., which was found to be clearly different from that of Caralluma fimbriata Wight.<sup>2</sup> According to the Council of Scientific and Industrial Research of India (CSIR),<sup>5</sup> Caralluma fimbriata Wall., Caralluma adscendens R.Br, and Caralluma attenuata Wight are synonymous species and constitute a highly "variable herb", found at elevations of up to 600 meters in Andhra Pradesh and Kerala to Maharashtra. CSIR adds that although some taxonomists classify Caralluma fimbriata Wall. and Caralluma attenuata Wight as separate species, others regard Caralluma attenuata as a variety: Caralluma adscendens R.Br. var. attenuata (Wight) Grav. & Mayur.<sup>5</sup>

History and Folkloric Use of Caralluma fimbriata: Caralluma fimbriata is a traditional food consumed in the form of a pickle and vegetable<sup>5</sup> and is also eaten during famines.<sup>4</sup> In traditional medicine, the juice of the plant is combined with black pepper (*Piper nigrum* L., Piperaceae) in treating migraine. The plant is also eaten raw as a treatment for diabetes.<sup>1</sup>

### Chemistry of Caralluma fimbriata:

As Caralluma attenuata Wight., the fresh whole plant contains luteolin-4'-O-neohesperidoside, a flavonoid (flavone glycoside) identified as "the major chemical constituent of the plant."<sup>1</sup> Although no other constituents appear in the published scientific literature on the species and its synonyms, a proprietary extract of Caralluma fimbriata is stated to contain saponin glycosides, bitters, pregnane glycosides (caratubersides A and B and various boucerosides), the aforementioned luteolin-4'-O-neohesperidoside, kaempferol-7-O-neohesperidoside, sitosterol, and tomentogenin.<sup>6,7</sup>

### Pharmacology of Caralluma fimbriata:

Few studies have been published on the pharmacological activities of extract or phytochemical constituents of Caralluma fimbriata or species considered taxonomically synonymous. Solvent extracts (ethanol, n-butanol, and chloroform) of the fresh whole plant of Caralluma attenuata Wight. at an oral dose of 250 mg/kg showed significant hypoglycemic activity in fasted male rats in the oral glucose tolerance test. Significant antihyperglycemic activity was found in alloxan-induced diabetic male rats from the same dose of the extracts, with a maximum decrease in blood sugar levels of 33% from the butanol extract and much less from the chloroform (19%) and ethanol extracts (16%).<sup>8</sup> Others report that a lower dose (100 mg/kg p.o.) of either an alcohol or aqueous extract of the whole plant produced significant decreases in blood glucose levels in normal and alloxan-induced diabetic rats.<sup>9</sup> Luteolin-4'-O-neohesperidoside, a flavonoid (flavone glycoside) isolated from a methanol extract of the fresh whole plant (yield, 0.5%) of Caralluma attenuata Wight.,<sup>10</sup> showed significant anti-inflammatory activity in male rats (carrageenan induced hind-paw edema) following pre-administered oral doses of 2 to 4 mg/kg. At 3 and 4 mg/kg, potency was comparable to that of ibuprofen at 50 mg/kg. The authors reported that no symptoms of toxicity were found from intraperitoneal doses of the flavonoid in rats up to a dose of 1000 mg/kg. Significant antinociceptive activity was also found from pre-administration of the flavonoid (30 and 100 mg/kg per oral administration [p.o.]) in the acetic acid-induced writhing test in mice. At the highest dose tested (100 mg), antinociceptive activity was comparable to that of analgin (dipyrone) at 50 mg/kg p.o.<sup>1</sup>



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