

Extended distribution of *Caralluma diffusa* (Wight) N.E. Br. (Asclepiadaceae) in Tamil Nadu, India

Parthipan, M. and A. Rajendran*

Abstract

Caralluma diffusa (Wight) N.E. Br. so far known to occur only in Coimbatore district. Occurrence in Nilgiris of the Western Ghats and Yercaud Hills of the Eastern Ghats form an additional / extended distribution in Tamil Nadu. A detailed description and its diversified habitats are provided.

Keywords: *Caralluma diffusa*, Nilgiri, Yercaud hills, additional / extended distribution.

Introduction

The genus *Caralluma* R.Br. being a succulent have always fascinated naturalists and commoners alike. Willis (1973) reported 110 - species of *Caralluma* R.Br. occurring in South and Eastern Africa, extending to the north into the Mediterranean and to the east through Arabia and India. It is represented by 13 species and 5 varieties in India (Jagtap & Singh, 1999). Chithra and Nair (1999) included 11 species of diverse genera in the family Asclepiadaceae of which *Caralluma diffusa* (Wight) N.E.Br. (Fig: 1) and *C. nilagiriana* Kumari and Subba Rao are considered as endemic to Tamil Nadu. Rao *et al.* (2003) have included this species under "Interminate status".

The species *Caralluma diffusa* (Wight) N.E.Br. was first collected and described by Robert Wight from Coimbatore in 1858 and named by him as *Boucerosia diffusa*. Gamble (1923) gave the distribution of this species as Deccan, arid rocky hills near Coimbatore of an elevation of about 600m. Henry *et al.* (1978) enumerated 224 species of rare and threatened flowering plants from southern India and also stated that no specimens of *Caralluma diffusa* had been deposited in MH.



Image 1. *Caralluma diffusa* (Wight) N.E. Br



Image 2. Stem with Inflorescence

Srinivasan (1987) also included this species in Flora of Tamil Nadu and also stated that the distribution of *Caralluma diffusa* is only in Coimbatore district of Tamil Nadu and the threat status mentioned as rare and threatened. Gandhi (1999) stressed the inadequacy of data and need for a critical study at the Indian *Caralluma* R.Br. Recently, the species has been rediscovered in Madukkarai hills of Coimbatore district by Ramachandran *et al.* (2011). It is also new distribution record in Kerala from Chinnar Wildlife Sanctuary by Prabhu Kumar *et al.* (2013).

Materials and methods

Survey and collection trips were conducted in the Western Ghats of Nilgiri and the Eastern Ghats of the Yercaud hills at bimonthly intervals from 2011 to 2012. Ecological data, habitats, habit and diagnostic features of species, associated plants, colour, smell, uses *etc.* were documented and photographed the specimen in the field. The specimens were collected, poisoned, processed and

Floristics Laboratory, Department of Botany, School of Life Sciences, Bharathiar University, Coimbatore, Tamil Nadu, India.
*Email: arajendran222@yahoo.com



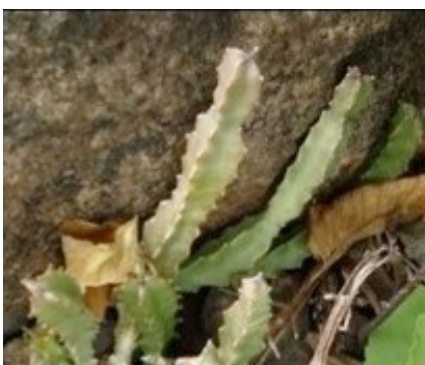
i) Hypolithophytic



ii) Chasmoendolithophytic



iii) Epilithophytic



iv) Euendolithophytic

Image 3. Diverse habitats of *Caralluma diffusa* (Wight) N.E. Br



Fig 1. Habitat of *Caralluma diffusa* (Wight) N.E. Br. Illustration by M. Parthipan

labeled following standard herbarium method (Santapau, 1955; Fosberg and Sachet, 1965). The voucher specimens were deposited in the Department of Botany, Bharathiar University Herbarium (BUH), Coimbatore, Tamil Nadu, India for future reference and consultations.

Caralluma diffusa (Wight) N. E. Brown in Gard. Chron., ser.3 (12): 369. 1892; Gamble, Fl. Madras 2: 862. 1923; Srinivasan in Henry *et al.*, Fl. Tamil Nadu 2: 81. 1987; Jagtap & Singh, Fasc. Fl. India 24:201.1999. Mullar and Albers, Illust. Handb. Succulent Pl. Asclepiadaceae 5:52.2004; Ramachandran *et al.*, in J. Thraeat. Taxa. 3(3):1622. 2011; K.M. Prabhu Kumar *et al.*, in J. Indian Forester. Vol.139: 5. 2013; *Boucerosia diffusa* Wight, Ic. Pl. Ind. Or. t1599. 1850; Hook. f., Fl. Brit. India 4: 78. 1883.

Herbs, perennial, diffusely branched, fleshy; stem in dense large clumps, concave, acutely 4-angled, much branched, ascending internodes 6-12mm long, 5-15mm thick, glabrous. Leaves minute, on the angular of stems, often spine-like, leaf scar present, with appendage-like growth of nodes on angled portion. Flower buds apically more or less acutely conical, dark purplish, brown with many very fine whitish concentric in terminal umbels. Umbels many flowered; bracts c1.5 X 0.5mm, triangular, acute at apex, glabrous; pedicels teret, 5-6mm long, 1-1.5mm thick, glabrous. Calyx 5-lobed, divided upto base; lobes c.3X1mm, lanceolate, ciliate on the margin only, glabrous. Corona biseriate; the outer annular, arising from base of stamens, closely intact; lobes 5, c. 2.5 X 1.5 mm, with two horn like appendages widely separated from each other; the inner variable, ca. 1 mm long; linear, arising from inner side of outer corona, overlapping anther-lobes. Stamens 5, c. 2.5mm long; pollinia 5, pollen masses solitary in each anther cell, yellow, waxy with

pellucid layer attached by light brown caudicles. Gynostegium c. 1.5mm long. Fruit follicles, slender c.25mm long. (Image 1 & 2).

Phenology: Flowering: April.
Fruiting: September.

Disribution: Tamil Nadu: It is distributed in Madukkarai Hills and Maruthamalai Hills of Coimbatore district of the Western Ghats, Thiruvannamalai District (Karuppusamy *et al.*, 2013), Kanyakumari District (Sukumaran *et al.*, 2013) and new distribution for Yercaud Hills in Salem, Dharmapuri and Namakkal districts of the Eastern Ghats and Nilgiri hills of the Western Ghats. Karnataka (Ganesh Babu, 2013), from Chinnar Wildlife Sanctuary, Kerala by K. M. Prabhu Kumar *et al.* (2013).

Habitat

It grows on rock crevices and rock clefts as Hypolithophytic (Habitat on underside of rock (Image; 3 (i)), Euendolithophytic (Habitat formed by active boring/ penetration by microorganisms (Image; 3 (iv))), Epilithophytic (Habitat on surface of rocks (Image; 3 (iii))) and Chasmoendolithophytic (Habitat in fissures and cracks within rock (Image; 3 (ii))) often associated with *Eragrostis biflora* Hack. ex Schinz., *Hemionitis arifolia* (Burm.f.) T. Moore, *Lantana camara* L., *Asplenium species*, *Kalancho tubriflora* (Harv.) Raym.-Hamet, *Indigofera linnaei* Ali, *Chelianthes mysurensis* Wall ex Beda., *Coleus aromaticus* Benth., *Euphorium odoratisima*, etc.

Uses

The sap of the young stem taken internally for purification of blood as well as for treatment of obesity by the local people. The young shoots are gently heated and used as vegetable.

Conclusion

The species *Caralluma diffusa* (Wight) N. E. Br. hitherto considered as endemic to the Coimbatore district only. However, a critical study of the specimens collected from the Nilgiri hills of the Western Ghats and in the Yercaud hills, Dharmapuri and Namakkal districts of the Eastern Ghats showed that this species occurs in the Western Ghats as well as in the Eastern Ghats too. A thorough scrutiny of literature revealed that this species was hitherto unrecorded from the Western Ghats of Nilgiri and the Yercaud hills, Dharmapuri and Namakkal districts of the Eastern Ghats as well. Hence, it is reported here as an extended distribution in Tamil Nadu. The endemism is prone to change when more and more botanical explorations are undertaken and additional knowledge on the distribution of species are gathered of local / regional level.

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