



## On the rediscovery of *Marsdenia tirunelvelica* (asclepiadaceae) - a rare and little known endemic species from Western Ghats

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### ARTICLE INFO

#### Article history:

Received: 5 July 2011;

Received in revised form:

23 August 2011;

Accepted: 28 August 2011;

### ABSTRACT

*Marsdenia tirunelvelica* A. N. Henry & Subram. a rare and little known asclepiad, endemic to Southern Western Ghats has been rediscovered after a lapse of about 38 years since its type collection. To facilitate easy identification of the species a brief description and relevant notes are provided.

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### Keywords

Asclepiad,  
Endemic,  
*Marsdenia tirunelvelica*,  
Rediscovery,  
Western Ghats.

### Introduction

The genus *Marsdenia* R. Br. is so far known to have 13 species in India (Jagtap & Singh, 1999). Out of which two species are endemic to Western Ghats (Ahmedullah & Nayar, 1987; Nayar, 1996; Jagtap & Singh, 1999). *Marsdenia tirunelvelica* was described by Henry and Subramanyam in 1976, based on a specimen collected by Henry in 1972 from Agastyamalai hills, Tamil Nadu. Since then it has not been collected from its type locality in spite of the best efforts put forward by the subsequent flora workers (Srinivasan, 1987; Jagtap & Singh, 1999; Gopalan & Henry, 2000). Hence, it was considered an extinct asclepiad of Southern Western Ghats (Gopalan & Henry, 2000; Annamalai *et al.*, 2009). While investigating the asclepiads of Western Ghats of Tamil Nadu, the author collected an interesting species of *Marsdenia* from tirunelveli hills, Tamil Nadu. After careful and critical analysis, the species was identified and confirmed as *Marsdenia tirunelvelica* A. N. Henry & Subram. Therefore, the present collection forms a rediscovery after lapse of 38 years of its first collection.

### Materials and Methods

Intensive field surveys were conducted between January 2008-January 2010 in various places of Southern Western Ghats, Tamil Nadu. All the collected specimens were poisoned, processed and labelled by standard herbarium methods (Forman & Bridson, 1989; Jain & Rao, 1993). The collected plants were identified taxonomically with the help of relevant literatures (Gamble and Fischer, 1997; Henry & Subramanyam, 1976; Jagtap & Singh, 1999). Their identification was later confirmed by matching specimens with previously authenticated specimens available at Botanical Survey of India (BSI), Southern Circle, Coimbatore. All collections are deposited in Ashoka Trust for Research in Ecology and the Environment (ATREE) Herbarium, Bangalore.

As a detailed description is provided elsewhere by Henry & Subramanyan (1976), only a brief description and relevant notes are provided here for the easy identification of this little known endemic species in the field.

*Marsdenia tirunelvelica* A. N. Henry & Subram. in J. Bombay Nat. Hist. Soc. 73: 186. ff. 1-5. 1976; A. N. Henry & al., in J. Bombay Nat. Hist. Soc. 75(3): 692. 1978; Ahmed. & M. P. Nayar, End. Pl. Indian Region, 127. 1986; Srinivasan in A. N. Henry & al., Fl. Tamil Nadu Ser.I. Analy. 2: 87. 1987; Sasidh. & Swarup., in J. Econ. Tax. Bot. 18: 636. 1994; Jagtap & N. P. Singh, Fasc. Fl. India 24: 135. 1999; Gopalan & A. N. Henry, End. Pl. India 300. 2000.

Climbing shrubs; branchlets terete, glabrous. Leaves opposite, decussate, elliptic-lanceolate to obovate, 4-8.5 x 1.8-3.8 cm, coriaceous, glabrous on both sides, base rounded / cordate, margin revolute, acuminate at apex; lateral nerves 4-5 pairs, prominent beneath, obscure above, curved upwards, looped and joined towards the margin; petioles terete, 1.5-2.8 cm long. Flowers axillary, in umbellate cymes; peduncles 1-1.8 cm long, glabrous; pedicels 1.8-2 cm long, glabrous; bracts lanceolate, 0.2-0.3 cm long, crowded at the base of pedicels. Calyx 5-lobed, divided up to base, lobes elliptic-ovate, 2-2.8 x 1.5-1.8 cm, apex acute, margin minutely ciliate, glandular within. Corolla greenish yellow, urceolate, pubescent within, lobes 5, broadly ovate, apex acute, glabrous. Corona staminal, uniseriate, 5-lobed, fleshy, adnate below the staminal column. Stamens 5, 0.2-0.3 cm long; pollinia 5, pollen masses solitary in each anther cell, yellow, waxy, attached by pale brown caudicles. Ovary 2-carpelled, apocarpous, many ovuled; style 0.1 cm long, stout; style apex dome-shaped. Fruits not collected. Flowering: January-April

Distribution: Southern Western Ghats of Kerala & Tamil Nadu-(Endemic).

*Specimens examined:* Western Ghats: Tamil Nadu: Theni District: On way to Brookes peak, 1400m, 24-2-2009, R. Kottaimuthu & Manikandan 2500. Tirunelveli District: On way to Sengaltheri from fern house, 1295m, 31-1-2008, *RKM 110229*; On way to Poongulam from Veiyilar, 1358m, 29-5-2008, *R. Kottaimuthu 69* & On the slopes of Agasthyamalai, 1780m, 29-5-2008, *R. Kottaimuthu 90*.

Notes: *Marsdenia tirunelvelica* A. N. Henry & Subram. is hardly distinct from *M. raziana* Yogan. & Subram. In addition, both the species are poorly represented in the herbaria. They are treated as distinct species by Jagtap & Singh (1999) but we have observed during our herbarium and field studies that the characters are overlapping and sometimes it is difficult to distinguish between the two. It needs further biosystematic studies.

#### Results and Discussion

The floristic diversity of the Western Ghats is of an ancient lineage and is compared to 'Oceanic Islands' (Subramanyam & Nair, 1974). According to Nayar (1998), the Western Ghats are on the brink of endemic plant collapse. Of the endemic species of the Western Ghats, about 1500 species have highly fragmented population and at least 50 endemic species could not be relocated after repeated surveys (Nayar, 1996). Extinction of endemic species is already in the process and they enter into the vertex of extinction due to genetic drift, fragmented population, in breeding depressions, demographic variations and over harvesting. Without knowing the distribution range, population size and threat status, it is very difficult to protect the endemic plants of Western Ghats. Hence, immediate intensive surveys are needed for the assessment of poorly known endemic plants of Western Ghats.

#### Acknowledgement

The authors R. Kottaimuthu & R. Ganesan thankful to the Department of Biotechnology, Govt. of India for financial

support. They also wish to thank the District Forest Officer, Tirunelveli division for permission to conduct botanical surveys.

#### References

- Ahmedullah, M. and M. P. Nayar (1986). Endemic Plants of the Indian Region. Volume-I, Botanical Survey of India, Calcutta.
- Annamalai, R., K. Muthukumar, C. T. Jacob, J. D. M. Knight & D. Senthil. (2009). Endemic plants of Tamil Nadu *Envis Newsletter* 5(4): 1-16.
- Forman, L. and D. Bridson (1989). The Herbarium Handbook. Royal Botanic Gardens, Kew.
- Gamble, J. S. and C. E. C. Fischer (1997). *Flora of the Presidency of Madras*. Reprinted Edition, Volumes I-III, Bishen Singh Mahendra Pal Singh, Dehra Dun.
- Gopalan, R. and A. N. Henry (2000). *Endemic Plants of India: CAMP for the strict endemics of Agasthiyamalai Hills, SW Ghats*. Bishen Singh Mahendra Pal Singh, Dehra Dun.
- Henry, A. N. and K. Subramanyam (1976). A new *Marsdenia* R. Br. (Asclepiadaceae) from South India. *J. Bombay Nat. Hist. Soc.* 73: 186-187.
- Jagtap, A. P. and N. P. Singh (1999). Asclepiadaceae & Periplocaceae. *Fasc. Fl. India.* 24: 1-317. Botanical Survey of India, Calcutta.
- Jain, S. K. and R. R. Rao (1993). A Handbook of Field and Herbarium Methods. Daya Publishing House, New Delhi.
- Nayar, M. P. (1996). *Hotspots of endemic plants of India, Nepal and Bhutan*. TBGRI, Palode, Thiruvananthapuram.
- Nayar, M. P. (1998). Impending endemic plant collapse in the Western Ghats *Biodiversity India News letter* 3: 7.
- Subramanyam, K. and M. P. Nayar (1974). Vegetation and Phytogeography of the Western Ghats. In: Mani, M. S. (editor), Ecology and biogeography in India. Haugue, Dr. W. Junk Publishers 178-196.