Research Paper

Volume : 4 | Issue : 11 | November 2015 • ISSN No 2277 - 8179

Pseudarthria viscida (L.) Wight & Arn. (Fabaceae) from Andaman Islands in the Bay of Bengal

BOTANY

KEYWORDS : *Pseudarthria viscida*, New generic record, Andaman Islands

Sam P. Mathew

Jawaharlal Nehru Tropical Botanic Garden and Research Institute, Thiruvananthapuram 695 562, Kerala, India.

ABSTRACT

Andaman-Nicobar Archipelago, the insular habitat in the Bay of Bengal is highly affluent with plant diversity. Nevertheless, evergreen insular rainforests are mostly devoid of herbaceous components. The compact canopy of the evergreen type vegetation rigorously restricts sunlight to ground level creating strict competition among the herbaceous species for space with enough sun light. Therefore, several herbaceous elements are confined their occurrence to isolated ideal micro ecological niches. Pseudarthria viscida (L.) Wight & Arn. is a newly recorded herbaceous evergreen forest component from the Baratang Island in Middle Andaman group. The taxon is described here with illustrations as a new generic record to the flora of the Andaman-Nicobar Archipelago.

Introduction

The Andaman and Nicobar Islands in the Bay of Bengal, situated over 650 nautical miles away from the Coromandel Coast of the Peninsular India consisting of 306 islands and 206 rocks and rock outcrops (islets) in the tropical belt between the latitudes 6° 45' to 13° 41' N and longitudes 92° 12' E to 93° 57' E. During the plant explorations carried out in Middle Andaman group of Islands in December 2012, the author has located *Pseudarthria viscida* (L.) Wight & Arn. along the edges of the evergreen forests with ample infiltration of light. Critical scrutiny in consultation with different herbaria (PBL & CAL) and a perusal of literature revealed that *Pseudarthria* Wight & Arn. is a new generic record to the flora of Andaman-Nicobar Islands (Kurz, 1877; Parkinson, 1923; Das *et al.* 1992; Vasudeva Rao 1986; Lakshminarashimhan & Rao 1996; Mathew 1988; Pandey & Diwakar 2008; Lakshminarashimhan *et.al.* 2011). According to current statistics, the insular Leguminosae is represented with 174 taxa belonging to 71 genera which include 111 species beneath 47 genera belonging to Fabaceae, 37 species and 14 genera included with Caesalpiniaceae and 26 species included under 10 genera with Mimosaceae.

As regards to the taxonomic status of the genus *Pseudarthria* (L.) Wight & Arn., it is one of the Fabaceous genera originally described by Wight and Arnold in 1834, evidently occurring from Africa towards South and Southeast Asia with three or four species. The Kew database on *Pseudarthria* Wight & Arn., also annotated that a number of African species included under this genus may be better treated as intraspecific variants of *Pseudarthria hookeri* Wight & Arn. The genus *Pseudarthria* Wight & Arn is included under the tribe *Pseudarthrieae* by Hutchinson (1964) and *Desmodieae* by Praminik & Thothathri (1989). (Kew database, http://www.kew.org/science-conservation/research-data/resources/legumes-of-the-world/genus/pseudarthria - accessed on 08/08/2015). According to International Legume Database and Information Service (ILDIS), *Pseudarthria viscida* (L.) Wight & Arn. has so far been reported from Pakistan, India, Bangladesh, Myanmar, Indonesia, Philippines, East Timor and two Indian Ocean islands *viz.* Sri Lanka and Mauritius. In India, It has been reported from Peninsular India (Andhra Pradesh, Bihar, Goa, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Tamilnadu) and West Bengal. (ILDIS database, http://www.ildis.org/LegumeWeb?version~10.01&LegumeWeb&tno~24316&genus~Pseudarthria&species~viscida#16 - accessed on 08/06/2015). Interestingly, the phytogeography of this taxon covers Sri Lanka, Peninsular India, West Bengal, Bangladesh and Myanmar in the Indian Subcontinent and then towards Indonesia to Philippines across the Bay of Bengal without any demonstration in Andaman-Nicobar Islands until the recent collection from Middle Andaman. Geologically, the Andaman-Nicobar Islands are recognized as the emergent peaks of a submerged mountain range in continuation with Arakan-Yoma Mountains of the Myanmar towards Moluccas Island of the Indonesia. The new discovery confirmed the geographical distribution of *Pseudarthria viscida* (L.) Wight & Arn. from Indian Subcontinent towards Malesia through the corridor of Andaman-Nicobar Islands, substantiate the continental connection of the Andaman Islands in the remote past. Being an interesting new generic record for the Andaman flora, a taxonomic description along with illustrations is appended herewith for its easy identification.

Taxonomic Description

Pseudarthria viscida (L.) Wight & Arn. Prodr. Fl. Ind. Orient. 209, 1834; Wight, Ic. Pl. Ind. Orient. T, 286, 1840; Hook. f., Fl. Brit. India 2: 154.1876; Gamble, Fl. Madras 1: 334(236).1918. *Hedysarum viscidum* L., Sp. Pl. 747.1753.

Prostrate herbs; branchlets villous; Leaves 1-3 foliate, pilose; stipules 0.2 - 0.3 cm., subulate, pubescent; petiole 3 - 4.4 cm, pubescent; terminal leaflets 5 - 5.9 x 4.3 – 4.9 cm, ovate to broadly rhomboid or rarely obliquely rhomboid with repand margin, acute to shortly acuminate at apex, broadly cuneate at base; lateral leaflets 3.5 – 4.5 x 2.6 – 3.6 cm, broadly ovate rhomboid to rarely obliquely ovate rhomboid, cuneate at base, shortly acuminate to acute at apex; petiole 3 – 4.5 cm, tomentose; Inflorescence lax racemes up to 10 cm; bracts 2mm, lanceolate, pubescent; bracteole subulate; pedicel up to 1.5cm; flowers 2 mm across, milky white in clusters with long tomentose peduncle; calyx tube 1 mm, pubescent, companulate, calyx lobes lanceolate, pubescent, upper lobes 1 mm, lower lobes 2 mm; corolla white, petals clawed, standard petals 3 mm, obovate, wing petals 4 mm, obliquely oblong, spurred, keel petals 4 mm, obtuse; Stamens 9 +1, filaments 1mm, sub-equal, anthers uniform; Ovary 3 mm, oblong, tomentose; ovules many; style 2 mm, incurved with capitates sigma; Pods 2.8 x 0.8 cm, pubescent when young, oblong, non-septate, apiculate at apex, laterally compressed with undulating margins; seeds reniform, glossy.

Specimen examined: Andaman Islands, Baratang Island, near Gandhighat, 18/12/2012, S. P. Mathew 5275 (TBGT).

Fig. *Pseudarthria viscida* (L.) Wight & Arn. 1. Inflorescence 2. Flowers 3. Infructescence 4. Fruits 5. Habitat of the taxon near Great Andaman trunk road (NH 223) at Baratang Island

Discussion

The flora of Andaman-Nicobar Archipelago in the Bay of Bengal has been recognized highly significant on account of its remarkable degree of species diversity and uniqueness in phytogeography. Nevertheless, several islands and islets are still remaining inaccessible and uninhabited causing much complexity in floristic exploration and evaluation. The plant diversity of the Andaman-Nicobar Islands demonstrates over 2654 taxa (Pandey & Divakar, 2008) quite in a small fragmented geographical region of 8,249 sq km and its phytogeography characterizes one of the unique biogeographical regions of transit zone vegetation between the flora of the Indian subcontinent and the Malesian flora. The geographical isolation of this floristic zone from the major land masses of South and Southeast Asia over millions of years endowed with outstanding dimensions in genetic diversity. There are several insular species with variations from its related continental components and on the way of become independent species. The insular element of *Pseudarthria viscida* (L.) Wight & Arn. exhibits some differences from its ancestral taxon found in Peninsular India. The insular form is a prostrate straggler spreading over the ground as undergrowth in evergreen patches of Andaman forests where as in the Western Ghats, it found as an erect under shrub of about 1-2 m tall up to 1200 m height along the forest edges and riverine habitats. The insular element demonstrates white flowers while its mainland analogue is mostly with rose to pinkish flowers. The newly discovered population of *Pseudarthria viscida* (L.) Wight & Arn. is so far been restricted to one locality along the evergreen forest edges near the Great Andaman trunk road (NH 223) in Baratang Island of the Middle Andaman Group.

The insular floristic entities of this archipelago obviously demonstrate maximum affinities towards Northeast India, Myanmar and Southeast Asian floristic regions. Nevertheless, several plant species are found common with Sri Lanka and the Western Ghats of the Peninsular India, although these regions have been broadly isolated by a part of the Indian Ocean known as the Bay of Bengal. According to recent assessment carried out by the author, there are 1026 common species for the Andaman-Nicobar Islands and the Western Ghats of the Peninsular India. The occurrence of *Pseudarthria viscida* (L.) Wight & Arn. in Andaman Islands endorses the continental connection (Gondwanaland) of this insular region in the Bay of Bengal towards the Peninsular India in the remote past. As regards to the Indian forestry, this region encompasses the last stronghold of insular virgin tropical rainforests within the Indian territory as well as with exclusive natural occurrence of several Malesian species that do not occur anywhere in Indian mainland, highlighting the significance of its conservation.

Pseudarthria viscida (L.) Wight & Arn. is a well-known medicinal plant species in Indian Ayurvedic system of medicine. Generally, it is a promoter of body tissues and a stimulant for digestive system. It is a valuable plant species with medicinal properties for the solution of heart diseases as well as blood disorders, as it effectively arrests the bleeding and regulates edema. This species incorporates with several Ayurvedic preparations against digestive ailments like anorexia, flatulence, diarrhea, vomiting and piles.

Acknowledgements

The author is thankful to Dr P G Latha, Director, JNTBGRI for encouragements and also thankful to Dr C Murugan, BSI, Port Blair and forest officials of Andaman-Nicobar Forest Department for facilities rendered for the explorations.

REFERENCE

Das, D., Kumar, S. Murmu, K. L. and Maity 1992: A Census of the Family Papilionaceae in West Bengal, J. Econ. Tax. Bot. 16: 305-334. Hutchinson, J. 1964 : In The Genera of Flowering Plants (Angiospermae). I Dicotyledones, pp. 221-489. Clarendon Press, Oxford. Kurz, S., 1877: Flora of British Burma, (2 vols), Bishen Sing & Mahendrapal Singh, Dhra Dun. Lakshminarashimhan, P. and Rao, P. S. N. 1996: A supplementary list of Angiosperms recoreded (1983-1993) from Andaman-Nicobar Islands. J. Econ. Taxon. Bot. 20(1): 175-185 Lakshminarashimhan, P., Gantait, S., Rasingam, L., Bandyopadhyay, S. 2011: Bibilography and abstracts on paperes on Flora of Andaman and Nicobar Islands. BSI, Kolkota. Mathew, S. P. 1998 : A supplementary report on the flora vegetation of the Bay Islands, India. J. Econ. Taxon. Bot. 22(2): 249-272. Pandey, R. P. and Diwakar, P. G. 2008: An integrated check-list flora of Andaman-Nicobar Islands, India. J. Econ. Taxon. Bot. 32(2): 403-500. Pramanik, A. & Thothathri, K. 1989 : Pseudarthriinae, a new status for tribe Pseudarthrieae (Leguminosae). Taxon 38: 109-110. Murugan, S., Prabhu, S., Sathiyaseelan, R. and Pandey, R. P. 2014: Enumerated flora of Andaman and Nicobar Islands (mss.) Parkinson, C. E., 1923: A Forest flora of the Andaman Islands. (Rep. Ed. 1972) Bishen Sing & Mahendrapal Singh, Dhra Dun. Sanjappa, M. (1992) Legumes of India. Dehra Dun: Bishen Singh Mahendrapal Singh, Dehra Dune. Vasudeva Rao, M. K. 1986: A preliminary report on the Angiosperms of Andaman-Nicobar Islands. J. Econ. Taxon. Bot. 8(1): 107-184.