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Author Affiliation:

Botanical Survey of India, Andaman & Nicobar Regional Centre, Haddo, Port Blair-744102, Andaman & Nicobar Islands, India

✉ Corresponding Author:

Botanical Survey of India, Andaman & Nicobar Regional Centre, Haddo, Port Blair-744102, Andaman & Nicobar Islands, India
Email: chenna.lilly@gmail.com

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Desmodium heterocarpon subsp. *Ovalifolium* addition to the flora of India from South Andaman Islands, India

Mudavath Chenna Kesavulu Naik✉, Lal Ji Singh

ABSTRACT

Desmodium heterocarpon subsp. *ovalifolium* (Prain) H. Ohashi reported as new distributional record for the flora of India from the South Andaman Islands.

Key Words: Angiosperms, New Distributional Record, India, Andaman Islands.

INTRODUCTION

The Andaman & Nicobar Islands is one of the three major phytogeographical regions of India well known for its tropical lowland rainforest (Nayar, 1997). The rare and unique flora which evolved through millions of years due to the physical isolation between the Islands and also from the neighboring continental landmasses is unique to these Islands. About 40 % of the Angiosperm flora of the Islands is extra Indian and most of the species of the Islands are poorly known taxonomically (Balakrishnan and Vasudeva Rao, 1983; Rao, 1996). Floristic explorations held during March 2015, we collected curious angiosperm specimens which after critical study, were identified as *Desmodium heterocarpon* subsp. *ovalifolium*. Perusal of literature Hajra *et al.*, 1999; Pandey and Diwakar, 2008, Murugan *et al.* 2016, Chennakesavulu Naik & Rao, 2016 and various other published articles related to new angiosperm records till date have revealed that this species have not been reported so far from the India and hence form new distributional record for the India. Updated nomenclature, Brief description, phenology, distribution along with field photographs are provided. Representative specimens of all the species are deposited in Botanical Herbarium of Botanical Survey of India, Andaman and Nicobar Regional Centre (PBL). Field Photographs of the species are provided for easy identification.

MATERIALS AND METHODS***Desmodium* Desv.**

The genus *Desmodium* is widely distributed in the tropics and subtropics of the world and comprises 350-450 species (Ohashi, 1973). In India it is represented by 47 species, 7 subspecies and 5 varieties (Sanjappa, 1992) of which 24 species, 2 sub species and 2 varieties are reported from Kerala (Nayar *et al.*,

2006). During the latter part of 1990's four species *Desmodium* viz., *D. scorpiurus* (Sw.) Desv., *D. tortuosum* (Sw.) DC., *D. uncinatum* (Jacq.) DC. and *D. intortum* (Mill.) Urb. were reported as new to India from Kerala (Tandyekkal & Mathew, 1995; Tandyekkal, 1997; Sasidharan, 1996, Balan *et. al.*, 2014) Murugan *et. al.* 2016, enlisted a total of six species and two varieties (*Desmodium auricomum* Grah. ex Benth., *Desmodium gangeticum* (L.) DC., *Desmodium heterocarpon* (L.) DC. var. *heterocarpon*, *Desmodium heterocarpon* (L.) DC. var. *strigosum* Van meeuwen, *Desmodium heterophyllum* (Willd.) DC., *Desmodium laxiflorum* DC., *Desmodium triflorum* (L.) DC., *Desmodium zonatum* Miq.). All of them are native to tropical American region.



Figure 1. *Desmodium heterocarpon* ssp. *ovalifolium*. A. Habit; B. Flowers; C. Legumes.

Desmodium heterocarpon ssp. *ovalifolium* (Prain) H. Ohashi, J. Jap. Bot. 66 (1): 21 1991. (Fig. 1).

Annual creeping herbs, to 60 cm; much branched with woody base. Stem erect or occasionally trailing, terete, striated, densely pubescence, brown, root at nodes when in contact the soils. Leaves unifoliate or trifoliate, ovate, elliptic, oblong or obovate, adaxially glabrous, glossy, abaxially pale green, base rounded, apex obtuse, mucronate, 3-4.5 × 2.5-3 cm; petiole 2 cm long; stipules, striate, acuminate or caudate at apex, sparsely pubescent outside, glabrous inside, caducous, lanceolate; petiole 3.5-6.5 cm long including 4-6 mm long. Pseudo racemes terminal, 2-3 cm, rachis brown, spreading, hairy straight, densely flowered, peduncle 5 mm long; calyx campanulate, tube and lobes sparsely bulbous based glabrous outside, tube c. 2 mm long, 4 lobed, upper lobed slightly 2 toothed at apex; corolla purple, purple red, ca. 5mm long, standard petal obovate-oblong, shortly clawed; wings obovate, auriculate, clawed; keel extremely curved, apex obtuse. Pod erect, narrowly oblong, 1-1.5 cm × 3-5 mm, upper margin shallowly undulate, margins hooked hairy, 4-5 jointed. Seeds brown, compressed, ellipsoid.

Table 1. Comparison of morphological characteristics of *Desmodium* species of Andaman & Nicobar Islands.

S. N	Characters	<i>D. heterocarpon</i> var. <i>heterocarpon</i>	<i>D. heterocarpon</i> var. <i>strigosum</i>	<i>D. heterocarpon</i> ssp. <i>ovalifolium</i>
1	Habit	Erect herbs, up to 150 cm	Erect herbs, up to 120 cm	Diffuse or prostrate herbs, up to 80 cm
2	Leaves	Leaves 3-foliolate; slightly pubescent;	Leaves 3-foliolate; pubescent.	Leaves simple. glabrous
3	Inflorescence	Racemes terminal or axillary. Rachis with white, spreading, hooked hairs.	Racemes terminal or axillary. Rachis with dense yellowish or white straight, appressed hairs.	Racemes terminal. Rachis with brown or deep purple, simple hairs.
4	Flowers	Flowers densely arranged.	Flowers densely arranged.	Flowers arranged whorled.
5	Pods	Legume erect, narrowly oblong, upper suture shallowly undulate, both sutures hooked hairy, 4-7-jointed.	Legume erect, narrowly oblong, upper suture shallowly undulate, both sutures hooked hairy, 4-5-jointed.	Legume erect, narrowly oblong, upper suture shallowly undulate, both sutures simple hairs, 3-4-jointed.

Flowering and Fruiting: December-May.

Habitat: Rarely found nearly seashore areas and mangrove creeks.

Distribution: Tropical Southeast Asia, China, Sri Lanka, Myanmar, Thailand, Malaysia, Philippines, Indonesia and Pacific Islands.

Voucher Specimens Examined: India, Andaman & Nicobar Islands, South Andaman – Shoal Bay 16.04.2018, Lal Ji Singh & M. Chennakesavulu Naik, 33546, (PBL); 26.04.2018, Lal Ji Singh & M. Chennakesavulu Naik, 33588, (PBL); Wandur 20.12.2003, K. Karthigeyan, 19673 (2), (PBL); Mount harrieth 16.01.1974, N.G. Nayar, 788 (2), (PBL); Write Myo 09.01.1974, N.P. Balakrishnan, 746 (2), (PBL).

Key providing to varieties of *Desmodium* species of Andaman & Nicobar Islands

1a. Plants always erect; rachis with white, spreading hooked hairs.....var.

heterocarpon

1b. Plants diffuse or prostrate sometimes erect; Rachis without white or spreading hooked hairs.....2

2a. Rachis with dense yellowish or white, straight, appressed hairs.....var. *strigosum*

2b. Rachis with brown or deep purple, simple hairs.....var. *ovalifolium*

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Conflict of Interest

The authors declare that there are no conflicts of interests.

Ethical approval

The ethical guidelines for plants & plant materials are followed in the study for species collection & identification.

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Data and materials availability

All data associated with this study are present in the paper.

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