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First record of *Vandellia diffusa* (Linderniaceae) in Asia

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Abstract

Vandellia diffusa is reported for the first time from Asia. Its description, photographs, notes on distribution and habitat are provided for easy identification.

Key words: Linderniaceae, *Vandellia*, South India, Travancore coast, Kerala

Introduction

The genus *Vandellia* was established by Linnaeus (1767: 384) and was treated under Scrophularieae (=Scrophulariaceae) by Jussieu (1789). Later on Bentham (1835) treated the genus under the tribe Gratioloeae. The generic circumscription of *Vandellia* along with *Lindernia* Allioni (1766: 178), *Bonnaya* Link & Otto (1821: 25) and *Ilysanthes* Rafinesque (1820: 13) has long been a serious matter of discussion among workers. These four genera were circumscribed mainly on the basis of the number of stamens and the nature of staminodes. However, Pennell (1935) considered that the characters so far used were too weak and artificial and combined all these taxa into a large genus *Lindernia* characterised by the remarkably uniform corolla, curiously recurving anterior filaments and by similar septicidal dehiscence of the capsule. This treatment was subsequently followed by majority of the authors (Philcox 1968, 2008; Sivarajan & Mathew 1983; Yamazaki 1985, 1990; Fischer 1992, 1995, 2004; Lewis 2000). However, doubts arose due to the morphological heterogeneity (Fischer 1992) whether *Lindernia* was really monophyletic. Molecular phylogenetic studies (Olmstead & Reeves 1995; Olmstead *et al*. 2001; Rahmanzadeh *et al*. 2005; Albach *et al*. 2005) revealed that traditional family Scrophulariaceae is polyphyletic and a new family Linderniaceae was emerged as a separate lineage including *Lindernia* with its relative genera. A recent study by Fischer *et al.* (2013) on phylogeny of the family Linderniaceae revealed that the genus *Lindernia* as accepted to date is shown to be polyphyletic and hence, the genera *Bonnaya* and *Vandellia* are resurrected together with *Lindernia sensu stricto* and a new genus *Linderniella* Eberhard Fischer, Bastian Schäferhoff & Kai Müller (2013: 209).

The genus *Vandellia* L., characterized by pinnately veined leaves with serrate margins, having 4 fertile stamens, septicidal dehiscence of capsule and seeds with alveolate endosperm having bothrospermous surface, comprised about 52 species in the world. In India, it represents about 7 species (Fischer *et al.* 2013).

During field exploration at the Travancore coast of Kerala for the revisionary work of Linderniaceae of South India, the authors collected an interesting specimen of *Vandellia* from Kollam district of Kerala state. This on critical examination turned out to be *Vandellia diffusa* Linnaeus (1767: 422) (Fig.1) previously reported from Africa and tropical America.

This taxon was collected earlier from the nearby Alappuzha district (Sunil & Sivadasan 2009) and was wrongly identified as *L. sessiliflora* (Bentham) Wettstein (1891: 79). Field observations revealed that this taxon flourishs well in the southern coastal areas in Kerala state. The occurrence of this species in this part of India forms the first report of its presence in Asia.

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Annual diffuse or creeping herb, spreads up to 30 cm long, rooting at the nodes. *Stem* 4-angled, pubescent, hairs more on angles. *Leaves* ovate or orbicular, sessile, margins crenate or shallowly serrate, base sub-cordate or rounded, apex acute or sub-acute, glabrous above, sparsely hairy on veins beneath, pinnately 3–5 veined. *Flowers* solitary in leaf axils, sessile or sub-sessile, white with purplish tinge on the upper lip. *Calyx* tubular, keeled, 7.5×2 mm, pale green, hispid, distinctly 5-lobed, lobes unequal, as long as or slightly longer than 3 mm long tube. *Corolla* creamy white with purplish tinge on the upper lip, tube ±5 mm long, cylindrical, widens towards the apex, upper lip 3×3 mm, apex sub-acute, purplish, glabrous, lower lip distinctly 3 lobed, white with yellow marking on mid portion where lower stamens arise, lobes rounded, 3×2 mm. *Stamens* 4, all fertile, posterior filaments short, ca. 1 mm long, glabrous, anthers coherent, anterior filaments long bended towards the upper lip, base blended, glandular hairy, ±4 mm long, anthers coherent, 2-lobed, lobes ovate. *Gynoecium* 7–7.5 mm long, ovary 2.5×1 mm, ovate, glabrous, slightly bend at the base of the style, style slender, ca. 5 mm long, cylindrical, glabrous, stigma bifid. *Capsule* 12×3 mm, glabrous, ovate-linear, apex slightly bended, acuminate with persistant style, fruiting calyx ¾ length of fruit. *Seeds* many, minute, yellowish, alveolate, bothrospermous.

Specimens Examined:—INDIA, Kerala: Alappuzha district, Vallikavu-Chengannore, *C.N. Sunil 1787* (CALI); Kollam district, Ochira, Vallikavu, 9 October 2013, *M.G. Prasad 117889* (CALI).

Distribution and habitat:—The species has been reported previously from Africa (Senegal, Sierra Leone, Liberia, Côted'Ivoire, Burkina Faso, Ghana, Togo, Nigeria, Cameroon, Equatorial Guinea (Annobón, Bioko), São Tomé and Príncipe, Gabon, Central African Republic, Congo-Brazzaville, Congo-Kinshasa, Burundi, Uganda, Tanzania and Madagascar) and tropical America (introduced in Mexico, Belize, Costa Rica, Guatemala, Honduras, Panama, Cuba, Dominica, Dominican Republic, Grenada, Guadeloupe, Jamaica, Martinique, Puerto Rico, Saint Vincent and the Grenadines, Trinidad and Tobago, Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname and Venezuela) (Fischer *et al*. 2013). The newly discovered population grows in the sandy soils in south-west coast of India (Travancore coast).

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