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Short Communication

A New Record of *Ophiorrhiza trichocarpon* Blume (Rubiaceae: Ophiorrhizeae) from Western Ghats, India: Another Source Plant of Camptothecin

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Abstract

Ophiorrhiza trichocarpon Blume is newly recorded from Western Ghats, India. A detailed description, with images and relevant notes are provided.

Keywords: Ophiorrhiza trichocarpon; Camptothecin; Rubiaceae; Western Ghats; New Record; India.

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The genus *Ophiorrhiza* L. (Rubiaceae: Ophiorrhizeae) with *c*. 400 species is distributed from Eastern India to the West Pacific and from South China to Northern Australia [1]. The genus is represented by 47 species and 9 varieties in the Indian subcontinent [2]. 16 species and 3 varieties are reported to occur in the present political boundaries of Kerala state [3- 5]. Some species of this genus is reported to have medicinal properties both in traditional and modern systems of medicine [6, 7]. The important active principle is camptothecin, which is an anticancer compound, first isolated from *Camptotheca acuminata* [8]. Later it was isolated from *Merrilliodendron megacarpum* [9], *Nothapodytes nimmoniana* [10], *Ervatamia heyneana*, *Mostuea brunonis* [11] and also reported from various species of the genus *Ophiorrhiza* L. viz.: *O. pumila*, *O. mungos*, *O. rugosa*, *O. filistipula*, *O. prostrata*, *O. liukiuensis O. kuroiwai and O. alata* Craib [12-18]. While conducting investigations on *Ophiorrhiza* L. along the Western Ghats of Kerala, the authors collected some interesting specimens of the genus. After critical studies and comparison with specimens deposited in MH and CAL, identified as *O. trichocarpon* Blume. This taxon is hitherto reported from West Bengal, Orissa and Andaman Islands in

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India and extends its distribution towards Bangladesh, Myanmar, Thailand, Malaysia and Java. So this is the first collection from Kerala part of Western Ghats, south India which also indicates the extended distribution to this region. A detailed description and notes are provided here with images (Fig.1) for easy identification in the field. After preliminary phytochemical analysis, we could able to find the presence of Camptothecin in this taxon.

Fig. 1. *Ophiorrhiza trichocarpon* Blume a. Habit; b. Single flower; c. Splitted corolla tube with stamens; d. Gynoecium.

Fig. 2. Type: Java, Linga Jattie and Kambanga Island in shady places, 1823, *Blume s.n.* Holotype-L.

Ophiorrhiza trichocarpon Blume, Bijdr. 977. 1826; DC., Prodr.4: 416. 1830; G. Don, Gen. Syst. Gard. Bot. 3: 522. 1834; Hook.f. Fl. Brit. India 3: 78. 1880; Deb & Mondal, Bull. Bot. Surv. India 39: 131. 1997. **Type**: Java, Linga Jattie and Kambanga Island in shady places, 1823, *Blume s.n.*, Holotype – Bar code no: 0397698 L. (Fig. 2). *Ophiorrhiza hispidula* Wall. ex G.Don, Gen. Syst. Gard. Bot. 3: 523. 1834. *Ophiorrhiza villosa* Kurz in J. Asiat. Soc. Bengal 46(2): 130. 1897 excl. syn. non Roxb.

Perennial herbs, *c*.15 cm high; stem erect, branching, densely pubescent. Leaves 1.5-14 ×1- 4.5 cm, ovate, acute at apex and base, glabrous or sericeous above, pubescent on nerves below, pale green on drying; lateral nerves 6-7. Petiole 0.5 - 3 cm long, pubescent; stipule 0.3 - 1.8 cm long, subulate, pubescent. Inflorescence axillary or terminal dichotomously branched cyme, *c*. 2.8 cm across, densely flowered, pubescent; peduncle 1-

3.5 cm long, elongating up to 5.5 cm in fruiting, pubescent. Flowers 6 - 10 mm long, white; pedicel *c*.1mm long, pubescent. Hypanthium 0.75 - 1 × 0.6 - 0.8 mm, obovoid, pubescent. Calyx lobes 0.75 - 1 × 0.5 - 0.7 mm, ovate, acute, pubescent. Corolla 5.25 - 9 mm long, tubular, puberulous outside, villous at throat within; lobes 1.5 - 1.75 × 1 - 1.25 mm, ovate, acute. Stamens epipetalous; filaments 0.8 - 1.2 mm long; anthers 1.3 - 1.5 mm long, oblong to linear. Ovary 0.6 - 0.8 × 0.5 - 0.7 mm, obovoid; disc 0.4 - 0.5 mm high; style 4.25 - 5.25 mm long, glabrous; stigma bilobed, 1- 1.5 mm long. Capsules 1.5 - 2.5 × 3.5 - 6 mm, pubescent, locules ovate to oblong with slightly inclined tip. Seeds 0.3 - 0.4 × 0.25 - 0.4 mm, glabrous, irregularly angular.

Flowering and Fruiting : May – October.
Distribution: India (West Bengal, Orissa, Kerala, Andaman & Nicobar Archipelago), Myanmar, Thailand, Malaysia and Java.

Kerala: Ernakulam, Pathanamthitta.
Habitat: Semievergreen forests and disturbed secondary forests.
Specimens examined: INDIA, Kerala, Ernakulam, Thattekkadu, 29.3.2011, *K. Satheeshkumar* and *Sibi.C.V.* 69928 (TBGT); Pathanamthitta, Sabarimala, 29.9.2011, *K. Satheeshkumar* and *Sibi.C.V.* 69958 (TBGT). Andaman Islands, Pal Muri, *King s.n., s.d.,* (CAL); Tuggapur, *J. L. Ellis & Ramamurthy 18935* (MH); Nilambur, *N. Bhargava* 2479 (CAL).

Note: The correct spelling of *O. trichocarpon* has been subjected to a long discordance [19]. In many cases it was misspelled as “trichocarpa”. But Backer [20] indicated this spelling as erroneous, and gave another equally erroneous variant “trichocarpos”. Deb and Mondal [2] gave “*trichocarpa*” as the correct spelling, putting “trichocarpon” under “Sphalmate”. According to Schanzer [19], trichocarpon as a greek noun standing in the nominative can certainly be regarded as such “a word in apposition” and there is no reason for changing it to a Latinized adjective. Here we followed Schanzer [19].

While revising *Ophiorrhiza* L. for Indian subcontinent Deb and Mondal [2] cited a specimen ‘Nilambur’ *N.Bhargava 2479* CAL & PBL, as collected from Andaman Islands. Many botanists misinterpret this as similar to Nilambur in Malappuram district of Kerala state. But ‘Nilambur’ cited by Deb and Mondal [2] is a village in between north and middle Andaman Islands.

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