



ORIGINAL ARTICLE

Notes on the identity and taxonomic status of three endemic species in *Hedyotis* L. (Rubiaceae) from South Western Ghats, India

Perumal Murugan^{1*}, Bannari Karthik¹, Maruthakkutty Murugesan¹, Chidambaram Murugan²

Abstract

The article deals with the correct identity and taxonomic status of three endemic species of the genus *Hedyotis* L. namely *H. leschenaultiana* DC., *H. sisaparensis* Gage and *H. wynaadensis* (Gamble) R.S.Rao & Hemadri. These three species are discussed with a brief description, phenological data, taxonomic notes, colour photographs and distribution map. Besides, the species status of *Hedyotis sisaparensis* Gage and *H. wynaadensis* (Gamble) R.S.Rao & Hemadri are reinstated.

Keywords: Endemic, *Hedyotis*, Reinstatement, Western Ghats.

Introduction

The genus *Hedyotis* L. was established by Linnaeus (1753) in his '*Species Plantarum*'. It belongs to the tribe *Hedyotideae*, subfamily *Rubioideae*, family *Rubiaceae* (Bremer and Jansen 1991), with 180 species distributed worldwide (Neupane *et al.* 2015), especially in India, Sri Lanka, China, Myanmar, Malaysia, Papuasias, North West Pacific (Wikström *et al.* 2013). The section *Diplophragma* under *Hedyotis* s.s. group was first described by Wight and Arnott (1834), in his '*Prodromus Flora Peninsula India Orientalis*', included seven species and this group is characterized by the capsules having "more or less 4-lobed apex and slightly produced beyond the calyx-tube, at length septical, splitting to the base into two somewhat

bony cocci". Bentham and Hooker (1873) followed this group *Diplophragma* in his '*Genera plantarum*' included 24 species and also divided the group further based on the stipule morphology. Hooker (1880), in his '*Flora of British India*' included 30 species. Later, Dutta and Deb (2004) revised the genus *Hedyotis* L. in the Indian subcontinent, treated under seven sections. Of these seven sections, 35 species are included under the section *Diplophragma*.

Deb and Dutta (1985), synonymised the species *H. sisaparensis* under *H. leschenaultiana* based on few older herbarium collections, furthermore, they also reduced the rank of *H. wynaadensis* as a variety of *H. leschenaultiana*, though the former species are very easily differentiated from *H. leschenaultiana*.

Materials and Methods

As part of revisionary studies of the family *Rubiaceae* in the Southern Western Ghats of Kerala and Tamil Nadu, specimens of two *Hedyotis* species were collected from the various parts of Nilgiri Biosphere Reserve in the last two years (2020 & 2021), and also consulted the specimens in local, national and international herbaria namely CAL, FRC, G-DC, K, KFRI, MH, RHT & XCH. After detailed studies of the herbarium specimens, type specimens available at G-DC, K & MH and relevant protologues (De Candolle 1830; Gage 1906; Gamble 1919), the specimens collected were identified as *Hedyotis leschenaultiana* DC. and *Hedyotis sisaparensis* Gage. In addition, we found that the name *Hedyotis sisaparensis* Gage earlier treated under the synonym of *H. leschenaultiana*

¹Botanical Survey of India, Southern Regional Centre, TNAU campus, Coimbatore-641 003, Tamil Nadu, India

²Botanical Survey of India, CGO Complex, Salt Lake, Kolkata -700064, West Bengal, India.

***Corresponding Author:** Perumal Murugan, Botanical Survey of India, South Regional Centre, TNAU campus, Coimbatore-641 003, Tamil Nadu, India, E-Mail: murulax@gmail.com

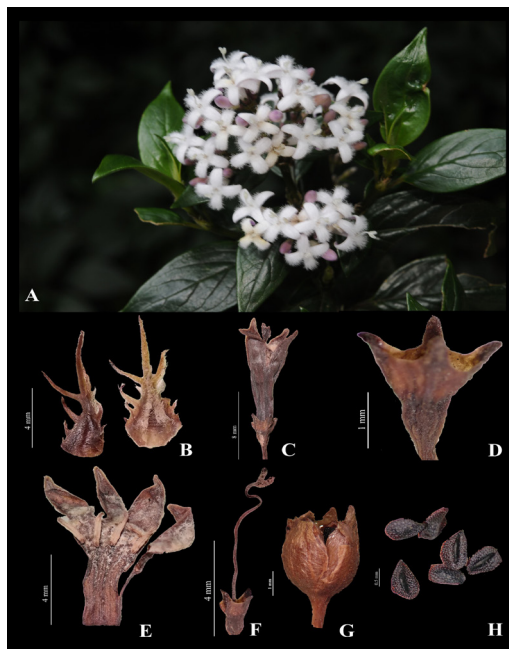
How to cite this article: Murugan P, Karthik B, Murugesan M, Murugan C. 2023. Notes on the identity and taxonomic status of three endemic species in *Hedyotis* L. (Rubiaceae) from Southernwesternghats, India. *J.Indian bot. Soc.*, **103**(3):203-208. Doi: [10.5958/2455-7218.2022.00099.7](https://doi.org/10.5958/2455-7218.2022.00099.7)

Source of support: Nil

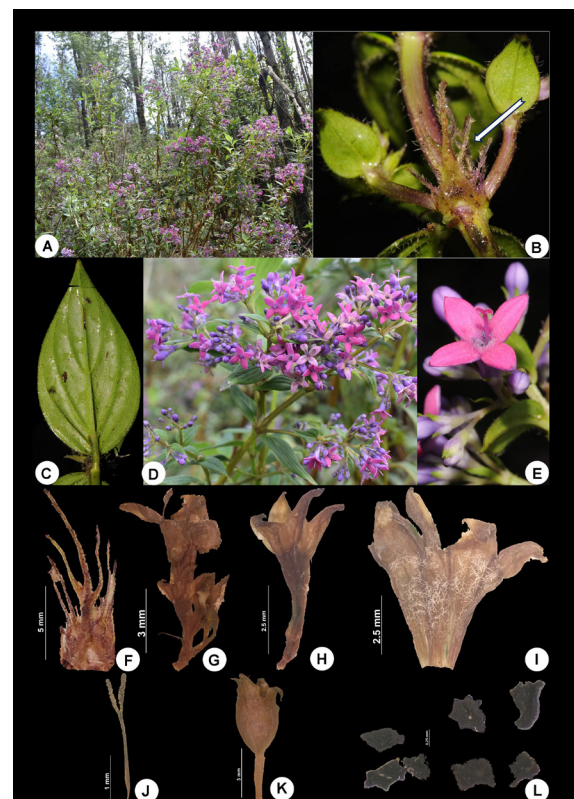
Conflict of interest: None.

Table 1: Comparison of three species of the genus *Hedyotis* L.

| Characters | <i>Hedyotis leschenaultiana</i> | <i>Hedyotis sisaparensis</i> | <i>Hedyotis wynaadensis</i> |
|------------|--|---|--|
| habit | shrubs, 1–3 m high | Herbs to under-shrubs, 0.5 to 1.5 m high | Shrubs, 1–2 m high |
| branchlets | sub-terete or terete when older, usually glabrous | quadrangular or 4-angled, young parts pubescent | terete, young parts glabrescent |
| stipules | connate at base, 5–8 mm long, triangular, pectinate with 8–10 bristles, linear, v-shaped like line with densely villous on outer surface | 8–12 mm long, triangular, densely villous on outer surface, pectinate with 8–12 bristles, pubescent | 6–8 mm long, triangular, pectinate with 6–12 bristles, densely villous or covered with cloth, outer surface, when dry golden-brown |
| leaves | ovate or elliptic-lanceolate, 3–12 x 2.5–4 cm, margins entire, glabrous; lateral nerves 4–8 pairs, reticulate | ovate or ovate-lanceolate, 4–10 x 2–4 cm, margins ciliate when young, pale beneath especially on nerves pubescent; lateral nerves 3–6 pairs, not reticulate | linear-lanceolate, 6–15 x 1–2 cm, pale beneath, glabrescent; lateral nerves 3–5 pairs, not reticulate |
| flowers | cream, or white, purplish white. Calyx 4-lobed; each lobe less than 1 mm long, deltate. Corolla tube 4–4.5 mm long, throat densely villous, 4-lobed; each lobe 4–5 mm long, ovate-lanceolate, margin thick and slightly incurved | purple with pinkish tinge. Calyx 4-lobed; each lobe c. 2 mm long, ovate, margin sparsely ciliate when young, apex lower surface thick, slightly deflexed. Corolla tube 3–4 mm long, inner surface pubescent especially throat densely villous, 4-lobed; each lobe 2.5–3 mm long, ovate, margin thick and slightly incurved. | purplish white tinge. Calyx 4-lobed; each lobe 2–2.5 mm long, lanceolate, pubescent on outer surface or often glabrous. Corolla tube 3.5–4 mm long, inner surface pubescent but throat densely villous, 4-lobed; each lobe 2.5–3 mm long, ovate. |
| capsules | 3–3.5 mm long | 3–4 mm long | 2–2.5 mm long |
| seeds | 1–1.25 mm long, dark-brown, dorsiventrally compressed with a ventral hilar ridge topped by a punctiform apical hilum | 0.2–0.6 mm long, blackish brown, compressed | 0.3–0.8 mm long, brown, dorsiventrally compressed with a ventral hilar ridge topped by a punctiform apical hilum |

**Figure 1:** *Hedyotis leschenaultiana* DC., A. flowering twig, B. stipules, C. flower, D. calyx with ovary, E. corolla splitting open, F. pistil, G. capsule, H. seeds.

DC. and also another species, *H. leschenaultiana* var. *wynaadensis* (Gamble) Deb & Ratna Dutta treated as a variety rank. However, based on the critical study with the help of live collections in its type locality, it was observed that, there are remarkable variations in *H. sisaparensis* as well as

**Figure 2:** *Hedyotis sisaparensis* Gage, A. habit, B. stipule, C. lower surface of leaf, D. flowering twig, E. close up view of flower, F. stipule, G. flower, H. calyx with ovary, I. corolla splitting open, J. style with sigma, K. capsule, L. seeds.

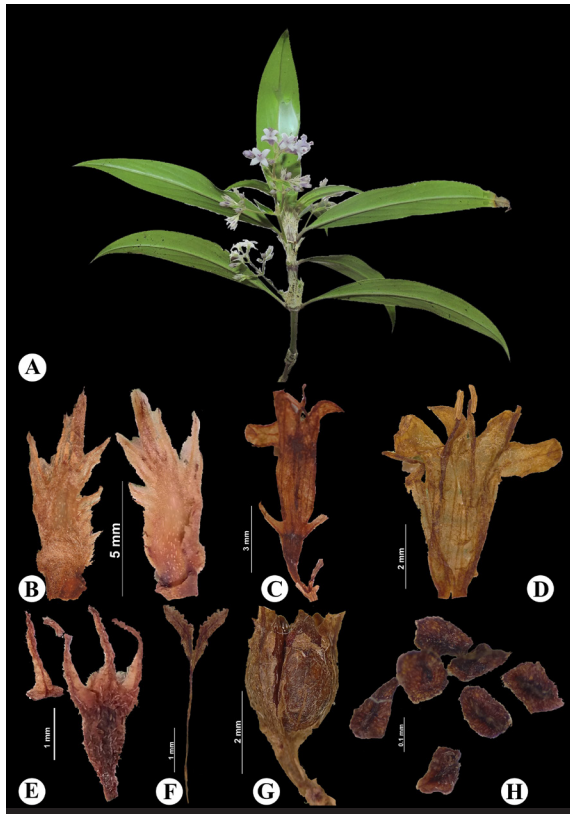


Figure 3: *Hedyotis wynaadensis* (Gamble) Rao & Hemadri, A. flowering twig, B. stipules, C. flower, D. corolla splitting open, E. calyx with ovary, F. style with stigma, G. capsule, H. seeds.

H. wynaadensis from *H. leschenaultiana* (Table 1). Therefore, here we reinstated the species status of *H. sisaparensis* Gage and *H. wynaadensis* (Gamble) R.S. Rao & Hemadri.

Taxonomic Treatment

Hedyotis leschenaultiana DC., Prodr. 4: 422. 1830; Deb & Ratna Dutta, Taxon 34: 296. 1985; Sivar. & P.Mathew, Fl. Nilambur: 326. 1996; Ratna Dutta & Deb, Rev. Ind. *Hedyotis*: 73. 2004; Sasidh., Biodiv. Doc. Kerala 6. Fl. Pl.: 215. 2004; T.S.Nayar, et al. Fl. Pl. Western Ghats, Dicot 1: 776. 2014; P.Singh, et al. End. Vasc. Pl. India: 230. 2015. *Hedyotis stylosa* R.Br. ex Wight & Arn., Prodr. Fl. Ind. Orient. 1: 407. 1834; Wight, Icon. Pl. Ind. Orient.: t. 1027. 1845; Hook.f., Fl. Brit. India 3: 51. 1880; Rama Rao, Fl. Pl. Travancore: 204. 1914; Swamin., in A.N.Henry et al. Fl. Tamil Nadu 2: 9. 1987; Manilal, Fl. Silent Valley: 132. 1988; N.Mohanan & Sivad., Fl. Agasthyamala: 319. 2002; T.S.Nayar, & al., Handb. Fl. Pl. Kerala: 517. 2006. *Oldenlandia stylosa* (R.Br. ex Wight & Arn.) Kuntze, Revis. Gen. Pl. 1: 293. 1891; Gamble, Fl. Madras: 598(422). 1921. (Figure 1).

Evergreen shrubs, 1–3 m high; branchlets sub-terete or when older terete, dichotomous. Leaves simple, opposite-decussate, ovate or elliptic-lanceolate, 3–12 × 2.5–4 cm, coriaceous, acute to cuneate at base, margins entire, acute to acuminate at apex; lateral nerves 4–8 pairs, reticulate; petioles 8–15 mm long, glabrescent; stipules connate at base, 5–8 mm long, triangular, pectinate with 8–10

bristles, linear, v-shaped like line with densely villous on outer surface. Inflorescence terminal or axillary, panicle of cymes, trichotomously branched; peduncles 5–20 mm long, slender. Flowers cream, or white, purplish white, 4-merous, heterostylous; pedicels up to 2 mm long; bracts foliaceous, 5–10 mm long, acute; bracteoles minute, less than 1 mm long. Calyx cup-shaped, tube short, 4-lobed; each lobe less than 1 mm long, deltate, acute. Corolla tubular, tube 4–4.5 mm long, cylindrical, base of lobes on throat densely villous on inner surfaces, 4-lobed; each lobe 4–5 mm long, ovate-lanceolate or oblong-lanceolate, margin thick and slightly incurved. Stamens 4, included or exerted, alternate of corolla lobes; filaments 0.5–2 mm long, oblong; anthers 2.5–3.5 mm long, lanceolate, ditheous, basifixed. Ovary ovoid, less than 1 mm long, ovules many; style 3–4 or 8–10 mm long, filiform or slender; stigma bi-lobed, papillose. Capsule globose or ovoid, 3–3.5 mm long, brown, dry-dehiscing septicidally, with persistent calyx; seeds 8–16, unequal size, dark-brown, plano-convex, dorsiventrally compressed with a ventral hilar ridge topped by a punctiform apical hilum.

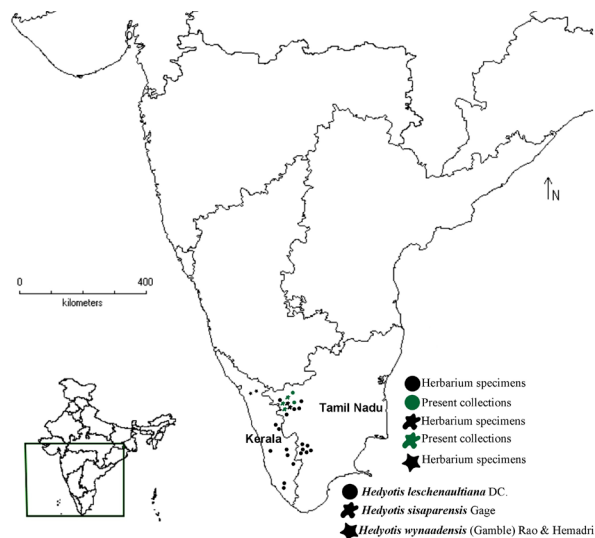
Flowering & Fruiting: Throughout the year

Habitat: Common in grassy slopes of moist deciduous forests and on the margins of evergreen and shola forests, between 1500 to 2400 m.

Distribution: India (Kerala & Tamil Nadu). Endemic to Southern Western Ghats

Additional Specimens Examined

INDIA, Kerala, Idukki Distr., Kanjiar, ±800 m, 15.12.1982, C.N. Mohanan 69052 (MH); Sivagiri near Elatheri, ±1700 m, 15.12.1981, C.N. Mohanan 72815 (MH); Palghat Distr., Way to Eravikulam hut, ±1000 m, 14.10.1989, P. Bhargavan 90946 (MH); Sispara to Walghat, ±2000 m, 28.03.1983, N.C. Nair 77218 (MH!); Kottayam Distr., Manganum, ±60 m, 15.10.1984, V.T. Antony 856 (MH!); Kollam Distr., Kulathupuzha R.F., ±250 m, 16.05.1982, C.N. Mohanan 55560 (MH!); Chokkanapatty hills, 1750 m, 22.02.1982, C.N. Mohanan 73450 (MH!); Tamil Nadu, Coimbatore Distr., Anaimalais, Konalar (Grass hills) Bungalow, 1675 m, 02.10.1984, K.M. Matthew 18303 (RHT!); Dindigul Distr., Pulney hills, s.d., s.coll. s.n. (MH!); Lidcot Valley - Kodaikanal, Pulneys, 17.06.1898, Bourne 1104 (CAL! & MH!); Shembaganur, 1828.8 m (6000 feet) 26.03.1913, A. Sauliere 347 (CAL!); Kodaikanal hills, 13.10.1919, K.C. Jacob 16046 (MH!); Kodai, 00.00.1938, s.coll. s.n. (RHT!); Kodai, 00.05.1941, s.coll. s.n. (RHT!); Kodaikanal, 00.09.1949, s.coll. s.n. (RHT!); Shembaganur, 1830 m, 00.10.1955, K.M. Matthew 289A (RHT!); Kodaikanal, 13.03.1956, J. Pallithanam JP1348 (RHT!); Kodaikanal, 26.09.1956, J. Pallithanam JP2407 (RHT!); Pillar rocks-Kodaikanal, 2333 m, 09.03.1958, K. Subramanyam 5535 (MH!); Poomparai - Kodaikanal, 2200 m, 22.04.1965, K. Ramamurthy 23364 (MH!); Gundar shola Research Garden, Kodaikanal, 30.01.1967, K.N. Subramanian 2679 (FRC!); Pillar rocks-Kodaikanal, 2150 m, 14.09.1968, D.B. Deb 30840



Map 1: Distribution of three endemic species in the genus *Hedyotis* L. in India.

(MH!); Bombay shola from above Bryant Park towards La Providence garden, 2100 m, 31.05.1984, *K.M. Matthew & S.J. Britto 40100* (RHT!); Pambar stream, 2000 m, 17.11.1985, *K.M. Matthew 42684* (RHT!); Kodaikanal -shola below Vembadi Peak, 2350 m, 19.11.1985, *K.M. Matthew, A. Usha & N. Rajendren 42780* (RHT!); Palni hills, Poomburai road side shola above village, 2100 m, 28.11.1985, *K.M. Matthew & N. Rajendren 43402* (RHT!); Palni hills, Gundar shola - Vembadi Path, 2200 m, 07.12.1986, *K.M. Matthew & M. Charles 47773* (RHT!); Nilgiris Distr., Coonoor, 00.00.1857, s.coll. s.n. (MH!); Coonoor, 2133.6 m (7000 feet), 08.03.1870, *C.B. Clarke 10510* (CAL!); Neilgherry hills, 00.00.1873, *G. Bidie s.n.* (MH!); Pykara, 00.08.1878, *G. King s.n.* (CAL!); Ootacamund, 2133.6 m (7000 feet), 00.03.1882, *D. Brandis s.n.* (CAL!); Ooty, 00.04.1883, s.coll. s.n. (MH!); Sispara, 2286 (7500 feet), 00.11.1883, *J.S. Gamble 13379* (CAL!); Bangy Taphal, 00.11.1883, s.coll. s.n. (MH!); Doddabetta, 08.11.1884, *M.A. Lawson s.n.* (CAL!); Bangy Taphal, 00.01.1886, s.coll. s.n. (MH!); Ootacamund, s.d., s.coll. s.n. (MH!); Ooty, 2133.6 m (7000 feet), 00.06.1886, *J.S. Gamble 17456* (MH!); Coonoor, 11.02.1899, *Prain s.n.* (CAL!); Ootacamund, 27.12.1902, *C.A. Barber 5365* (MH!); Ootacamund, 2438.4 m (8000 feet), 00.10.1909, *A. Meebold 11800* (CAL!); Kotagiri, 00.04.1918, *RDA 321* (MH!); Bikkapathimund, 2011.68 m (6600 feet), 15.01.1921, *C.E.C. Fischer 4607* (CAL!); Pykara River bank, 2133.6 m (7000 feet), 12.09.1930, *V. Narayanaswami 4248* (MH!); Sims Park, R.F. Coonoor, 1767.84 m (5800 feet), 13.09.1938, *V. Narayanaswami 18295* (MH!); Sims Park, R.F. Coonoor, 1767.84 m (5800 feet), 13.09.1938, *V. Narayanaswami 18289* (MH!); Kotagiri - Aravenu, 1966 m, 04.01.1957, *K. Subramanyam 1902* (MH!); Gymkhana Shola, 1800 m, 24.03.1957, *K.M. Sebastine 2615* (MH!); Coonoor, 1966 m, 19.01.1957, *K.M. Sebastine 2052* (MH!); Uppathi R.F., Eastern Part Nilgiris Forest Division, 07.02.1963, *K.N. Subramanian 8* (FRC!); Doddabetta Junction, 4th miles from Ooty towards Eastern side, Nilgiris

Forest Division, 08.02.1963, *K.N. Subramanian 35A* (FRC!); Kundah Rserve (Thaishola area near Carrington Estate), 12.05.1963, *K.N. Subramanian 602 & 603* (FRC!); Kotagiri-Ooty road, 1900 m, 08.03.1969, *D.B. Deb 31515* (MH!); Archpouza, upper Bhavani, 2250 m, 01.06.1970, *B.V. Shetty 34023* (MH!); Nanjanad, 2125 m, 08.07.1970, *J.L. Ellis 34516* (MH!); Near Kodanad, 2200 m, 19.07.1970, *E. Vajravelu 34917* (MH!); Kodanad R.F., 1800 m, 21.07.1970, *E. Vajravelu 34973* (MH!); Bimaka Shola, 1700 m, 26.08.1970, *G.V.S. Rao 36373* (MH!); Doddabetta R.F., 2475 m, 01.09.1970, *B.D. Sharma 35976* (MH!); Keradamattam, Kodanad, 1950 m, 13.11.1970, *E. Vajravelu 36899* (MH!); Avalanche, 1975 m, 24.12.1970, *B.V. Shetty 37571* (MH!); Mukurti, 2040 m, 09.02.1971, *J.L. Ellis 37907* (MH!); Way to Vonnatti, Denad R.F., 1900 m, 04.05.1971, *E. Vajravelu 38236* (MH!); Glenmorgan, 2000 m, 24.04.1971, *N.C. Rathakrishnan 38060* (MH!); Lamb's Rock-Coonoor, 1800 m, 02.12.1971, *N.C. Rathakrishnan 39104* (MH!); Shola east of Bikkapattimund F.R.H., 1900 m, 24.03.1972, *G.V.S. Rao 40451 & 40455* (MH!); Lakkadi, 2125 m, 25.03.1972, *K. Vivekananthan 40387* (MH!); Pakkasura hills, 1800 m, 14.02.1973, *E. Vajravelu 43550* (MH!); Ooty-Doddabetta Road, 11th Hairpin bend, Nilgiri Forest Division, 25.02.1977, *K.N. Subramanian 6756* (FRC!); Sims Park, R.F. Coonoor, 1700 m, 27.01.1978, *S.R. Srinivasan 50599* (MH!); Osamund-Koilmund, Sandinallah forest, 19.10.1981, *E. Vajravelu 77720 & 76498* (CAL! & MH!); Grass hills, Mudimund, 22.06.1986, *M.K. Janarthanam 82997* (MH!); Sollur forest, Kokkal, 1800 m, 24.12.2002, *C. Murugan 114536* (MH!); Upper Bhavani to Bangithapal, 2320 m, 25.01.2008, *K.A.A. Kabeer 121508* (MH!); Avalanche, guest house and adjoining areas, 2000 m, 13.09.2008, *K.A.A. Kabeer 121813 & 121825* (MH!); Upper Bhavani to Bisou Swamp, 1800 m, 21.09.2008, *K.A.A. Kabeer 122032* (MH!); Dodapetta, on the way to Kotagiri ghats roads, 2000 m, 27.02.2020, *P. Murugan et al. 144883* (MH!); Ebbanad, near mariammal temple to inside moist deciduous semi evergreen forest, \pm 1500 m, 28.02.2020, *P. Murugan et al. 144886* (MH!).

Gage, J. Proc. Asiat. Soc. Bengal 1: 244. 1906; Swamin., in A.N.Henry et al. Fl. Tamil Nadu 2: 9. 1987. *Oldenlandia sisparensis* (Gage) Gamble, Fl. Madras: 599(422). 1921. (Figure 2).

Herbs to under-shrubs, 0.5 to 1.5 m high; branchlets quadrangular, when young parts pubescent. Leaves simple, opposite-decussate, ovate or ovate-lanceolate, 4–10 x 2–4 cm, sub-coriaceous, obtuse at base, margins entire, when young ciliate, acute to acuminate at apex, abaxial pale green, along nerves pubescent; lateral nerves 3–6 pairs and not reticulate; petioles 4–10 mm long, flattened, glabrescent; stipules 8–12 mm long, triangular, densely villous on outer surface, pectinate with 8–12 bristles, pubescent. Inflorescence terminal or axillary, panicle of cymes, trichotomously branched; peduncles 5–15 mm long, 4-angled, sparsely pubescent. Flowers purple with pinkish tinge, 4-merous, heterostylous; pedicels up to 2.5 mm

long, sub-terete; bracts foliaceous, 8–20 mm long, acute; bracteoles 2–3.5 mm long, linear-lanceolate, acuminate at apex. Calyx cup-shaped, tube short, 4-lobed; each lobe c. 2 mm long, ovate, when young margins sparsely ciliate, apex lower surface thick, slightly deflexed. Corolla tubular, tube 3–4 mm long, cylindrical, inner surface pubescent but especially throat densely villous, 4-lobed; each lobe 2.5–3 mm long, ovate, margin thick and slightly incurved. Stamens 4, included or exerted, alternate to the corolla lobes; filaments 1–2 mm long, oblong; anthers purple, 1–1.5 mm long, lanceolate, ditheous, dorsifixed. Ovary ovoid, less than 1 mm long, 2-celled, in each cell with many ovules; style 2–3.5 or 4–8 mm long, slender, pink; stigma bi-lobed, pink, papillose. Capsule globose or ovoid, 3–4 mm long, brown, dry-dehiscing septicidally, with persistent calyx; seeds 6–14, unequal size, blackish brown, compressed.

Flowering and Fruiting: July – November

Habitat: In open grassy slopes of shola forests and on the margins of evergreen forests, above 2100 m.

Distribution: India (Tamil Nadu). Endemic to Southern Western Ghats of Tamil Nadu

Additional Specimens Examined

INDIA, Tamil Nadu, Nilgiris Distr., 00.00.1869, *R.H. Beddome s.n.* (MH!); pykara falls, 00.07.1883, *s.coll. s.n.* (MH!); Avalanche to Bangy Taphal, 00.11.1883, *s.coll. s.n.* (MH!); Bangi Halla, 06.06.1970, 2300 m, *B.V. Shetty 34124* (MH!); Devabettah, Nilgiri Peak R.F., 19.07.1970, 2250 m, *J.L. Ellis 34778* (MH!); Avalanche power house, 15.09.2008, ± 2100 m, *K.A.A. Kabeer 121904* (MH!); near Pandiyar forest rest house, Ghats road, 01.03.2020, *P. Murugan 144887 & 144888* (MH!); Avalanche forest rest house to cauliflower shola, Ghats road, ± 2100 m, 05.08.2021, *P. Murugan & B. Karthik 145027* (MH!); Pandiyar forest rest house, Ghats road, ± 2150 m, 07.08.2021, *P. Murugan & B. Karthik 145032* (MH!); on the way to Mukurthi Peak R.F., ± 2250 m, 08.08.2021, *P. Murugan et al. 145033* (MH!); near Bangihallah or Earthen dam, ± 2300 m, 09.08.2021, *P. Murugan et al. 145038* (MH!).

Note.

Gage (1906) described *H. sisparensis* based on the specimens collected from Wynaad by Beddome and above Sispara Ghats by Gamble 13381. The collection made by Beddome from Wynaad (presently Wayanad) is the only available evidence on the distribution of this species in Kerala. Beside this collection, nobody could collect this species from the Wayanad areas even though the area is botanically well explored by various taxonomists including the present study (Narayanan 2009). During the present study, it was also observed that, this species prefers to grow in the rolling high altitude grasslands between the altitude level of 2100 and 2400 m above msl. As there is no such a habitat and altitudinal level in the Wayanad district, the occurrence of this species in Kerala is quite doubtful.

Hedyotis wynaadensis (Gamble) R.S.Rao & Hemadri, Indian For. 99: 379. 1973; A.N. Henry *et al.* in J. Bombay Nat. Hist. Soc. 75: 690. 1979; Sasidh., Biodiv. Doc. Kerala 6. Fl. Pl.: 217. 2004; T.S.Nayar *et al.* Handb. Fl. Pl. Kerala: 518. 2006. *Oldenlandia wynaadensis* Gamble, Kew Bull. Misc. Inform. 1919: 405. 1919; Gamble, Fl. Madras: 599(422). 1921. *H. leschenaultiana* var. *wynaadensis* (Gamble) Deb & Ratna Dutta, Taxon 34: 296. 1985; Ratna Dutta & Deb, Rev. Ind. *Hedyotis*: 76. 2004. (Figure 3).

Shrubs, 1–2 m high; branchlets terete, dichotomously, young parts glabrescent. Leaves simple, opposite-decussate, linear-lanceolate, 6–15 x 1–2 cm, membranous, both ends at acuminate, margins entire, pale beneath, obscure hairy; lateral nerves 3–5 pairs; petioles 10–15 mm long, slightly flattened; stipules 6–8 mm long, triangular, pectinate with 6–12 bristles, densely villous or covered with cloth on outer surface, when dry brown. Inflorescence terminal or axillary, panicle of cymes, trichotomously branched; peduncles 10–25 mm long, slender. Flowers purplish white tinge, 4-merous, heterostylous; pedicels 1–2 mm long; bracts foliaceous, 10–20 mm long, acute; bracteoles 3–5 mm long, lanceolate. Calyx cup-shaped, tube short, 4-lobed; each lobe 2–2.5 mm long, lanceolate, pubescent on outer surface or often glabrous. Corolla tubular, tube 3.5–4 mm long, cylindrical, inner surface pubescent but throat densely villous, 4-lobed; each lobe 2.5–3 mm long, ovate. Stamens 4, included or exerted, alternate of corolla lobes; filaments 1–2 mm long, oblong; anthers 1–1.5 mm long, lanceolate, ditheous, dorsifixed. Ovary ovoid, less than 1 mm long, 2-celled, in each cell with many ovules; style 2.5–3 or 6–8 mm long, filiform; stigma bi-lobed, papillose. Capsule globose or ovoid, 2–2.5 mm long, brown, dry-dehiscing septicidally, with persistent calyx; seeds 6–14, unequal size, blackish brown, plano-convex.

Flowering & Fruiting: August – September

Habitat: Along sides of stream and margins of montane forests, between 1500 to 2000 m.

Distribution: Kozhikkode and Wayanad. Endemic to Southern Western Ghats of Kerala

Additional Specimens Examined

INDIA. **Kerala**, Kozhikkode Distr., Vellera Mallay (presently Vellarimala), 5–7000 feet, (1524–2133.6 m), 19.02.1890, *s.coll. s.n.* (MH!); Wayanad Distr., Chembra hills, 1900 m, 06.04.2000, *M.K.R. Narayanan 1876* (KFRI!).

Note

Manickam *et al.* (2004) reported this taxon as a new distributional record for Tamil Nadu state from the Papanasam hills of Tirunelveli District and the specimens were deposited in Xavier's College Herbarium (XCH), Palayamkottai. During the present study, we have noticed that, the identity of this specimen is erroneous and after critical study of these specimens it was identified as a

Hedyotis viscida Bedd., a highly polymorphic species. Hence, it is concluded that, the species *H. wynaadensis* (Gamble) R.S.Rao & Hemadri is a narrow endemic species restricted only in two places of Kerala viz. Vellera Mallay (presently Vellarimala), Kozhikode District and Chembra Peak, Wayanad District.

Acknowledgement

The authors are thankful to Dr A.A. Mao, Director, Botanical Survey of India, Kolkata, for constant support and encouragement and Dr M.U. Sharief, Scientist-E & Head of Office, Botanical Survey of India, Southern Regional Centre, Coimbatore for providing facilities. They are grateful to the curators of CAL, FRC, G-DC, K, KFRI, MH, RHT and XCH herbaria for providing access or images to consult the herbarium specimens. Thanks are due to the Forest Departments of Kerala and Tamil Nadu, India for permission and necessary help during the field study; and to the Ministry of Environment, Forest and Climate Change, Government of India, New Delhi, for financial support under Flora of India project.

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