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Isodon purpurescence (Lamiaceae), a new species from Western Ghats, Kerala, India

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ABSTRACT: A new species, *Isodon purpurescence* Sunil, Naveen Kumar & Ratheesh, from Ernakulam (Western Ghats), India is described and illustrated. Its diagnostic characters are discussed and comments made on differences between this and related species.

KEY WORDS: India, *Isodon purpurescence*, Lamiaceae, Western Ghats.

INTRODUCTION

The genus *Isodon* (Schrad. ex Benth.) Spach belongs to the tribe Ocimeae and sub-tribe Isodoninae of the family Lamiaceae (Zhong *et al*, 2010) with ca. 96 species distributed in the world (Li, 1988). Some more new species were described recently viz. *Isodon wui* (Xiang *et al*, 2012) and *Isodon delavayi* (Chen *et al*, 2014) from China. In Kerala, the genus is represented with 6 species (Sasidharan, 2013).

During extensive field exploration in connection with floristic studies in Ernakulam district of Kerala, India, authors collected specimens of *Isodon* species from the wet rocky areas. Critical studies with the aid of relevant literatures and type materials of similar species revealed its novelty and distinctness from the hitherto known species, and described here as a new species.

TAXONOMIC TREATMENT

Isodon purpurescence Sunil, Naveen Kumar & Ratheesh, ***sp. nov.*** Figs. 1 & 2

Type: **INDIA**: Kerala, Ernakulam District, Edamalayar Forest Range, Variyam, 985 m, (10°12.59′N, 76°52.44′E), 26 December 2014, *Sunil & Naveen Kumar 6791*(Holotype MH!; Isotype CAL!, SNMH).

Diagnosis: *Isodon purpurescence* Sunil, Naveen Kumar & Ratheesh resembles with *Isodon nilgherricus* in its broadly ovate leaves, decurved fruiting calyx with 5 equal teeths, cymes arranged in panicles and straight corolla tube but differs in having branchlets with retrorsely purplish hairs at angles, thin and large leaf blade with deep purple lower surface, large and glandular-hispid panicles with row of retrorse purple hairs at nodes of peduncles without floral leaves, smaller bracteoles and calyx, smaller corolla without ciliate lobes and large nuts. The new species also shows resemblance with *Isodon lophanthoides* in its decurved fruiting calyx with 5 equal teeths, cymes arranged in panicles and straight corolla tube but easily distinguished by having branchlets with retrorsely purplish hairs at angles, broad leaves with deep-purple lower surface, large and glandular-hispid panicles with row of retrorse purple hairs at the nodes of peduncles without floral leaves, smaller bracteoles, scabrid calyx throughout and larger nuts.

Perennial sub-shrubs to shrubs. Stems erect, branched, up to 240 cm tall, 4–8 mm across, quadrangular; branchlets with reddish sessile glands and retrorsely purplish hairy at the angles. Leaf blades 8–19 x 4.5–13 cm, broadly ovate, rounded to cordate at base, margins serrate, acute to caudate–acuminate at apex, thin, chartaceous, lower side deep purplish with sessile reddish-brown glands intermingled with purplish to hyaline septate villous, upper surface bullate with hyaline septate villous, primary veins 4–7 pairs, veinlets reticulate, veins and veinlets impressed above and conspicuously raised beneath; petiole 1.5–8 cm long, hirsute with antrose, purplish to hyaline septate hairs intermingled with reddish purple sessile glands. Inflorescence a terminal, simple or branched panicle, 14–40 x 13–32 cm, composed of spreading many flowered cymes; rachis nodes with a row of retrorse purple hairs, internodes glandular puberulent intermingled with purple septate scattered hairs and purple sessile glands; cymes with the peduncle 1.5–4 cm long, glandular hispid; pedicels 3–6 mm long, slender, glandular hispid. Bracteoles 1–1.3 x 0.3–0.4 mm, lanceolate or linear lanceolate, acute at apex, hirsute. Flowers 5–6.5 mm long. Calyx 2–2.2 mm long, campanulate, green, scabrid outside intermingled with red sessile glands; tube 1–1.2 mm long; lobes 5, equal, ca. 1 x 0.5 mm, ovate, obtuse at apex, 1–nerved; fruiting calyx 3.5–4.5 mm long; tube 3–3.4 mm long, curved, conspicuously 10–ribbed with sessile glands between, scabrid. Corolla white, 5–6 mm long; tube 4–4.2 mm long, 2–3 mm in diameter at throat, straight, hirsute with retrose hairs inside and glabrous outside; upper lip 4–lobed, erect, lobes 1.1–1.4 x 1–1.2 mm, orbicular to obovate, rounded at apex, sparsely hirsute with few red sessile glands outside and with two reddish purple spots at

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Table 1. Comparison of characters of ***Isodon purpurescence*** with related species

Characters	*Isodon purpurescence* sp. nov.	*Isodon nilgherricus*	*Isodon lophanthoides*
Habit	Perennial sub-shrubs to shrub up to 240 cm high	Perennial herbs up to 60 cm high	Perennial herbs up to 100 cm high
Branchlets	Retrorsely purplish hairs at angles	Densely ferrugineous, septate-villose throughout	Puberulous or pilose throughout
Leaf blade	8–19 x 4.5–13 cm, not rugose, thin, lower surface deep purple	4–8 x 3–6.5 cm, rugose, thick, lower surface green	1.5–20 x 0.5–8.5 cm, not rugose, thin, lower surface green
Panicle	up to 40 cm long and 32 cm broad	up to 20 cm long and 14 cm broad	up to 20 cm long and 6 cm broad
Rachis	With a row of retrorse purple hairs at node, internode glandular hispid intermingled with purple scattered hairs and sessile glands	Densely villose	Densely villose
Cymes with peduncle	Glandular hispid, 15–40 mm long	Densely villose, 5–10 mm long	Densely villose, 5–13 mm long
Pedicel	3–6 mm long, glandular hispid	ca. 2.5 mm long, densely villose	3–6 mm long, densely villose
Calyx	scabrid throughout	densely villose and glandular throughout	sparsely villose only on lower part
Corolla	Glabrous outside and retrosely hairy inside; lobes not ciliate	Sub-glabrous at both sides; lobes hispid– ciliate	Sub-glabrous at both sides; lobes not ciliate
Nuts	1–1.2 x 0.8–1 mm	ca. 0.7 x 0.7 mm	ca.1 x 0.75 mm

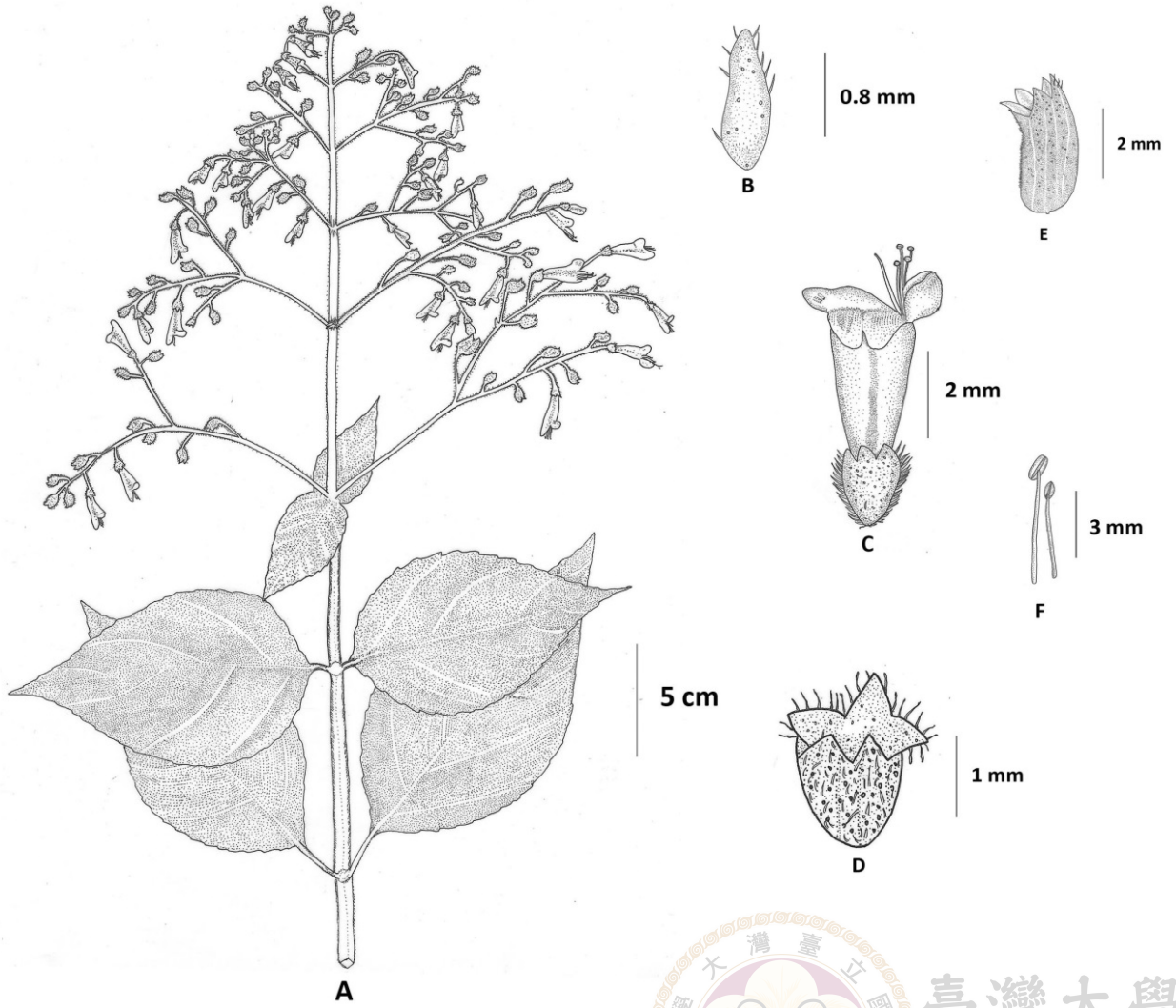


Fig. 1: ***Isodon purpurescence*** Sunil, Naveen Kumar & Ratheesh. **A.** Habit; **B.** Bracteole; **C.** Flower; **D.** Flowering calyx; **E.** Fruiting calyx; **F.** Stamens.

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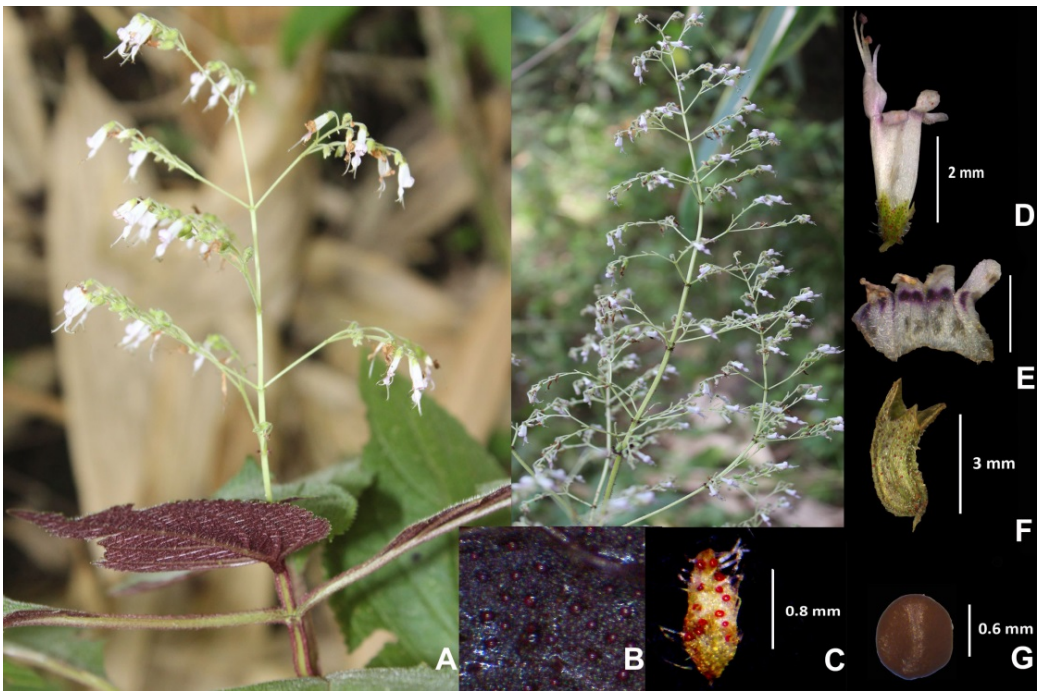


Fig. 2. ***Isodon purpurescence*** Sunil, Naveen Kumar & Ratheesh. **A.** Habit; **B.** Panicle; **C.** Portion of lower surface of leaf enlarged; **D.** Bracteole**; E.** Flower; **F.** Upper lip of corolla; **G.** Fruiting calyx; **H.** Nut.

the base of lobe inside; lower lip entire, 2–2.3 x 1.5–2 mm, orbicular to obovate, rounded at apex, sparsely hirsute with few red sessile glands outside. Stamens 4, exserted; filaments 5–6.5 mm long; anthers deep reddish purple. Disc 0.2–0.3 mm long, annular. Ovary ca. 0.2 mm long, 4 lobed; style 6.5–8 mm long, white, glabrous; stigma bifid, purple. Nutlets 1–1.2 x 0.8–1 mm, broadly ovate to orbicular, compressed, shining, glabrous.

Habitat and Associated species: The new species grows in wet rocky areas near water courses at an altitude 900–1150 m. along with *Andrographis explicata* (Clarke) Gamble, *Chrysopogon hackleii* (Hook.f.) Fischer, *Curcuma decipiens* Dalz., *Fimbristylis eragrostis* Nees & Meyen, *Gynura nitida* DC., *Ischaemum timorense* Kunth., *Murdannia simplex* (Vahl) Brenan, *Sonerila veldkampii* Ratheesh *et al.*, and *Themeda tremula* (Nees ex Steud.) Hack.

Conservation status: The extent of occurrence of the new species is estimated to be less than 5 km^2 and distributed as isolated patches (population is less than 100 individuals). As it grows in the open grasslands near water courses in the interior forests, the chance for getting trampled the plants by elephants is more. Another reason for the minimal distribution may be due to edaphic or its reproductive characters. By following IUCN criteria (IUCN, 2012) for assessing the status of Rare and Threatened plants, *Isodon purpurescence* is assessed as belonging to Critically Endangered (CR) category.

Flowering & Fruiting: November–March

Etymology: The specific epithet denotes the deep purple colour in the lower side of the leaves, which is one of the strong diagnostic characters of the species.

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