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R. MUNIAPPAN[1]
C. A. VIRAKTAMATH[2,*]

[1]*Agricultural Experiment Station, University of Guam, Mangilao, Guam 96923 USA*
[2]*Department of Entomology, University of Agricultural Sciences, GKVK, Bangalore 560 065, India*
**For correspondence.*
e-mail: viraktamath@rediffmail.com

Occurrence of *Phyllanthus scabrifolius* Hook. f. in Amingad, Bagalkot district, Karnataka – a new distributional record

During a botanical exploration in Bagalkot district, Karnataka, the authors collected an interesting species of *Phyllanthus* on a dry, gravelly hilly slope near Amingad village. The habitat of the species looked completely unlike most other herbaceous species of *Phyllanthus*. Critical examination and study of the specimens revealed that they belong to a species of *Phyllanthus scabrifolius* Hook. f. Further, the identity of the specimens was also confirmed at the Botanical Survey of India (BSI), Kolkata. Reference to the literature[1–3] revealed that the species is endemic to Maharashtra and Madhya Pradesh. Cooke[2] stated that there is only one sheet of this species in Kew, whereas Chaudhary and Rao[3] reported this species from Madhya Pradesh based on a solitary collection in LWG. Therefore, the present collection of the species from Amingad forms a new distributional record for Karnataka. Quite likely the species may occur in other similar habitats, but must have been confused with *Phyllanthus kozhikodianus* Siv. & Mani. with which it superficially resembles. However, the two species can be separated as follows.

P. scabrifolius: Branches angled, winged, scaberulous; stipules linear, lanceolate, irregularly serrate along margins; leaves hispidulous, minutely dentate; male calyx lobes lanceolate, disk segment six, saucer-shaped with tuberculate surface; female perianth lobes hispidulous, lanceolate, acuminate, dentate along margins; female disk rounded with irregularly lobed margin.

P. kozhikodianus: Branches terete, glabrous; stipules triangular–lanceolate, entire to dentate; leaves glabrous, entire; male calyx lobes biseriate, unequal, outer lanceolate acute, inner elliptic subobtuse; disk segment cupular with glandular margins; female perianth lobes glabrous, acute or subacute; female disk variable, discoid with distinctly dentate or dissected margins.

To facilitate easy identification, a description and illustration of *P. scabrifolius* is provided in Figure 1.

Phyllanthus scabrifolius Hook. f. in Fl. Brit. India. **5**: 299. 1887; Cooke, Fl. Pres. Bombay. **3**: 84, 1967 (repr. ed.); Chaudhary & Rao, *Phytotaxonomy*. **2**: 155, 2002.

Erect annual herbs, 20–35 cm high, main stem branched or unbranched, terete below, angular or grooved above, glabrous below, stem and branches winged, dentate or toothed, laciniate. Cataphylls ca. 1.5–2 mm long, narrowly triangular, lanceolate, acuminate, midrib greenish to pale brownish, margin minutely dentate or serrate. Stipules ca. 2 mm long, triangular–lanceolate, acuminate to cirrhose, margin dentate to serrate, or laciniate. Leaf blade 4–15 × 2–10 mm, thick, obovate, obovate–elliptic, broadly elliptic or rounded, cuneate at base, entire or serrate to dentate, acuminate to apiculate, obtuse or occasionally mucronate, densely scaberulous below, sparsely scaberulous above, midrib raised below, lateral veins 4–6 pairs; petioles 1–1.5 mm long, glabrous. Cymules unisexual with solitary female flowers in upper axils and 1–3 male flowers in lower axils. Male flowers minute, pedicel 1 mm long, filiform; calyx lobes six, membranous, biseriate, unequal, outer ca. 0.8–1 mm long, lanceolate, acute, inner ca. 0.5–0.8 mm long, ovate–obovate or obtuse, acute to rounded; stamens three, filaments connate below (two-thirds of the length), free and spreading above; disk segments six, saucer-shaped with tuberculate surface. Female flowers with ca. 1.5–2 mm long pedicel, angular; calyx lobes six, subequal, greenish, thickened along the midrib, margin membranous, minutely serrate to wavy, outer ones 2 × 1 mm, linear–obovate, lanceolate, acute, inner 2 × 1–1.2 mm, linear–obovate, subobtuse or apiculate; disk rounded with irregularly lobed margin; styles three, free, recurved from base, distinctly bilobed. Capsules 3–4 mm across, depressed–globose, three-lobed, smooth or minutely puberulous; seeds 1.5 mm long, trigonous, brownish, with 8–10 straight longitudinal lines and many fine transverse striae on the back.

Distribution: Maharashtra, Madhya Pradesh and Karnataka (India), endemic.

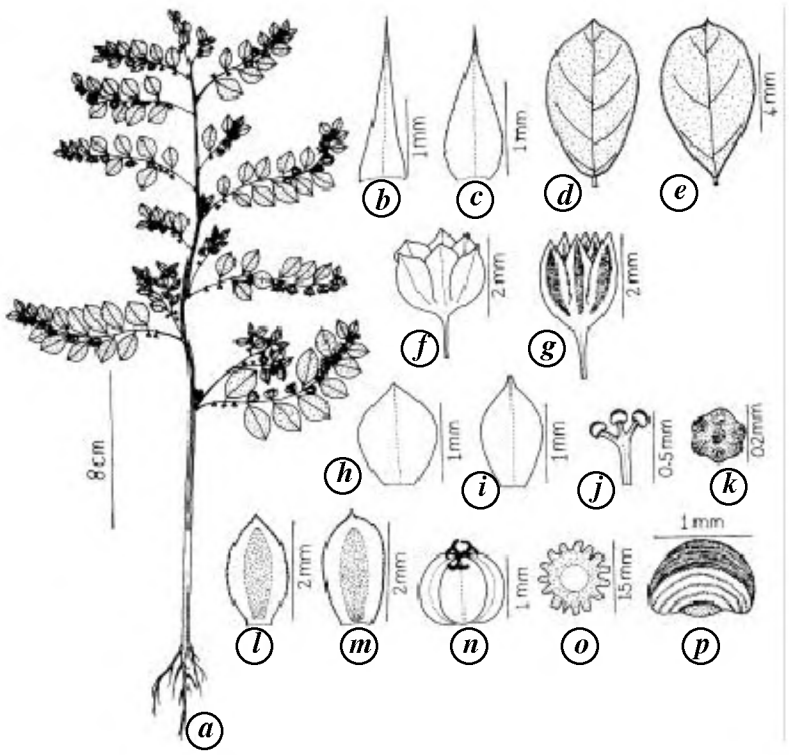

Figure 1. *Phyllanthus scabrifolius* Hook. f. ***a***, Habit; ***b***, Cataphyll; ***c***, Stipule; ***d***, ***e***, Leaves; ***f***, Male flower; ***g***, Female flower; ***h–i***, Male calyx lobes; ***j***, Stamens; ***k***, Male disk segment; ***l***, ***m***, Female calyx lobes; ***n***, Pistil; ***o***, Female disk; ***p***, Seed.

Phenology: July to September.

Habitat: Dry, gravelly soil on hilly slope.

Notes: The specimen examined by Chaudhary and Rao[3] has no cataphylls, but in our specimen prominent cataphylls are seen. This is one of the rare species of the genus in India. We could see only one population of about 25 plants all scattered on one area of 50 m. Also, the habitat of this species is quite unlike most other herbaceous *Phyllanthus*. The scaberulous and winged branches, scaberulous and pruinose leaves make this species quite unique among the species of *Phyllanthus*. The economic significance of the species is yet to be investigated. Conservation of this species is most urgent as the population size is so narrow. We have initiated *ex situ* conservation of this species in our conservatory at CIMAP, Bangalore.

Specimen examined: INDIA, KARNATAKA, Bagalkot district, Amingad Village, 28.09.2004, R.R. Rao & R. Murugan 1061; MADHYA PRADESH, Bhopal, Budni, Midghat forest, 17.9.1956, Hiralal & Party 32527 (LWG).

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R. MURUGAN
R. R. RAO*
VISHWANATHA

Central Institute of Medicinal and Aromatic Plants,
Resource Centre, Allalasandra,
GKVK Post,
Bangalore 560 065, India
**For correspondence.*
e-mail: rr_rao@vsnl.net

Galeola falconeri Hook. f., an endangered giant saprophytic orchid

Orchids are one of the most diverse and most widespread families of angiosperms, contributing 10% (30,000 species) of all known species of flowering plants. Yet, many species face threats to their survival, including habitat loss and unsustainable exploitation. Therefore, it is important to understand the distribution, rarity, threats and factors responsible for extinction of orchids so that we can address the problem in a scientific way in order to promote effective conservation measures.

About 600–800 genera representing about 25,000–30,000 species of orchids are widely distributed from tropical to alpine regions of the world[1]. A sizeable number of orchids, i.e. 1220 species has been reported from India. Out of these, 750 species are found in the northeastern region and significantly 550 species contributing 45% of the country's orchid species are reported from Arunachal Pradesh[2]. Orchids are cosmopolitan in distribution, growing in different habitat, viz. terrestrial (soil), epiphytic (on other plants, usually trees), lithophytic/saxatilic (rocks), saprophytic (on dead decomposed wood) and even in semi-aquatic conditions. But they live in a delicately balanced ecosystem and are highly vulnerable to habitat destruction.

Arunachal Pradesh (26°28′–29°30′N lat. and 91°30′–97°30′E long.) is situated at the eastern corner of the Himalayas. The forest cover of the state is 68,847 sq. km, which constitutes 82.21% of the geo-