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Staurogyne arunachalensis (Acanthaceae), a new species from Arunachal Pradesh, India

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Yama L., Borah D. & Singh R.K. 2022: *Staurogyne arunachalensis* (Acanthaceae), a new species from Arunachal Pradesh, India. — *Ann. Bot. Fennici* 59: 47–51.

Staurogyne arunachalensis R.Kr. Singh, D. Borah & Yama (Acanthaceae), a new species from the Eastern Himalayan state Arunachal Pradesh, India, is described and illustrated. It resembles *S. argentea* in having a very short stem, basally clustered leaves and in lacking a staminode, but differs from it by its longer peduncle and rachis; smaller, linear-subulate, 1-nerved, non-aristate bracts; smaller, acute, non-aristate bracteoles; smaller, 1-nerved, acute, non-aristate calyx; and longer, pubescent, pinkish-red corolla.

Staurogyne (Acanthaceae, Nelsonioideae) contains about 151 species, distributed in tropical and subtropical regions (Daniel & McDade 2014, https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:947-1). In India, the genus is represented by ten species (Karthikeyan *et al*. 2009, Ramana *et al*. 2014), of which *S. andamanica* and *S. perpusilla* are endemic. The subfamily Nelsonioideae comprises six genera and about 180 species, and is characterised by the absence of cystolith; flowers usually spirally arranged in the inflorescence; descending cochlear aestivation of corolla; capsule lacking retinacula; and the presence of persistent endosperm in the seeds (Daniel & McDade 2014, Manzitto-Tripp *et al*. 2021). The Indian species of the genus are characterised by the presence of a bract and a pair of bracteoles accompanying each flower; calyx lobes being usually unequal; stamens being didynamous and inserted in the apex of the basal tube; staminode usually present; bithecous anthers with an enlarged connective at the apex; and a subcylindrical capsule that is usually multiseminate.

While working on the floristic diversity of the Eastern Himalayan state Arunachal Pradesh, India (Borah *et al*. 2021, Taram *et al*. 2021), the first and second authors collected and photographed peculiar plants of *Staurogyne*. After a thorough analysis of relevant literature and herbarium specimens we concluded that they represented an undescribed species.

The specimens were collected from Kimin, Papum Pare District, Arunachal Pradesh, India in October 2020. The specimens were processed using standard herbarium methods and voucher type specimens were deposited in ASSAM and CAL (acronyms according to *Index Herbariorum*, http://sweetgum.nybg.org/science/ih/). Morphological observations and measurements were

Fig. 1. *Staurogyne arunachalensis*. — **A** and **B**: Habit. — **C** and **D**: Inflorescence and flowers.

made on both freshly collected and dried specimens. The micromorphological characters were studied with a stereomicroscope. The specimens were compared with the literature and protologues of known *Staurogyne* species of India and adjoining countries (Clarke 1884, Hu *et al*. 2011), and with digital images of type specimens housed at various herbaria, as well as actual herbarium sheets housed at ASSAM, ARUN, BSD and CAL.

Staurogyne arunachalensis R.Kr. Singh, D. Borah & Yama, *sp. nova* (Figs. 1 and 2)

Type: India. Arunachal Pradesh, Papum Pare District, Kimin, 27°18´42.101´´N, 93°58´07.345´´E, 115 m a.s.l., 30 October 2020 *L. Yama & D. Borah 9863* (holotype CAL; isotypes ASSAM).

Etymology: The specific epithet refers to the state of Arunachal Pradesh, where this species was discovered.

Fig. 2. *Staurogyne arunachalensis*. — **A**: Habit. — **B**: Front view of inflorescence. — **C**: Back view of inflorescence. — **D**: Closer view of flower. — **E**: Corolla split open to show stamens. — **F**: Calyx lobes. — **G**: Pistil. — **H**: Capsule and seeds.

Erect herbs, shortly caulescent, 35–50 cm high (including inflorescence). Stem 2–4 cm long, nodes adventitiously rooted. Taproot 7–12 cm long; lateral roots many, up to 16 cm long. Leaf 11–16, opposite, basally clustered; limb elliptic-oblong or obovate, 7–15 × 3–6 cm, acute-obtuse at apex, subtruncate-rounded at base, adaxially glabrous, abaxially sparsely pubescent on midrib, margins entire, sometimes slightly undulate; petioles 2–5 cm long, sparsely pubescent; lateral veins 8–12 pairs, prominent abaxially. Inflorescence a terminal lax raceme, 20–35 cm long, up to 55 flowers, 2–5 simultaneously opened; peduncle 4–7 cm long, terete, pubescent; rachis 16–28 cm long, terete, pubescent; bracts 1 for each flower, homomorphic,

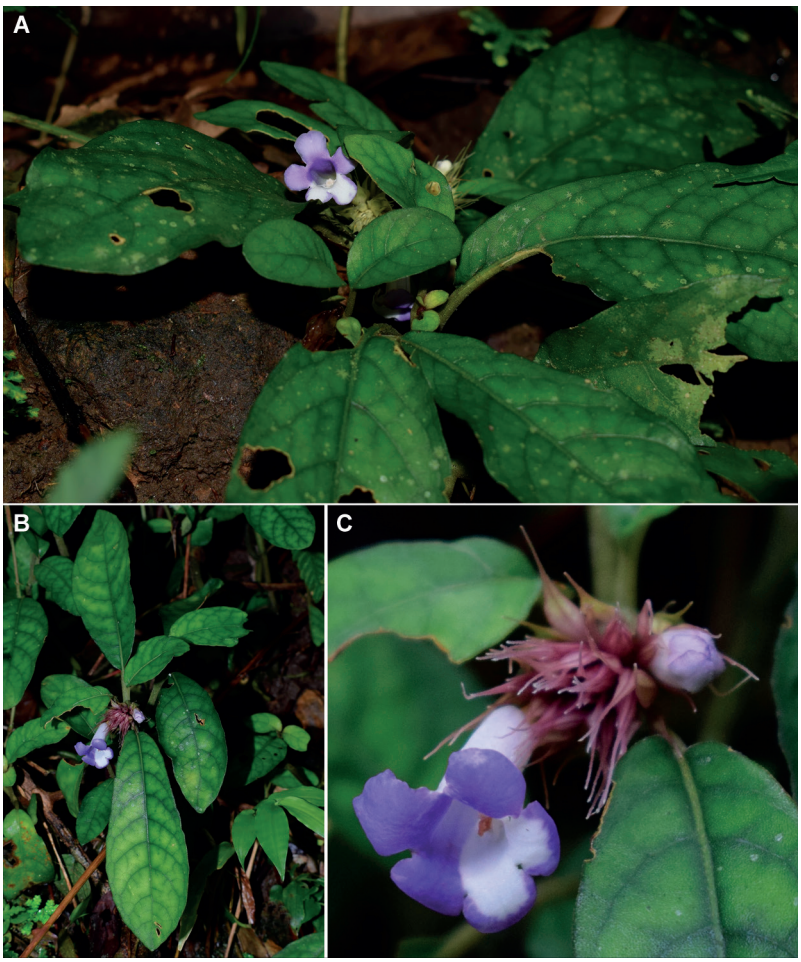

Fig. 3. *Staurogyne argentea*. — **A** and **B**: Habit. — **C**: Inflorescence and flowers.

linear-subulate, acute at apex, 1-nerved, 4–5 × 1–1.2 mm, pubescent, light green with pinkish markings; bracteoles 2 for each flower, linear-subulate, acute at apex, 3–4 × 0.8–1 mm, pubescent, light green with pinkish markings; pedicels 1.5–2.5 mm long, pubescent, light pink. Calyx 5-lobed, divided nearly to base, lobes subequal, linear-subulate, 1-nerved, pale pink, pubescent outside, glabrous inside; anterior and lateral pairs 6.5–7 × 1–1.2 mm, acute at apex; posterior lobe 7–7.5 × 1.1–1.3 mm, long acute at apex. Corolla tubular to slightly funnelform, 2.6–3 cm long, pinkish-red, pubescent outside, glabrous inside; basal tube 4–5 mm long, whitish with pale pinkish-red longitudinal stripes outside, whitish inside; throat 1.9–2.1 cm long, pinkish-red outside, whitish with pale pinkish-red longitudinal stripes inside; lobes 5, slightly unequal, suborbicular-broadly ovate, 3–4 × 2.5–3.5 mm, pinkish-red, apex rounded. Stamens 4, didynamous, inserted at base of throat; filament white, pubescent, shorter pair 10–11 mm long, longer pair 12–13 mm long; anthers bithecous, 1–1.5 × 0.6–0.7 mm, white with a dark pinkish-red spot at base of theca. Staminode absent. Ovary cylindrical, 2–2.5 mm long, light green, glabrous; style 1.8–2.1 cm long, white, pubescent; stigma 2-lobed, white, pubescent; lobes unequal, longer lobe 1.4–1.6 mm long, shorter 0.5–0.7 mm long, slightly bifid at apex. Capsule oblong-ovoid, 1–1.4 cm long, sparsely pubescent, glabrous on maturity; retinacula absent; seeds 20–25, obovate-orbicular, 1–1.2 mm diameter. Flowering and fruiting in October–December.

DISTRIBUTION AND HABITAT: *Staurogyne arunachalensis* is endemic to Kimin, Papum Pare

District, Arunachal Pradesh, India. We found 70 mature individuals in an area of about 1 km^2. The species grows in shady and humid places, along streams in tropical semi-evergreen forests at 115–125 m a.s.l., in association with *Begonia* spp., *Caulokaempferia coenobialis*, ferns, *Musa* spp., *Phlogacanthus curviflorus*, *Strobilanthes secunda*, *Wallichia oblongifolia*, and grasses and sedges.

Staurogyne arunachalensis differs from all other species of Indian *Staurogyne* by its longer inflorescence, longer corolla and subequal calyx lobes. It resembles *S. argentea* (Wallich 1831: 80, Clarke 1884: 398 as *Ebermaiera staurogyne*; Fig. 3) in having a very short stem, leaves in basal clusters and in lacking a staminode, but differs from it by its 20–35 cm long raceme (*vs*. 3–7 cm); bracts being linear-subulate, 1-nerved, non-aristate, 4–5 mm long (*vs*. lanceolate, 3-nerved, aristate, 15–21 mm); bracteoles being 3–4 mm long, acute at apex (*vs*. 12–17 mm, aristate); calyx lobes being subequal, 6–8 mm long, acute at apex, (*vs*. unequal, 12–17 mm, aristate); corolla that is 2.6–3 cm long, pinkish-red, and pubescent (*vs*. 1.5–2 cm, light purplish-white, glabrous). *Staurogyne argentea* and *S. arunachalensis* differ from all congenerics in lacking a staminode.

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