

TWO NEW SPECIES OF *GAULTHERIA* (*ERICACEAE*) FROM INDIA

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Two new species of *Gaultheria* (*Ericaceae*) from India, *G. akaensis* and *G. lohitiensis*, are described and illustrated.

Keywords. *Ericaceae*, *Gaultheria*, India, new species.

INTRODUCTION

The genus *Gaultheria* L., consisting of about 134 species (Middleton, 1991; Mabberley, 1997), is distributed in India (Himalayas, northeastern India and hill tops of southwestern Ghats), Sri Lanka, southwestern China, northern Burma, Thailand, Laos, northern Vietnam, Cambodia, Malesia, America, Australia and New Zealand. About 23 species and four varieties are reported to occur in India and are mainly distributed in the Eastern Himalayas at altitudes ranging from (600–)1300 to 4800 m. Based on the structure of the inflorescence, the venation, size and apex of the leaves, the shape and indumentum characters of the corolla, the position of the bracteoles, and the nature of the fruits, Middleton (1991) divided the genus into 10 sections, two subsections and 23 series.

The Indian taxa represent four sections, namely *Chiogenopsis* D.J.Middleton, *Monoanthea* D.J.Middleton, *Brossaeopsis* Airy Shaw and *Brossaea* (L.) D.J.Middleton, and five series, namely *Trichophyllae* Airy Shaw, *Codonanthea* D.J.Middleton, *Dumicolae* Airy Shaw, *Nummularioideae* Airy Shaw and *Leucothoides* (Airy Shaw) D.J.Middleton.

During a field study in the Aka Hills (December 2002) and Lohit valley (April–May 2003) of Arunachal Pradesh, some interesting specimens of *Gaultheria* were collected from Nechephu and Hayuliang. A critical study of these specimens revealed that they represent two new species of *Gaultheria*, which are described and illustrated here. These two new species belong to the series *Leucothoides* of the section *Brossaea*.

***Gaultheria akaensis* Panda & Sanjappa, sp. nov. Fig. 1.**

Species nova *Gaultheria pyrolifolia* Hook.f. ex C.B.Clarke affinis, sed ramulis densissime brunneo-hirsutis, foliis ovatis vel ovato-ellipticis, margine longe ciliatis, subtus dense appresse-hispid-setulosis et pedicellis glabris differt. – Type: India,

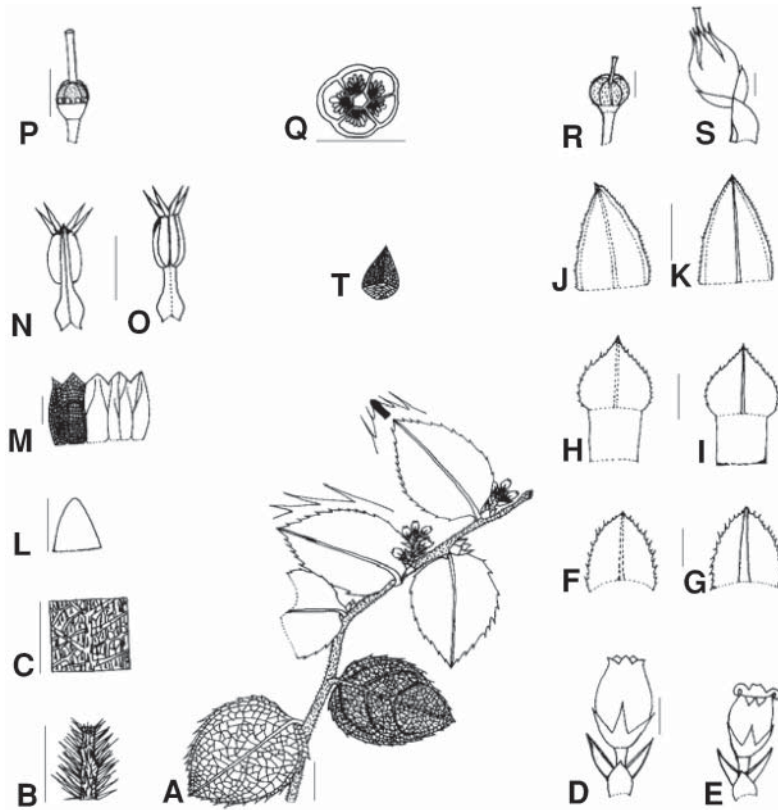


FIG. 1. *Gaultheria akaensis* Panda & Sanjappa. A, habit; B, stem (part magnified); C, abaxial leaf (part magnified); D & E, flowers; F & G, bracts; H & I, bracteoles; J & K, calyx lobes; L, corolla lobe; M, corolla split open; N & O, stamens; P, pistil; Q, ovary (t.s.); R & S, fruits; T, seed. Scale bars: A=1 cm; B, C=5 mm; D, E, M, P=2 mm; F–L, N, O, Q–S=1 mm (A–T drawn from *S. Panda* 30824).

Arunachal Pradesh, Aka Hills, West Kameng district, 3 km from Nечepһu, 27 km towards Tenga, left bank of the bridge, 1800 m, 25 xii 2002, *S. Panda* 30824 (holo CAL; iso CAL).

Prostrate or decumbent, stout shrub, 0.6–1 m high. *Stem* terete, profusely branched, brown hirsute; branches terete, densely brown hirsute. *Leaves* papery to subcoriaceous, lamina ovate to ovate-elliptic, 25–42 × 16–28 mm, serrulate at margin with long cilia, cilia c.5 mm long, rounded at base, mucronate at apex, glabrous, dark green above, light green, setulose beneath; venation conspicuously brochidromous with 3–4 pairs of lateral veins; petioles stout, 2–3 mm long, setulose. *Racemes* 7–11 mm long, white puberulous, 4–5-flowered. *Flowers* c.8 mm long; pedicels greyish-white to light green, c.3 mm long, glabrous; bract 1, basal, pinkish, ovate, c.2 × 1.5 mm, ciliate at margin, acute at apex, glabrous; bracteoles 2,

opposite, median on the pedicel, light green with pinkish stripe, broadly ovate to ovate-elliptic, c.3 × 1.5 mm, ciliate at margin, acute at apex, glabrous. *Calyx* lobes light green to greyish-white, ovate-triangular, c.2 × 1 mm, ciliate at margin, acuminate at apex, glabrous, accrescent in fruit. *Corolla* caducous, urceolate, light pink to white, c.5 mm long, glabrous, lobes ovate, c.1 × 1 mm, entire at margin, rounded at apex. *Stamens* 5(–7), c.2 mm long, loosely epipetalous; filaments greyish-white, c.1 mm long, slender, papillose, glabrous, dilated at middle; anthers dark brown, oblong, c.1 mm long, each lobe with 2 minute apical awns. *Pistil* c.3.5 mm long; ovary globose, light green, c.1 × 1 mm, puberulous, ovules numerous on axile placenta in each locule; disc minutely 10-dentate; style impressed, light green, c.2.5 mm long, slender, glabrous. *Capsule* globose, dark pink, loculicidally 5-valved, c.3 × 3 mm, enclosed by a rugose and dry dark pink accrescent calyx with a c.2 mm long pedicel, puberulous. *Seeds* numerous, minute, obconical, scarious.

Distribution. India: Eastern Himalayas (Arunachal Pradesh).

Habitat and ecology. This is a rare species which grows in moist and humus-covered loose rocky soils, rarely in landslide areas, in association with *Gaultheria fragrantissima*, *G. nummularioides*, *Polygonum barbatum*, *Impatiens discolor* and *Lycopodium clavatum* at an altitude of c.1800 m. Flowering December. Fruiting late December–January.

Etymology. The species is named after its type locality.

Gaultheria akaensis is related to *G. pyrolifolia* Hook.f. ex C.B.Clarke (a Sino-Himalayan-Burmese species) from which it differs in having densely brown hirsute branches, ovate or ovate-elliptic leaf blades, long ciliate leaf margin, densely appressed hispid-setulose abaxial leaf surface and glabrous pedicels; *G. pyrolifolia* has glabrous to rarely sparsely hispid-setose branches, obovate to elliptic-obovate leaf blades, eciliate leaf margin, glabrous or rarely sparsely hispid abaxial leaf surface and puberulous pedicels.

***Gaultheria lohitiensis* Panda & Sanjappa, sp. nov. Fig. 2.**

Species valde affinis *Gaultheria longibracteolata* R.C.Fang, sed foliis oblong-lanceolatis, raro ellipticis, bracteolatis minoribus c.3.5 mm longis, ovato-triangularis, pedicellis prope medium bibracteolatis, calycibus c.3 mm longis, griseo-albis, corollis intus pilosis, lobis ovato-oblongis, stamina c.2 mm longo, antherae thecis uniaristatis, stylis ad basin pilosis vel glabris et capsula alba, c.7 mm diametro differt, et a *G. straminea* R.C.Fang differt foliis subtus argenteis, floribus c.9 mm longis, intus glabris, pedicellis prope medium bibracteolatis, calycibus intus glabris, corollae lobis ovato-oblongis, stamina c.2 mm longo, filamentis intus pilosis, antherae thecis uniaristatis et capsulis c.7 mm diametro. – Type: India, Arunachal Pradesh, Lohit district, 10 km from Hayuliang towards Walong, c.700 m, 27 iv 2003, S. Panda 30884 (holo CAL; iso CAL).



FIG. 2. *Gaultheria lohitiensis* Panda & Sanjappa. A, habit; B, flower; C & D, bracts; E & F, calyx lobes; G & I, bracteoles; J, corolla split open; K, abaxial leaf (part magnified); L, corolla lobe; M, rachis (part magnified); N, branchlet (part magnified); O, leaf apex (part magnified); P & Q, stamens; R, pistil; S, ovary (t.s.); T–V, fruits; W, seeds. Scale bars: A=2 cm; B, J, O, T, V=2 mm; C–I, L, P–S=1 mm; K, M, N, U=5 mm (A–T, V, W drawn from *S. Panda* 30884; U drawn from *S. Panda* 30892).

Stout, erect shrub, 1–1.5(–3) m high, often hanging down from rock crevices. *Stem* terete, blackish-brown, profusely branched, sparsely rusty red hispid-setose; branchlets pinkish-red, densely hispid-setose. *Leaves* coriaceous, lamina lanceolate, oblong-lanceolate to rarely elliptic, 42–58 × 9–20 mm, dentate at margin, cuneate at base, acuminate-mucronate at apex, ash green, glabrous above, silvery-white and

sparsely appressed setose beneath; venation conspicuously brochidodromous with 3–4 pairs of lateral nerves; petioles stout, 2–3 mm long, setulose beneath. *Racemes* both axillary and pseudoterminal; rachis 25–40 mm long, 20–26-flowered, densely white puberulous. *Flowers* c.9 mm long; pedicels greyish-white, c.3 mm long, white puberulous; bract 1, basal, light green, ovate, c.5 × 4.5 mm, ciliate at margin, acute at apex, puberulous outside, glabrous inside; bracteoles 2, opposite, median on pedicel, greyish-white, ovate-triangular, c.3.5 × 2 mm, ciliate at margin, acuminate at apex, puberulous outside along midvein, glabrous inside. *Calyx* lobes greyish-white, ovate-triangular, c.2 × 1 mm, ciliolate at margin, acute at apex, puberulous outside along midvein, glabrous inside, accrescent in fruit. *Corolla* urceolate, greyish-white, c.5 × 3.5 mm, glabrous outside, pilose inside, lobes ovate-oblong, c.1 × 1 mm. *Stamens* 10, c.2 mm long, loosely epipetalous; filaments greyish-white, c.1 mm long, slender, glabrous adaxially, pilose abaxially, basally dilated; anther lobes dark brown, c.1 mm long, glabrous, each lobe with single minute apical awn. *Pistil* c.4 mm long; ovary light green, globose to subglobose, c.1 × 1 mm, white tomentose, ovules numerous on axile placenta in each locule; disc minutely 10-dentate; style light green, slender, c.2.5 mm long, basally pilose; stigma truncate. *Capsule* loculicidally 5-valved, enclosed in a fleshy accrescent calyx, globose to subglobose, light green to greenish-white (immature) or white (mature), 6–8 × 5–7 mm with c.4 mm long pedicel, puberulous. *Seeds* numerous, minute, obconical, scarious.

Distribution. India: Eastern Himalayas (Arunachal Pradesh).

Habitat and ecology. This species grows gregariously in moist and humus-covered loose rocky soils, often hanging down from rock crevices in association with *Gaultheria fragrantissima*, *G. codonantha*, *Rhododendron formosum* and *Melastoma* sp. at altitudes ranging from 700 to 1450 m. Flowering April. Fruiting late April–May.

Etymology. The species is named after its type locality.

Gaultheria lohitiensis is closely allied to *G. longibracteolata* R.C.Fang, a Chinese species, from which it differs in having oblong-lanceolate to rarely elliptic leaves, smaller bracteoles (c.3.5 mm long) median on the pedicel, c.3 mm long greyish-white calyx, ovate-oblong corolla lobes which are pilose inside, c.2 mm long stamens with single-awned anther locules, basally pilose style and white capsules. The new species also differs from another closely related Chinese species, *G. straminea* R.C.Fang, in having a silvery white undersurface of the leaves, c.9 mm long flowers, c.5 mm long bracts which are glabrous inside, ovate-oblong corolla lobes, c.2 mm long stamens with abaxially pilose filaments, single-awned anther lobes and capsules c.7 mm in diameter.

Additional specimen examined. INDIA. Arunachal Pradesh: Namti to Kibithu, 1300–1450 m, 30 iv 2004, S. Panda 30892 (CAL).

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