

New record of two species of *Gaultheria* L. (Ericaceae) from Arunachal Pradesh, India

S. Panda¹, M. Sanjappa², A. A. Mao³ and A. K. Baishya²

¹Taxonomy & Biosystematic Laboratory, Post-Graduate Deptt. of Botany, Barasat Govt. College, Barasat-700124, West Bengal (India). *E-mail*: panda.bgc@gmail.com

²Botanical Survey of India, CGO Complex, 3rd MSO Building, Block-F, 5th Floor, Sector I, Salt Lake City, Kolkata 700 064, India *Email*: m.sanjappa@nic.in;

³Botanical Survey of India, Arunachal Field Station, Sankie View, Itanagar-791111, Arunachal Pradesh, India

Abstract

Two species of *Gaultheria* L. viz., *G. hookeri* C.B. Clarke and *G. pyrolifolia* Hook.f. ex C.B. Clarke are recorded for the first time from West Kameng district of Arunachal Pradesh, India.

Key words: *Gaultheria hookeri*, *G. pyrolifolia*, Ericaceae, new record, Arunachal Pradesh

INTRODUCTION

During a field study in the Naga Jeje Hills (in May 2009) of West Kameng district in Arunachal Pradesh (India-Bhutan border area), some specimens of *Gaultheria* L. were collected at altitudes ranging between 3800 – 4000 m. The specimens were identified as *G. hookeri* and *G. pyrolifolia*, hitherto not reported from Arunachal Pradesh. Details of field observations along with correct binomials with authority, selected citations, types and photographs are provided.

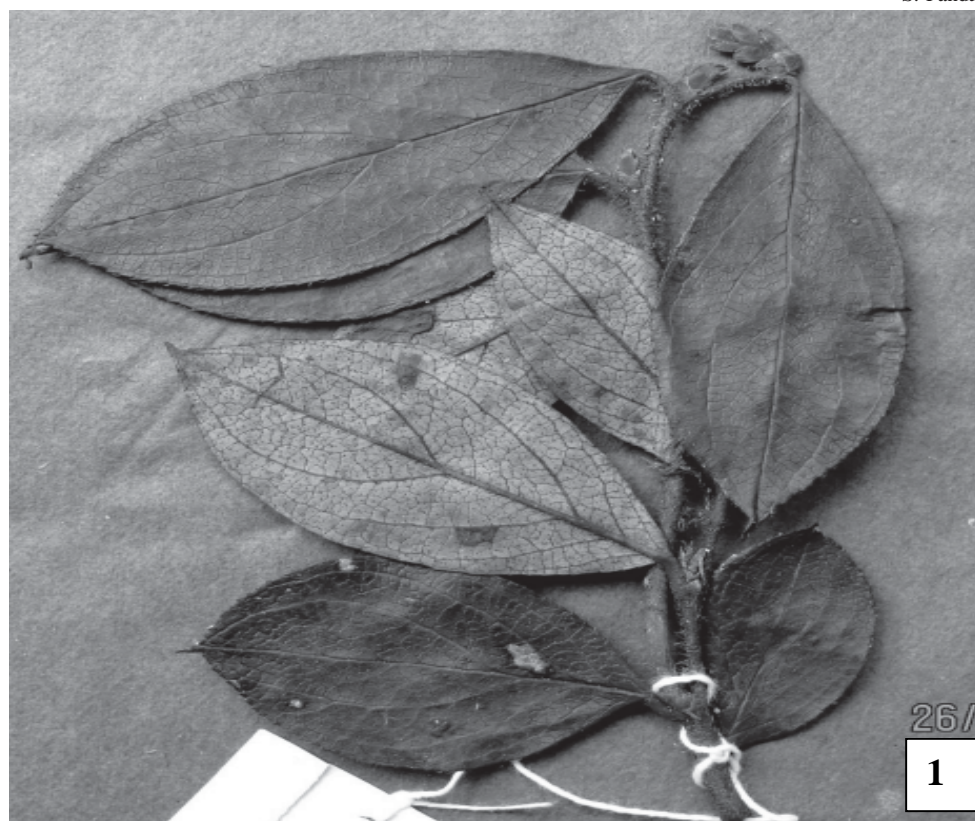
West Kameng district is situated between latitude 26° 54' N and 28° 01' N and longitude 91° 30' E and 92° 40' E. It is bounded by China (Tibet) in the North, Bhutan in the west and Tawang district of Arunachal Pradesh in the northwest, East Kameng district in the east and Sonitpur district of Assam in the south. It has an area of 7422 sq km and the altitude of West Kameng District varies between 198 m to 402 m.

Gaultheria hookeri C.B. Clarke in Hook.f., Fl. Brit. India 3: 458. 1882; Airy Shaw, *Kew Bull.* 1952: 173. 1952; Hara in Hara *et al*, Enum. Fl. Pl. Nepal 3: 55. 1982; Rae in Grierson & Long, Fl. Bhutan 2(1): 390. 1991; Panda & Sanjappa, *J. Hill. Res.* 19 (2): 49. 2006. **Types**: India, Sikkim, Lachen, 10000 ft, 3.6.1849, *J. D. Hooker s.n.* (top “in flowers”) and Lachen, 10000 ft, 9.6.1849, *J. D. Hooker s.n.* (bottom “in fruits”) (K, photo!). *G. hookeri* var. *angustifolia* C. B. Clarke in Hook. f., Fl. Brit. India 3: 458. 1882. **Type**: India, Sikkim, Yak La, 9000 ft, 10.05.1876, C. B. Clarke 27837A (CAL!; K, photo!). *G. veitchiana* Craib, *Gard. Chron.* 52 (ser. 3): 188. 1912; Stapf in Curtis's *Bot. Mag.* 153: t. 9174. 1927. **Type**: W China, 6000 – 10000 ft, May, 1904, E. H. Wilson 3916 (K, photo!).

Plate I. Fig. 1.

Vernacular name: *Kalima* (Monpas of Dhirang).

Stout, erect, bushy shrub, c. 30 cm high. Stem terete, greenish-brown, profusely branched, subglabrous; branchlets terete, light green to pink, densely hispid-setose. Leaves coriaceous, lamina oblong-elliptic to obovate, 2 – 5 × 1 – 2.5 cm, serrulate-ciliate at margin, cilia deciduous and up to 2 mm long, broadly cuneate at base, mucronate at apex. Racemes axillary as well as pseudoterminal, perulate; rachis light green, 2 – 5 cm long, 10 – 25-flowered, densely white puberulous. Flowers 10 – 16 mm long; pedicels greyish-white, 6 – 8 mm long, white puberulous to rarely glabrous; bract 1, basal, light green with pinkish stripes, broadly ovate, 5 – 7 × 3 – 5 mm, ciliolate at margin, acute to rarely acuminate at apex; bracteoles 2, opposite, subbasal to median on pedicel, greyish-white with pinkish stripes, broadly ovate to ovate-triangular, 2 – 3 × 1 – 1.5 mm, ciliolate at margin, acuminate to acute at apex. Calyx lobes grayish-white to light pink, ovate-triangular, c. 2 × 1.5 mm, ciliolate at margin,



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PLATE I: Fig. 1. *Gaultheria hookeri* C.B. Clarke; Fig. 2. *Gaultheria pyrolifolia* Hook.f. ex C.B. Clarke

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acuminate at apex. Corolla globose-urceolate, grayish-white, 5 – 7 × 2 – 4.5 mm, glabrous outside, pilose inside. Stamens 10, 2 mm long, loosely epipetalous; filaments white, 1 mm long, slender, glabrous; anthers orange brown, oblong, *c.* 1 mm long, glabrous, each lobe with 2 equal minute warty apical awns of 1 mm long. Pistil 2.5 – 4.5 mm long; ovary subglobose, light green, 1 – 2 × 1 – 2 mm, tomentose, ovules numerous on axile placenta in each locule; disc dark green, minutely 10-oblong-dentate; style pinkish, 2 – 3 mm long, slender, glabrous; stigma truncate. Fruits not seen.

Distribution: INDIA: E Himalaya (**Arunachal Pradesh**, Sikkim and West Bengal) and NE India (Nagaland); NEPAL; BHUTAN; SW CHINA and N MYANMAR.

Habitat: This species grows in discontinuous patches in moist humus-covered rocky slopes in association with *Rhododendron barbatum*, *R. hodgsonii* and *Vaccinium nummularia* at an altitude of about 3800 m.

Flowering: April.

Exsiccatae: **Arunachal Pradesh:** Naga jeje hills, Mandala-Naga jeje road side, West Kameng district, 3800 m, 11.5.2009, *M. sanjappa & party s.n.* (CAL); 2 km from Naga jeje, West Kameng district, 3800 m, 11.5.2009, *S. Panda 141* (Barasat Govt. College herbarium).

Gaultheria pyrolifolia Hook.f. ex C.B. Clarke in Hook.f., Fl. Brit. India 3: 457. 1882 (“*pyrolaefolia*”); Airy Shaw, *Kew Bull.*: 318. 1941; Sealy in Curtis’s *Bot. Mag.* 163: t. 9629. 1941; Hara in Hara *et al.*, Enum. Fl. Pl. Nepal 3: 55. 1982; Rae in Grierson & Long, Fl. Bhutan 2 (1): 390. 1991; Panda & Sanjappa, *Pleione* 1(2): 1 – 5. 2007. **Type:** India, Sikkim, Lachen, 13000 ft, 20.06.1849, *J. D. Hooker s.n.* (K, cibachrome photo!). **Plate II.**

Stout, decumbent dwarf shrub, 3 – 10 cm high, forming mats on alpine pastures. Stem rhizomatous, creeping, branched, light pink, often with adventitious roots, glabrous; branches terete, reddish pink, glabrous. Leaves coriaceous, lamina obovate, elliptic-obovate to suborbicular, 0.5 – 3 × 0.5 – 3 cm, serrate to crenate at margin, cuneate at base, retuse to mucronate at apex. Racemes short, pseudoterminal, from upper foliate axils; rachis 5 mm long, single-flowered, pinkish-white, puberulous. Flowers *c.* 5 mm long; pedicel *c.* 2.5 mm long, densely white puberulous; bract 1, basal, light green with pinkish stripes, broadly ovate, 3 × 2 mm, ciliolate at margin; bracteoles 2, opposite, median on pedicel, light green with pinkish stripes, ovate-elliptic 2 × 1 mm, margin ciliolate. Calyx narrowly campanulate, 5-lobed, lobes broadly ovate-triangular, *c.* 1.5 × 1 mm, ciliolate at margin. Corolla ovoid-urceolate, light pink, 3 mm, glabrous. Stamens 5; *c.* 1.5 mm long, loosely epipetalous; filaments *c.* 1 mm long, pinkish, slender, glabrous; anthers oblong, minute to 0.5 mm long, orange-yellow, glabrous, each lobe with 2 equal minute warty apical yellow awns. Pistil *c.* 2.5 mm long; ovary globose, blackish brown, 1 × 1 mm, glabrous, ovules numerous on axile placenta in each locule; disc minute, dentate; style pink, *c.* 1.5 mm long, slender; stigma truncate. Fruits not seen.

Distribution: INDIA: Eastern Himalayas (**Arunachal Pradesh**, Sikkim and Darjeeling of West Bengal); NEPAL; BHUTAN; W. CHINA and N. MYANMAR.

Habitat: This species grows gregariously in shallow snow clad soils, in alpine pastures and scrub clad rocky slopes amongst *Cassiope fastigiata*, *Gaultheria trichophylla*, *Rhododendron anthopogon* and *R. setosum* at an altitude of about 4000 m.

Flowering: May.

Exsiccatae: **Arunachal Pradesh:** Naga Jeje Hill top, West Kameng district, 4000 m, 11.5.2009, *M. sanjappa & party s.n.* (CAL); Naga Jeje Hill top, West Kameng district, 4000 m, 11.5.2009, *S. Panda 145* (Barasat Govt. College herbarium).

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