

## FINAL PLEA FOR CONSERVATION OF *GAULTHERIA AKAENSIS* PANDA & SANJAPPA (ERICACEAE), AN EXTREMELY THREATENED, ENDEMIC MEDICINAL PLANT FROM AKA HILL IN ARUNACHAL PRADESH OF EASTERN HIMALAYA, INDIA

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*Gaultheria akaensis* Panda & Sanjappa is endemic to Aka Hills in Arunachal Pradesh and found near Nechephu, 3km away from Tenga Valley. The species was located in 2002 and formally described in 2006 (Panda & Sanjappa 2006). Currently, the species is known to be composed of only two individuals and hence extremely threatened.

Since its discovery, explorations in Aka Hill areas in Bomdi-La Forest Division and other parts of Arunachal Pradesh, Sikkim and Darjeeling Himalaya failed to locate the species other than its type locality. Till date there are no reports of this species from neighbouring countries of Nepal, Bhutan, China and Myanmar which represent natural Himalayan habitat of *G. akaensis*.

Since its discovery in 2002, the population of *G. akaensis* has declined due to natural (very less seed germination percentage and rare flowering as observed in different seasons in 2003, 2005, 2006, 2008, 2010 and 2011) and man-made habitat degradation (due to road construction). Now the species is survived by

only two individuals (observed in January 2011) against six since its discovery in 2002.

Detailed phenological observations on this species in different seasons were recorded since December 2002–January 2011. *G. akaensis* normally flowers in December and fruits in January. Recent flowering occurred in December 2010 without fruit formation and one new twig originating from one plant was observed.

Why final plea for conservation? The National Highways extension project by the Border Road Organization is going on through the habitat of *G. akaensis*. The road extension has already started from the Bhalukpong area and is proceeding towards Aka Hill area. The upcoming hydroelectric project of Government of India in this area may also affect the species habitat. Due to this problem the author put a board in January 2011 for conservation of the habitat of *G. akaensis* to promote awareness in local tribal community (Image 1).

Aka Hill, the habitat for the species in reference is situated under West Kameng District in Arunachal Pradesh and lies between 26°12'–26°32'N & 91°35'–91°45'E. The area is bounded by Tenga Valley in the north, Rupa and Kalaktang in the west, Bomdi-La in the north-west, East Kameng District in the east and Bhalukpong in the south. It extends to ca. 50km<sup>2</sup> with an altitude between 135–1830 m. The name of the Aka Hill is derived from the dominant tribe, Aka.

The present paper provided detailed description, ethnic use, live photos, colour figure and distribution maps of the species for the purpose of better conservation.



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***Gaultheria akaensis*** 25.xii.2002 Panda & Sanjappa *Edinburgh J. Bot.* 63 (1):15–17. 2006.

**Type:** 30824 (holotype and isotype: CAL), West Kameng District, Arunachal Pradesh, India, 3km from Nechephu, 27km toward Tenga, left bank of the bridge, 1800m, S. Panda (Image 1, Figs. 1–2).

Prostrate or decumbent, stout shrub, 0.6–1 m high. Stem terete, profusely branched, rust red hirsute; branches terete, densely rust red hirsute. Leaves papery to subcoriaceous, lamina ovate to ovate-elliptic, 2.5–4.2×1.6–2.8 cm, serrulate at margin with long setose-cilia, cilia ca. 5mm long, rounded at base, mucronate at

apex, glabrous, dark green above, light green, setulose beneath; venation conspicuous, brochidodromous with 3–4 pairs lateral veins; petioles stout, 2–3 mm long, setulose. Racemes 7–11 mm long, white puberulous, 4–5 flowered. Flowers ca. 8mm long; pedicels greyish-white to light green, ca. 3mm long, glabrous; bract 1, basal, pinkish, ovate, ca. 2×1.5 mm, ciliate at margin, acute at apex, glabrous; bracteoles 2, opposite, median on pedicel, light green with pinkish-stripe, broadly ovate to ovate-elliptic, ca. 3×1.5 mm, ciliate at margin, acute at apex, glabrous. Calyx lobes light green to greyish-white, ovate-triangular, ca. 2×1 mm, ciliate at margin, acuminate

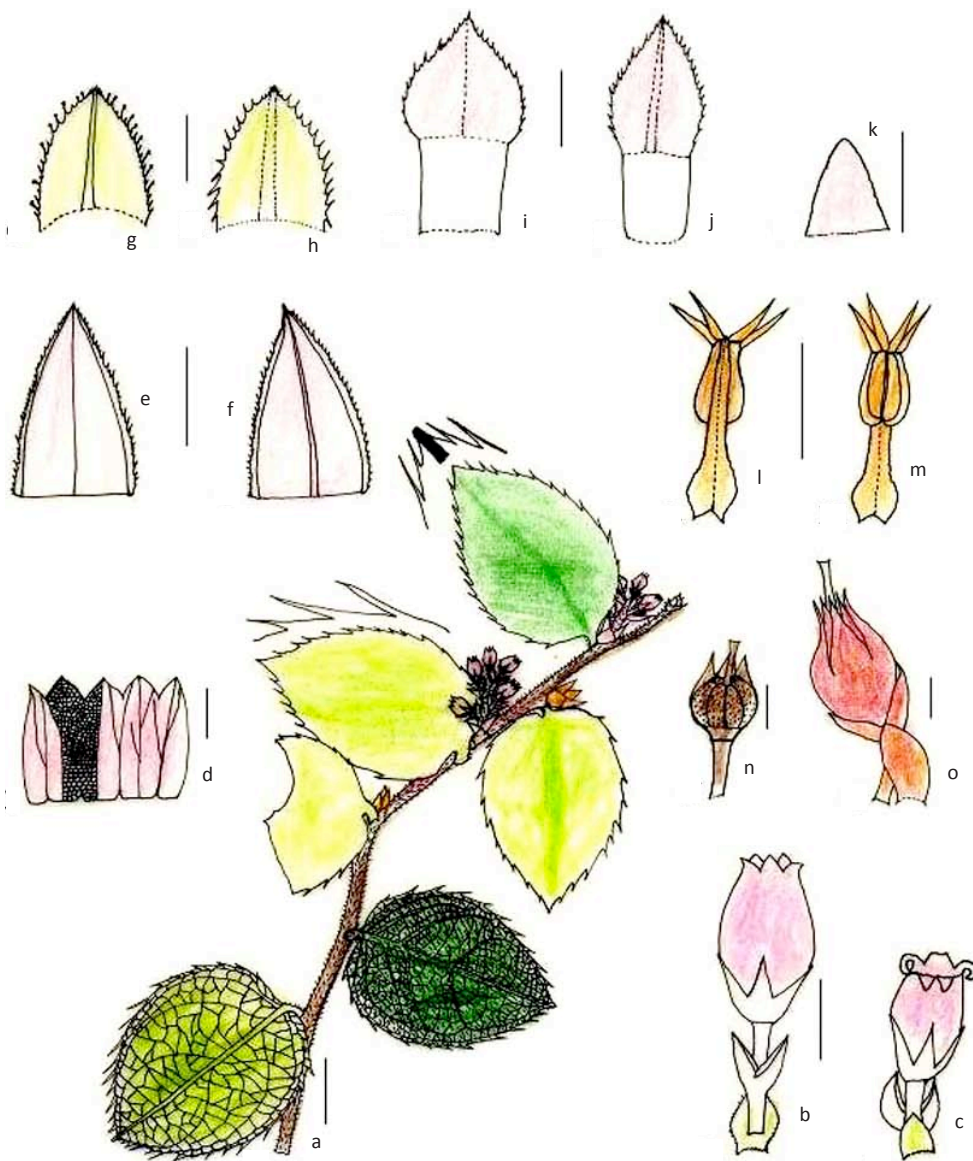


Figure 1. *Gaultheria akaensis* Panda & Sanjappa

a - habit; b-c - flowers; d - corolla; e-f - calyx lobes; g-h - bracts; i-j - bracteoles; k - corolla apex; l-m - stamens; n - pistil; o - fruit. Scale bar: a - 1cm; b-d - 2mm; e-o - 1mm (drawn from S. Panda 30824, CAL)

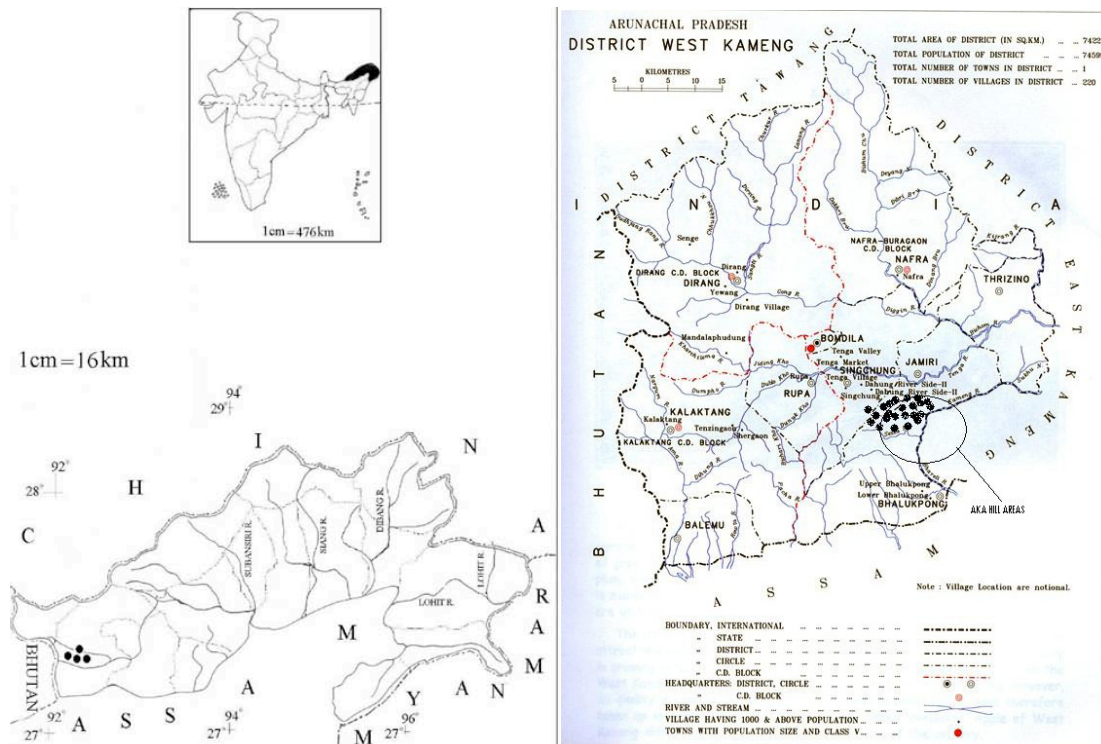


Figure 2. Distribution of *Gaultheria akaensis* in West Kameng District (magnified) of Arunachal Pradesh



Image 1. *Gaultheria akaensis* Panda & Sanjappa  
 a - original habitat at Aka Hill; b - part of habitat with board for creating awareness for conservation; c - present condition of the species at its natural habitat (January 2011)

at apex, glabrous. Corolla caducous, urceolate, light pink to white, ca. 5mm long, glabrous, lobes ovate, ca. 1×1 mm, entire at margin, rounded at apex. Stamens 5 (–7), ca. 2mm long, loosely epipetalous; filaments greyish-white, ca. 1mm long, slender, papillose, glabrous, dilated at middle; anthers dark brown, oblong, ca. 1mm long, each lobe with two minute apical awns. Pistil ca. 3.5mm long; ovary globose, light green, ca. 1×1 mm, puberulous, ovules numerous on axile placenta in each locule; disc minutely 10-dentate; style impressed, light green, ca. 2.5mm long, slender, glabrous. Capsule globose, dark pink, ca. 3×3 mm, enclosed in a dry accrescent calyx with ca. 2mm long pedicel, puberulous. Seeds numerous, minute, obconical, scarious.

**Distribution:** India: Eastern Himalaya (Arunachal Pradesh).

**Habitat:** Grown 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 ca. 1800m.

**Flowering:** December.

**Fruiting:** Late December–January.

**Ethnic Use:** Tender leaf extract mixed with *G. fragrantissima* leaves (1:1) applied to cure acute rheumatic and sciatic pain by the Akas.

**IUCN Red List status:** The species is not yet assessed

as per the IUCN Red List of Threatened Species. Given that the species is known from only one location and has not been recorded anywhere else in its habitat of Aka Hills in Arunachal Pradesh as established by annual surveys over 10 years since 2002, and that the habitat is threatened by road construction, the species will qualify as Critically Endangered based on Criteria B [B1ab(iii)+2ab(iii)], C [C2a] and D.

## REFERENCES

Panda, S. & M. Sanjappa (2006). Two new species of *Gaultheria* L. (Ericaceae) from India. *Edinburgh Journal of Botany* 63(1): 15–20; <http://dx.doi.org/10.1017/S0960428606000333>

