

## ***Rhododendron apradae* U. Rai et D. Lama sp. nov. from Darjeeling Himalaya in India**

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### **Abstract**

The article deals with the description of a new species of *Rhododendron* discovered from Singalila National Park, Darjeeling. The new species has been named as *Rhododendron apradae* U. Rai et D. Lama after the name of our teacher Dr. Abhaya Prasad Das. Taxonomic status, distribution and ecology of the species has been discussed. The discovery of the new species raised the number of *Rhododendron* in Darjeeling Hills of Eastern Himalaya to 18.

**Key words:** *Rhododendron apradae*, New species, Singalila National Park, Darjeeling

### **INTRODUCTION**

*Rhododendron* is one of the largest genera of woody members of flowering plants with about 1000 spp. (Chamberlain *et al.* 1996; Fang *et al.* 2005). The heterogeneity in the genus can be perceived from the wide variety of habit groups, from small under-shrubs to large trees and wide range of floral variations. The genus is distributed from tropical to alpine vegetation and also exhibit wide latitudinal variation ranging from equator to 60° N latitude on the northern hemisphere. The genus is believed to have been in existence for 50 million years from the Tertiary period (Irving & Hebda 1993). And, the genus is still evolving. Speciation within the genus and infraspecific evolution is taking place either through isolation or hybridization (Rai *et al.* 2014). As a result new species are being discovered from different parts of the world from time to time (Pradhan & Lachungpa 1990; Rai 2014). Previously Pradhan and Lachungpa (1990) and Grierson and Long (1991) have recorded 15 and 17 taxa, respectively, from Darjeeling Himalaya. Recent studies by Rai *et al.* (2013) revealed the occurrence of 21 taxa distributed within 17 species from the temperate to sub-alpine regions of Darjeeling Hills.

During a survey of *Rhododendrons* in Singalila National Park in Darjeeling District of the state of West Bengal, authors collected few hitherto uncommon specimens of *Rhododendron*. The collected specimen was critically examined and compared with other species of *Rhododendron* found in the region. It exhibited distinct vegetative and floral characters which did not match with any other identified species of the genus. This plant specimen has been treated and described here as a new species. Taxonomic determination of new species is based on Fang *et al.* (2005).

This new species is now named here as *Rhododendron apradae* and as per the present status of knowledge it is endemic to Darjeeling Hills part of Eastern Himalaya.

## MATERIALS AND METHODS

The collected specimens were examined and compared with the collections at Lloyd Botanical garden, (LB) Darjeeling, BSHC, CAL and NBU for identification. Available literatures for the region's flora (Hooker 1849; Grierson & Long 1991; Pradhan & Lachungpa 1990; Fang *et al.* 2005) were also consulted for authentication. Melbourne Code of ICN has been followed for naming of the species.

## TAXONOMIC TREATMENT

*Genus: Rhododendron*

*Subgenus: Hymenanthes*

*Section: Pontica*

*Species: Rhododendron apradae* U. Rai *et* D. Lama, *sp. nov.*

*Rhododendron apradae* closely resembles *R. arboreum* subsp. *cinnamomeum* (Wallich ex G. Don) Lindley and *R. grande* Wight but the new species is readily distinguished from the two in the nature of indumentum on the lower surface of leaves, and other floral characters. Table 1 detailed the differences:

Small trees to 10 m high. Leaves crowded at branch-tips; lamina elliptic-lanceolate, 6.5 – 20 cm long, entire, recurved downward, acute, glabrous above, midrib and lateral veins impressed above and elevated below, primary veins 18 – 21 pairs, lower surface agglutinated (light brown); petiole 2.5 – 3.4 cm long, glabrous. Truss 14 – 16 cm across umbellate-racemose, bearing 14 – 18 flowers; bracts filiform 10 – 12 mm long, silky hairy, basal part not hairy; pedicels 1.4 – 1.6 cm long, gland dotted, sticky. Calyx indistinct forming a 5 – 8 lobbed disc; corolla verticose-campanulate 4.9 – 6.1 cm long, 5.0 – 5.6 cm across, 5 – 8 imbricate-lobbed, emarginate, light pink with densely dark spotted on the posterior side, anterior part of corolla tube less ornamented, base of corolla purple blotched throughout more so on the posterior lobes, forming distinct ridges and furrows. Stamen 12 – 16, in 2 whorls, length variable, 3.2 – 4.5 cm long, inserted, posterior stamens shorter, anterior ones longer; often anthers of two stamens fuses in one to two pairs; lower 1/3<sup>rd</sup> part of filaments sparsely hairy; carpels 11 – 12; style equal to or longer than corolla; ovary 0.8 – 0.9 × 2.5 – 0.4 mm, broadly pyramidal, tomentose, mixed with glandular and multicellular trichomes.

The new species is quite close to *R. arboreum* subsp. *cinnamomeum* (Wallich ex G. Don) Lindley and *R. grande* Wight but their differences are presented in Table 1.

**Type:** India, Darjeeling, Singalila National Park core region, South Range, Gairibans Compartment 4, 26°03'03.03" N and 88°01'48.83" E, 2678 m, dated 24.03.2013; U. Rai & D. Lama R/010 (Holotypus: CAL); R/010 B (Isotype: NBU); R/010 C (Lloyd Botanical Garden, Darjeeling).

**Distribution:** The new species was collected from type locality (Gairibans) in the South Range of Singalila National Park in Darjeeling district of West Bengal, at 2678 m altitude. Few individuals were also observed in Kankibong Beat between Dhotray and Tonglu and in Meghma between 2200 – 2500 m. So far, the species is observed only in these three locations with extremely small population structure. At per the present knowledge status, the species is endemic to Darjeeling Hills.

**Habitat and ecology:** The species grow in the wet temperate forest between 2500 – 2800 m intermixed with *Lithocarpus pachyphyllus* (Kurz) Rehder, *Rhododendron grande* Wight,



**PLATE – I.** *Rhododendron apradae* U. Rai *et* D. Lama: **A.** Flowering branches; **B.** Inside view of corolla; **C.** Androecium and pistil; **D.** T.s. of ovary showing glandular and multicellular trichomes; **E.** Pollen tetrads.

and *R. arboreum* J.E. Smith as its main associates. It usually occurs as 2<sup>nd</sup> story species. Flowering coincides with *R. arboreum*, which takes place during last week of March and persists till 2<sup>nd</sup> week of April and the fruits mature by September.

**Table 1.** Comparative account of *R. apradae* U. Rai et D. Lama with *R. arboreum* subsp *cinnamomeum* (Wallich ex G. Don) Lindley and *R. grande* Wight

Floral character	<i>Rhododendron apradae</i>	<i>Rhododendron grande</i>	<i>Rhododendron arboreum</i> subsp <i>cinnamomeum</i>
Shape of lamina	Elliptic-lanceolate; 8 – 18 × 5 – 8 cm lateral veins 18 – 21	Oblong-lanceolate to Oblanceolate; 14 – 30 × 8 – 13 cm; lateral veins 20 – 30	Oblong-lanceolate; 6 – 15 × 2 – 4.5 cm; lateral veins; 15 – 26
Indumentum on abaxial surfaces	Single layered light brown agglutination	Single layered silvery agglutination	2 layered densely compacted, fawn tomentose or loosely flaccose brown
Calyx	Indistinctly 5 – 8 lobed	Distinctly 8 lobbed, 1 – 2 mm long	Distinctly 5 lobbed, 1 – 2 mm long
Corolla	5 – 8 lobbed, 4.9 – 5.9 cm long	8 lobbed 3.5 – 6 cm long	5 lobbed, 3-5 cm long
Stamens	12 – 16; lower 1/3rd of filaments covered with hairs; anthers fused in 1 or 2 pairs.	16 filament pubescent at the base	10, filaments glabrous
Ovary	Cylindric to broadly pyramidal with a mix of glandular and fewer tomentose hair.	Oblong cylindric with tomentose hairs and few scattered glandular hairs	Oblong, rusty tomentose without glandular hairs

**Etymology:** The name of the new species is after the name of our teacher Prof. Abhaya Prasad Das, an eminent taxonomist and academician from West Bengal, India who is known for his long standing association with the floristics of Eastern Himalaya. We dedicate this new species to him. He uses the short name ‘Aprada’ in his signature and in literary works, taking one or two letters from each part of his trinomial. We used this short name as the species epithet for the new taxon.

**Note:** The discovery of *Rhododendron apradae* have increased the number to 18 species and 4 infraspecific taxa for the Darjeeling part of Eastern Himalaya or for the state of West Bengal.

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