

***CINNAMOMUM ALEXEI* KOSTERM. (LAURACEAE) - A NEW RECORD  
FOR INDIA**

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While contemplating the systematic monographic studies on the genus *Cinnamomum* of south India, the authors stumbled upon an interesting specimen from the Ponmudi hills, in Agasthyamalai Biosphere Reserve (ABR), of the Thiruvananthapuram district of Kerala. It is so peculiar by the betel smelled leaves and presence of 2-celled anthers in all three stamen whorls. These characters are very interesting since such species were not reported from India and that prompted us for a detailed study on the specimens. Perusal of literature (Gamble, 1924; Kostermans, 1983, 1986) it was identified as *C. alexei* Kosterm., a species so far known only from western Java in Indonesia (Kostermans, 1969). The identities were further cross-matched with the type specimen (Buwalda, 3618, see <http://145.18.162.53:81/c8>) housed at the National Herbarium, the Netherlands (L).

*C. alexei* was originally reported from Tjiharum, G Karang near Tjidadap at an altitude of 1000-1300 m. Besides this, there are two more gatherings of this species from Mount Buleud near Tjidadap, south of Tjibeber at an altitude of 1000 m. and Tjadasmalang near Tjidadap at Western Java in Indonesia. All these collections were housed at Herbarium Bogoriense, Bogor, Indonesia (BO). Kostermans (1969) stated that this species has been collected earlier in three times from its original habitat and his further stab to relocate it in the same locality was unsuccessful. The forest along with its habitat has been destroyed completely due to developmental activities. The discovery of this species in southern India, far away from Indonesia, is of very important because the species was believed to be vanished out from its type locality. It is also significant in phytogeographical point of view as it further shows the phytogeographical affinities to Indian flora. We observed only one tree in the present locality (Ponmudi hills) and a few saplings were successfully raised and conserving at our field gene Bank at Tropical Botanic Garden and Research Institute (TBGRI). The occurrence of this species in Kerala hence forms a new distributional record for India. Therefore, it is reported here with a detailed description, illustration and other relevant notes based on the present collection for its easy identification in the field.

*Cinnamomum alexei* Kosterm., Reinwardtia 7: 454 (1969).

Small trees, 3-5 m high; bark slimy inside, strong smell of betel leaves; terminal bud small with 2 scales, externally densely sericeous; branchlets slender, apically subquadrangular, basally subterete. Leaves opposite or sub-opposite, 4-12 × 1.5-5.0 cm, ovate to lanceolate, rounded to cuneate at base, long acuminate to caudate at apex, dark green above, glaucous beneath, entire or

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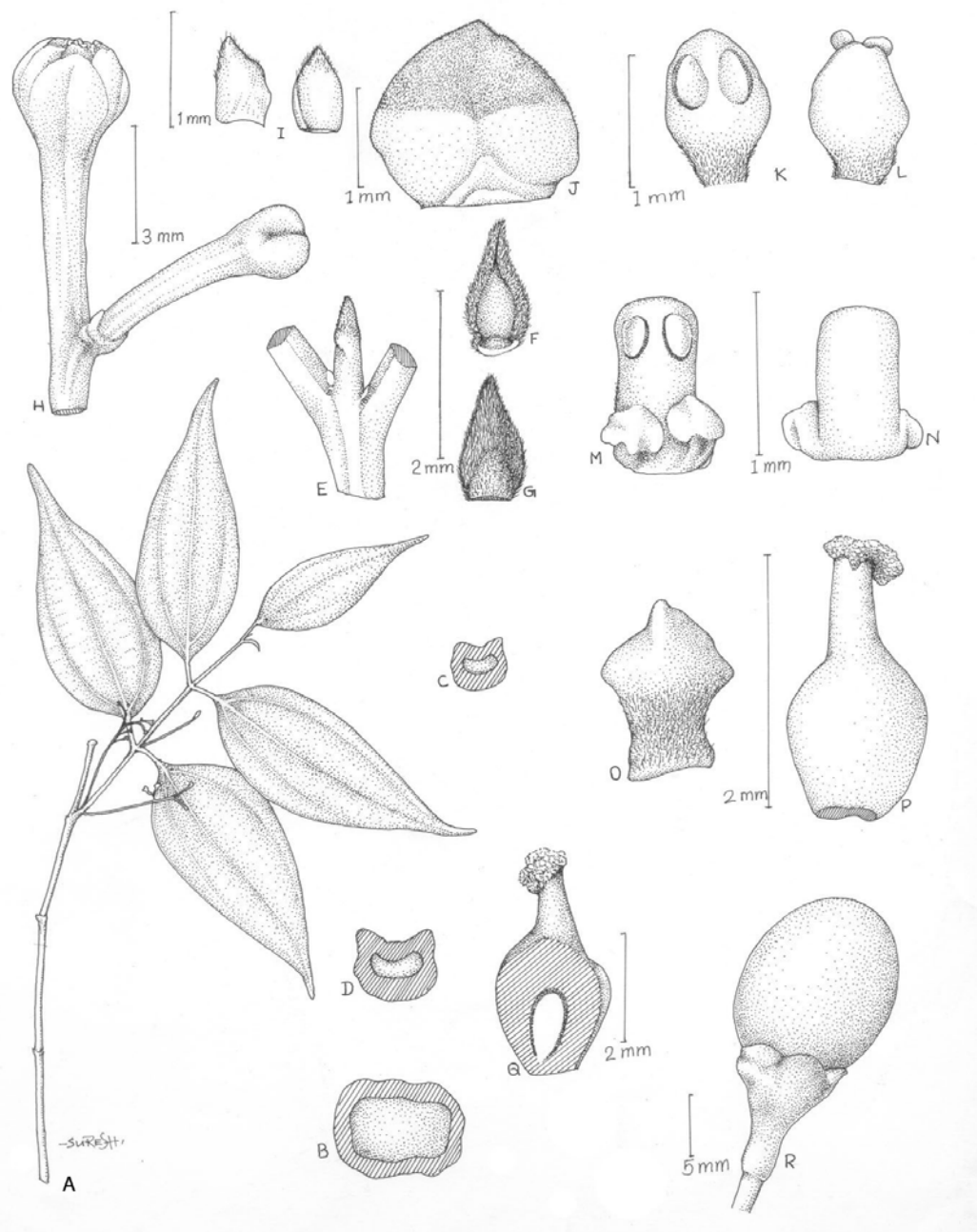


Fig. 1. A-R *Cinnamomum alexi* Kosterm. A: A twig; B: Cross Section of a branchlet; C & D: Cross section of petioles; E: Terminal bud; F & G: Terminal bud scale- abaxial & adaxial views; H: Flower & a flower bud; I: Bracts - abaxial & adaxial views; J: Outer perianth; K & L: Outer whorls of stamens I & II, abaxial & adaxial views; M & N : Stamen whorl III showing glands-abaxial & adaxial views; O: Staminodes; P: Pistil; Q: L.S. of pistil; R: Fruit.

undulate at margin, chartaceous, smooth, strong smell of betel leaves; midrib and 2 sub-basal lateral nerves reach below the acumen or rarely almost at blade tip by anastomosing the secondary lateral nerves; secondary nerves closely reticulate,  $\pm$  prominent; petioles slender, 0.7-1.5 cm long, concave above. Panicles axillary or extra-axillary, 2.5-4.5 cm long, 5-12 flowered, glabrous, with 3-5 branches; central peduncle slender, 2.0-2.5 cm, pink; pedicels 4.5 mm long, slender, gradually thickened at apex. Flowers c. 2.5-3.0 mm, dark maroon, glabrous; perianth of 6 tepals in 2 whorls of 3 each, broadly ovate, to 1.5 mm long, acute to obtuse at apex, minutely sericeous at base, dark reddish tomentose within; stamens 9, in 3 whorls of 3 each; whorls I & II with anthers elliptic to ovate, 1.0-1.5 mm long, 2-celled, more or less fleshy, introrse, longer than filaments; filaments sericeous at the very base within; whorls III extrorse; anthers oblong, 2-celled, glands sub-sessile, attached near the basal portion of the filaments; staminodes shorter than anthers, hastate, on 0.5 mm long stipes with 1 or 2 hairs on either sides. Ovary ellipsoid, 1.0-1.5 mm long, glabrous; style as long as the ovary, rather thick with small peltate stigma. Fruit ellipsoid, 15  $\times$  11 mm, cupule cup-shaped, cup shallow, 1.5-2.0  $\times$  9 mm, base conical, tepals persistent on fruit and then acute to subacute, indurate.

*Specimen examined:* India, Kerala, Thiruvananthapuram district, Ponnudi hills,  $\pm$  700 m, 29. 01. 2003, M.P. Geethakumary, 48433 (TBGT); Ponnudi hills  $\pm$  700 m, E.S. Santhoshkumar, 48492 (TBGT).

*Habitat and ecology:* This species grows as a member of the third storey in evergreen forests at altitude between 700-1000m. They are associated with *Actinodaphne malabarica*, *Antidesma menasu*, *Aporusa acuminata*, *Cinnamomum malabratrum*, *Syzygium mundagam* and *Xanthophyllum flavescens*.

*Note:* This species is characteristic by the presence of betel smelled leaves, which contain 80% saffrol as a principal component. The occurrence of this species with 2-celled anthers from Indian subcontinent is phytogeographically significant because such species has so far been reported only from Indonesia, New Guinea and the Philippines.

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