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ARGOSTEMMA KHASIANUM C.B. CLARKE (RUBIACEAE): A NEW RECORD OF A GENUS AND SPECIES OF FLOWERING PLANT FOR THE STATE OF ARUNACHAL PRADESH (INDIA) AND ITS LECTOTYPIFICATION

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ARGOSTEMMA KHASIANUM C.B. CLARKE (RUBIACEAE): A NEW RECORD OF A GENUS AND SPECIES OF FLOWERING PLANT FOR THE STATE OF ARUNACHAL PRADESH (INDIA) AND ITS LECTOTYPIFICATION

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Eastern Himalaya is well known for its biological diversity, due to its varied topography, diverse altitudinal gradient, moderate to heavy rainfall and rich forest compositions. Among the eastern Himalaya, Arunachal Pradesh has comparatively species rich flora when compared with the adjoining countries like Bangladesh, Bhutan, China, Myanmar, Nepal. These areas known as EH biodiversity hotspot (Brooks et al 2006). *Argostemma* Wall. is a genus of small perennial herbs in the family Rubiaceae belonging to the subfamily *Rubioidae* of the tribe *Argostemmatae*. This tribe is represented by two genera i.e., *Argostemma* Wall. and *Neurocalyx* Hook. (Robbrecht 1988; Sridith 1999a&b, Sridith & Puff 2000). The genus comprises 220 species (Mabberley 1997) that are distributed from Paleotropics to Africa. The type species of this genus, *A. sarmantosum* Wall., is from India. Approximately, 106 species are reported from Bhutan, India, China, Cambodia, Indonesia, Japan, Laos, Malaysia, Myanmar, Nepal, New Guinea, Philippines, Thailand and Vietnam (Sridith 1999a&b).

During a botanical exploration of the state to revise the Flora of East Kameng District, one interesting species of *Argostemma* with white coloured flowers and hairy peduncle was collected. After critical examination of the specimens and existing literature dealing with *Argostemma* of the Indian subcontinent and adjacent areas (Roxburgh 1864; Hooker 1880; Hajra et al. 1996; Pal 2013; Dash & Singh 2017) it was revealed that this genus has a new distribution record for the state. The species has been enumerated here along with its lectotypification, as more than one specimen existed among the original material.

Argostemma khasianum

C.B. Clarke in Hook.f., Fl. Brit. Ind. 3: 43. 1880.
(Images 1 & 2)

Type: India: Khasia Mts., F. De Silva et al. s.n. (Wallich Catalogue 8394B, p.p., K000031008) (K!- Lectotype designated here); 8394C-K001125382 (K!-Isolectotype designated here).

Perennial herb with dense matted roots. Stem erect, branched, up to 4cm long, internodes very short, glabrous or minutely hairy. Leaves in two pairs, pseudovericillate, slightly anisophyllous elliptic, apex acute, base attenuate, 2.0–5.5 x 1.0–2.5 cm, sparsely pubescent on both surfaces; petiole 0.5–2.0 cm long, glabrous. Stipules very small, much reduced. Inflorescence 3–6 flowered, a lax scorpioid cyme;



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Image 1. *Argostemma khasianum*. A - U.K. Tiwari 47315 (ARUN); B - habit of plant; C - close up of flower

peduncle 5.5–6.0 cm long, white, densely pubescent. Flowers 4–5-merous, actinomorphic. Calyx chartaceous, green; calyx lobes ovate, ca. 2–3 mm long, spreading, densely pubescent. Corolla star shaped, pubescent outside, tip of the corolla with 4–5 hairs, corolla lobes narrowly triangular, ca. 2mm long; corolla tube <1mm long. Stamens 4, inserted at the base of the corolla tube; filaments ca. 6–7 mm long, free; anther fused, extrose, forming a cone like; yellow with white apical appendage, basifixed, opening by longitudinal slits. Ovary pubescent; style filiform, ca. 8mm long, extrose, glabrous; stigma bilobate. Fruits globose, pubescent.

Ecology: On moist stream side in evergreen forests; ca. 1,500m.

Flowering: June–July.

Taxonomic notes: Clarke (1880) while describing this species referred to *Argostemma verticillatum*, Wallich Catalogue 8394, which was collected by 'F. De Silva & C.' from Khasi hills. Wallich (1829–1849) while listing his catalogue had three sets under the number 8394, i.e., A, B & C. Where, 8394A referred to his specimen collected

from Nepal (Nipal) and 8394B–C referred to F. De Silva's collections from Khasia Hills in India. All these specimens were previously identified as *Argostemma verticillatum*. Among these, Wallich Catalogue 8394B in parts, (K000031008, K001125380, K001125381) and 8394C in parts (K001125382) represent *Argostemma khasianum*. Of these, K000031008 is chosen as a lectotype because it contains more than one plant with both vegetative and reproductive parts, where as K001125380, K001125381 and K001125382 are chosen as isoelectotypes.

Other specimens examined: 47315 (ARUN!), 07.vii.2016, India: East Kameng, from Bana to Yashing Top, 1,065m, coll. U.K. Tiwari); Wallich Catalogue 8394B - K001125380, K001125381 (K!), Khasia Hills, F. De Silva s.n. ; Wallich Catalogue 8394C K001125382, (K!), Khasia Hills, F. De Silva s.n. ; 5472 (K!) Khasia Hills, Clarke ; K000031014; K000031012; K000760233 (K!), Khasia Hills, Hooker & Thompson s.n. .



Image 2. *Argostemma khasianum*. A: De Silva, F. . H.I.8394 B (K000031008!) - Lectotype; Photo source: <http://specimens.kew.org/herbarium/K000031008>; © copyright of the Board of Trustees of the Royal Botanic Gardens, Kew.

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