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Hoya (Apocynaceae, Asclepiadoideae) of Arunachal Pradesh, India: A new species and two new records

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ABSTRACT. We report three novelties for the genus *Hoya* R.Br. in Arunachal Pradesh based on recent fieldwork: *Hoya dawodiensis* Sahani, Rodda, Pertin & Chowlu, sp. nov., most similar to *Hoya acuminata* Benth. ex Hook.f. but mainly separated on the shape of the corona, the first Indian record of *H. yingjiangensis* J.F.Zhang et al., and a new state record of *H. nummularia* Decne. ex Hook.f. In addition, *Hoya obcordata* Hook.f. and *H. tengchongensis* J.F.Zhang et al. are synonymised with *H. nummularia*, and the former is typified.

Keywords. *Hoya dawodiensis*, *Hoya nummularia*, *Hoya yingjiangensis*, Marsdenieae, taxonomy

Introduction

The genus *Hoya* R.Br. (Apocynaceae, Asclepiadoideae), with over 500 accepted names (WFO, 2025), is the largest genus in Apocynaceae following the classification of Endress et al. (2019). It includes epiphytic or hemiepiphytic, rarely lithophytic vines and generally pendulous subshrubs distributed throughout tropical and subtropical Asia, Australasia, and the Pacific Islands. *Hoya* species are characterised by inflorescences held on generally indeterminate extra-axillary peduncles, waxy and often fragrant flowers, and spindle-shaped seeds with arillate hairs that facilitate wind dispersal.

Within India, recent accounts document as many as 37 species of *Hoya* (Jagtap & Singh, 1999; Khuraijam et al., 2018; Rodda et al., 2019; Jayanthi et al., 2020; Krishna et al., 2020; Rodda et al., 2021). The most recent taxon described from India, *Hoya wightii* Hook.f. subsp. *palniensis* K.T.Mathew, dates to 1992. Only two additions to the Indian *Hoya* flora have been published over the past ten years: *Hoya pandurata* Tsiang in 2017 (Khuraijam et al., 2017), a species also occurring in China, Thailand, Laos, and Myanmar (Rodda et al., 2019), and *Hoya oreogena* Kerr, previously known only from Thailand, Myanmar, China, and Vietnam (Rodda et al., 2021; Saikia et al., 2025).

Hoya in India tends to be limited to the Western Ghats, the Himalayan foothills, the North-East Region, and coastal areas (Rodgers & Panwar, 1988). Arunachal Pradesh lies at the intersection of the Indo-Malayan and Sino-Himalayan floristic regions, recognised as a biodiversity hotspot (Behera et al., 2002). Vijoynagar, locally known as Dawodi, is the easternmost inhabited region of India, located in the Changlang district of Arunachal Pradesh. It is bordered on three sides by Myanmar and flanked to the west by the Namdapha National Park and Tiger Reserve. As part of ongoing efforts to document the flora of the region, multiple field expeditions were conducted in 2024 by the first author. Specimens collected have been deposited in the ARUN herbarium. In preparation for this paper, specimens of *Hoya* were examined in person or via loans from A, ARUN, B, BM, BO, CAL, E, FI, G, IBSC, K, KUN, L, LAE, MO, NY, P, SING, UC, US, VN, WRSL and Z (Thiers, continuously updated).

This paper presents three significant findings: 1) the formal description of a new species, *Hoya dawodiensis* Sahani, Rodda, Pertin & Chowlu; 2) the first record of *Hoya yingjiangensis* J.F.Zhang et al., for India, a species formerly known to only occur in China and Myanmar; and 3) the reporting of a new state record of *Hoya nummularia* Decne ex. Hook.f. for Arunachal Pradesh. The synonyms of *Hoya nummularia* are also discussed. *Hoya obcordata* Hook.f. and *H. tengchongensis* J.F.Zhang, et al., are synonymised; the former is typified.

The new species

Hoya dawodiensis Sahani, Rodda, Pertin & Chowlu, **sp. nov.**
Similar to *Hoya acuminata* Benth. ex Hook.f. in its chartaceous lamina, few flowered inflorescence, deeply lobed corolla but separated in corona shape (conical with outer lobe lanceolate and tapering in *H. dawodiensis* vs almost flat topped with outer corona lobes ovate and up-curved in *H. acuminata*). – TYPE: India, Arunachal Pradesh, Changlang District, Vijoynagar (Dawodi), 1150 m, 27.1859261°N 97.0122952°E, 2 October 2024, *V.K. Sahani 169* (holotype ARUN). (Fig. 1)

Epiphytic climber, with all vegetative parts glabrous, with white latex. ***Roots*** fibrous, basal, adventitious roots not observed. ***Stems*** slender to 2 m long, twining and hanging on trees and tree branches, internodes 12.5–15 cm long, 1.5–2 mm diam., pale green to maroon, herbaceous when young, turning stiff and lignified when mature. ***Leaves:*** petiole straight, cylindrical, slightly grooved above, (7–)10–15 mm long, c. 1 mm diam., pale green; lamina coriaceous, ovate, 4.5–6.5 × 2–3 cm, base subcordate to cordate, apex sharply acuminate, caudate, margin recurved to revolute abaxially greyish green, glossy, adaxially pale green, glossy, venation pinnate, secondary veins 2–3 on each side of the midrib, barely visible; colleters at lamina base present. ***Inflorescence*** positively geotropic, single-flowered; peduncle extra-axillary, pendulous, 4.5–5.5 cm long, c. 1 mm diam., terete, dark green to maroon, glossy, glabrous; rachis indeterminate. ***Flowers*** 1(– 2) per inflorescence, pendulous, sweet-scented; ***pedicel*** 3.5–4.5 cm long, terete, light pink-purplish or white, glossy, glabrous. ***Flower buds***

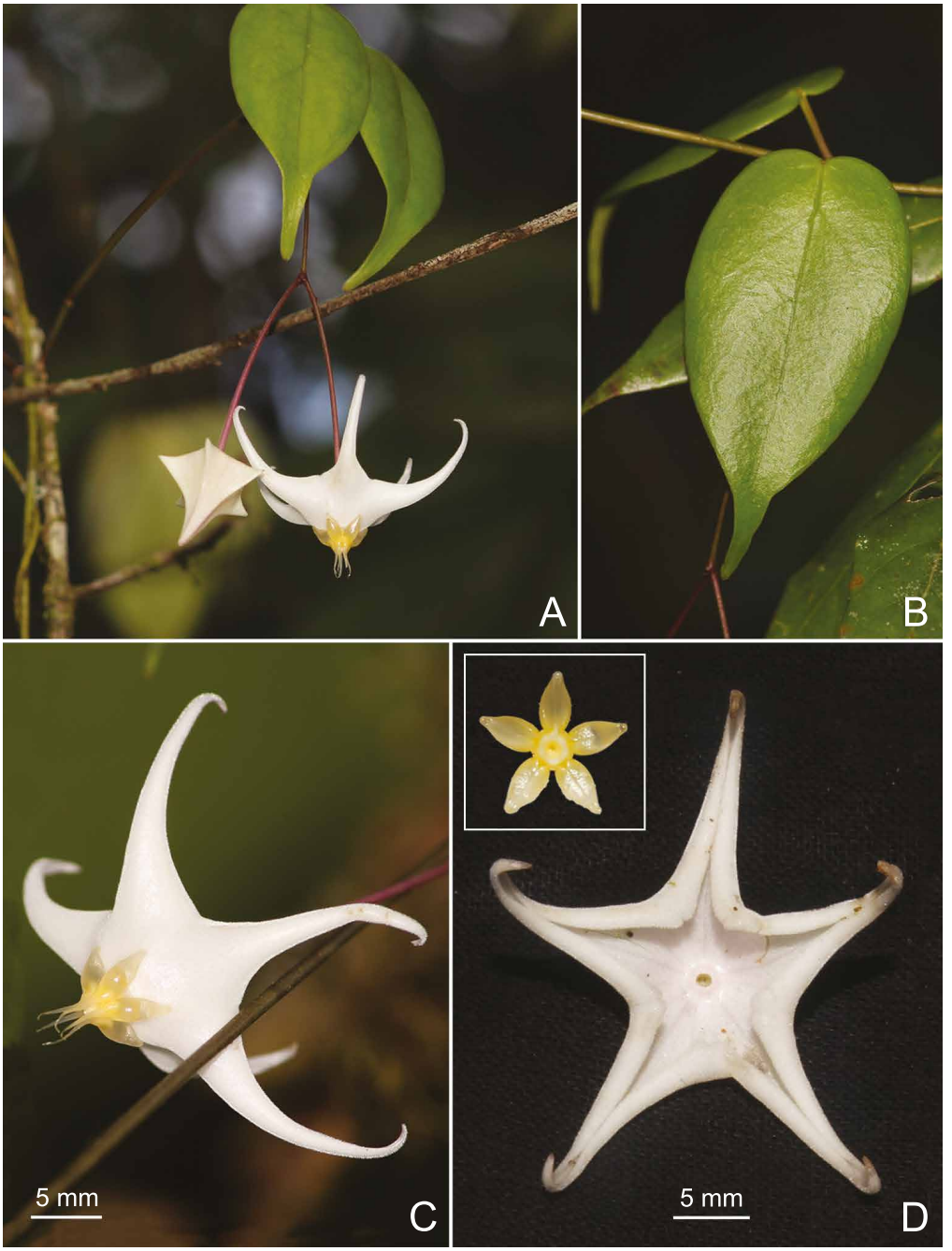

Fig. 1. *Hoya dawodiensis* Sahani, Rodda, Pertin & Chowlu. **A.** Plant with inflorescence. **B.** Leaf (from above). **C.** Flower. **D.** Corolla (from underneath). Inset: Corona, from underneath. All from *Sahani 169* (ARUN). (Photos: V.K. Sahani)

short conical-pyramidal, light green, turning white and glossy near anthesis. ***Calyx*** lobes triangular, 1.5–2 × 1–1.5 mm, apex acute to obtuse, light green to dark purplish, glabrous, margin puberulous; *basal colleter* one at each calyx lobe sinus. ***Corolla*** rotate with slightly reflexed lobes, white, c. 3 cm long diam. in natural state, up to 4 cm diam. when flattened; *tube* 7–8 mm diam., glabrous abaxially, adaxially pubescent throughout; *lobes* triangular, 15–18 × 12–14 mm, glossy-glabrous abaxially, adaxially pubescent throughout, with deeply inrolled edges in natural state, apex acuminate. ***Corona*** staminal, conical, 8–10 mm diam., 11–12 mm high; *corona lobes* lanceolate, pale yellow, slightly translucent, outer process tapering, acute, 3.5–4 mm long, inner process linear, 5.5–6.5 mm long. ***Anther appendages*** rounded, c. 1 mm long, hyaline. ***Pollinarium*** erect, c. 0.8 mm long. ***Ovary*** 2–2.5 mm long, c. 1 mm wide at base, purplish, glabrous. ***Fruit*** and ***seed*** not seen.

Distribution. Hoya dawodiensis is so far only found in a single locality at Vijoynagar (Dawodi), Arunachal Pradesh, India.

Habitat and ecology. Epiphyte in subtropical broad-leaved hill forest, with a mix of deciduous forest, both primary and secondary. *Hoya dawodiensis* was observed growing mostly on trees along streams. The most common species in the area are *Myrsine semiserrata* Wall., *Microtropis discolor* (Wall.) Wall. ex Meisn., and numerous species of *Ficus* L., *Vaccinium* L., *Raphidophora* Hassk., Lauraceae, and Fagaceae.

Phenology. This species was observed in flower from late September up to November. No fruit has been observed during this period.

Etymology. Hoya dawodiensis is named after Dawodi, the name of the type locality in Vijoynagar as used by the local community of Lisu (Yobin) people.

Provisional IUCN conservation assessment. Critically Endangered (CR B1ab(iii)) (IUCN, 2012; IUCN Standards and Petitions Committee, 2024). The type locality is not included within a protected area. The vegetation is partially degraded due to shifting or slash and burn agriculture. The main crop is cardamom. The type locality is very close to these fields and the survival of the observed natural populations is at risk. So far only three or four individuals were found during extensive fieldwork in the area.

Notes. Hoya acuminata is a widespread and variable taxon found in Bhutan (Watson, 1999), India (Meghalaya and Nagaland) (Jagtap & Singh, 1999; Kuotsu & Limasenla, 2025), China (Li et al., 1995), Myanmar (Rodda et al., 2019), and Vietnam (Nguyen et al., 2023). Its white corolla is almost indistinguishable from that of *Hoya dawodiensis*. However, the two species are easily separated by their leafy stems (very slender in *Hoya dawodiensis*, 1.5–2 mm diameter vs more than 3 mm diameter in *H. acuminata*), lamina base (subcordate to cordate in *H. dawodiensis* vs obtuse to rounded in *H. acuminata*), peduncle and pedicel length ratio (about as long in *H. dawodiensis* vs the former about half as long as the latter in *H. acuminata*), number of flowers per inflorescence (one

or occasionally two in *H. dawodiensis* vs at least two in *H. acuminata*), corona colour (pale yellow in *H. dawodiensis* vs white to pink in *H. acuminata*), and corona shape (conical with outer lobes lanceolate and tapering in *H. dawodiensis* vs almost flat topped with outer corona lobes ovate and up-curved in *H. acuminata*).

Hoya acuminata is not easily confused with other species of *Hoya* and when first published it was considered so distinct to be placed in the separate genus *Pterostelma* Wight, but later subsumed under *Hoya*. It is so far the only member of *Hoya* sect. *Pterostelma* (Wight) K.Schum. Therefore, *Hoya dawodiensis* is also not easily confused with any other species of *Hoya*.

***Hoya yingjiangensis*, a new record for India**

Hoya yingjiangensis J.F.Zhang, L.Bai, N.H.Xia & Z.Q.Peng, Phytotaxa 219(3): 284 (2015). – TYPE: China, Yunnan Province, Dehong Dai Zu Jingpozu Zizhizhou, Yingjiang Xian, 1600 m, 9 August 2014, *L.W. Wu 20140901* (holotype IBSC). (Fig. 2)

Specimen examined. INDIA: **Arunachal Pradesh:** Changlang District, Vijoynagar, 1666 m, 27.212442°N 97.01624°E, 24 Oct. 2024, *V.K. Sahani 170* (ARUN).

Notes. Hoya yingjiangensis was described from China (Zhang et al., 2015) and subsequently recorded from Myanmar (Rodda et al., 2019). The new collection from Arunachal Pradesh is an extension of the distribution area to India.

***Hoya nummularia*, a new record for Arunachal Pradesh, and new synonyms**

Hoya nummularia Decne ex. Hook.f., Fl. Brit. India 4: 55 (1883); Kanjilal et al., Fl. Assam 3: 304 (1939); Jagtap & Singh, Fasc. Fl. India 24: 110 (1999). – TYPE: India, Khasia, Moosmai, 15 October 1835, *W. Griffith 3795* (lectotype CAL, designated by Jagtap & Singh (1999); isolectotype K [K000873087]). (Fig. 3)

Hoya obcordata Hook.f., **syn. nov.**, Fl. Brit. India 4(10): 56 (1883); Jagtap & Singh, Fasc. Fl. India 24: 110 (1999). – TYPE: India, Sikkim Chakoong, November 1849, *J.D. Hooker s.n.* (lectotype K [K000873085], designated here). Remaining syntype: India, Sikkim, Yoksun, 9 October 1875, *C.B. Clarke 25155* (K [K000873083, K000873084]).

Hoya tengchongensis J.F.Zhang, N.H.Xia & Y.F.Kuang, **syn. nov.**, Nordic J. Bot. 37(5)-e02282: 2 (2019). – TYPE: China, Guangdong, Guanghzou, South China Botanical Garden, Chinese Academy of Sciences, cultivated in greenhouse (originally introduced from Longwen Bridge of Longchuan River, Tengchong County, Yunnan Province, 98°67′7″N 25°02′0″E, c. 1300 m), 20 September 2018, *J.-F. Zhang SCBG-20160702* (holotype IBSC).

Fig. 2. *Hoya yingjiangensis* J.F.Zhang et al. Freely pendulous plant part in full flower. From *Sahani 170* (ARUN). (Photos: V.K. Sahani)

Specimen examined. INDIA: **Arunachal Pradesh:** Changlang District, Vijoynagar, 27.191810°N 96.990210°E, 1230 m, 18 Oct. 2024, *V.K. Sahani 171* (ARUN).

Notes. The original description of *Hoya obcordata* stated "Possibly a form of *H. nummularia* or *serpens*, but if so a very remarkable one." The main difference between *Hoya obcordata* and *H. serpens* Hook.f. is the lamina base (rounded vs obcordate). The present collection from Arunachal Pradesh has variable lamina bases, from rounded to almost obcordate and therefore we formally consider *Hoya obcordata* a synonym of *H. nummularia*. Original collections of *Hoya obcordata* are indicated in the protologue as "Chakoong, alt. 4[000]–6000 ft., J. D. H., Yoksun, Clarke." We could trace one original collection by Hooker and two by Clarke at K. All three syntypes are sterile and equally qualify as lectotype material. The one with barcode K000873085 is here designated as the lectotype.

Zhang et al. (2019) distinguished *Hoya tengchongensis* primarily on the basis of its combination of small, suborbicular leaves and tomentose corollas, which they regarded as most similar to *Hoya serpens* Hook.f., and differing in corolla size, corona morphology, and flowering period. However, their discussion omits a critical and direct comparison with *Hoya nummularia*, a species whose morphology overlaps significantly with that of *H. tengchongensis*.

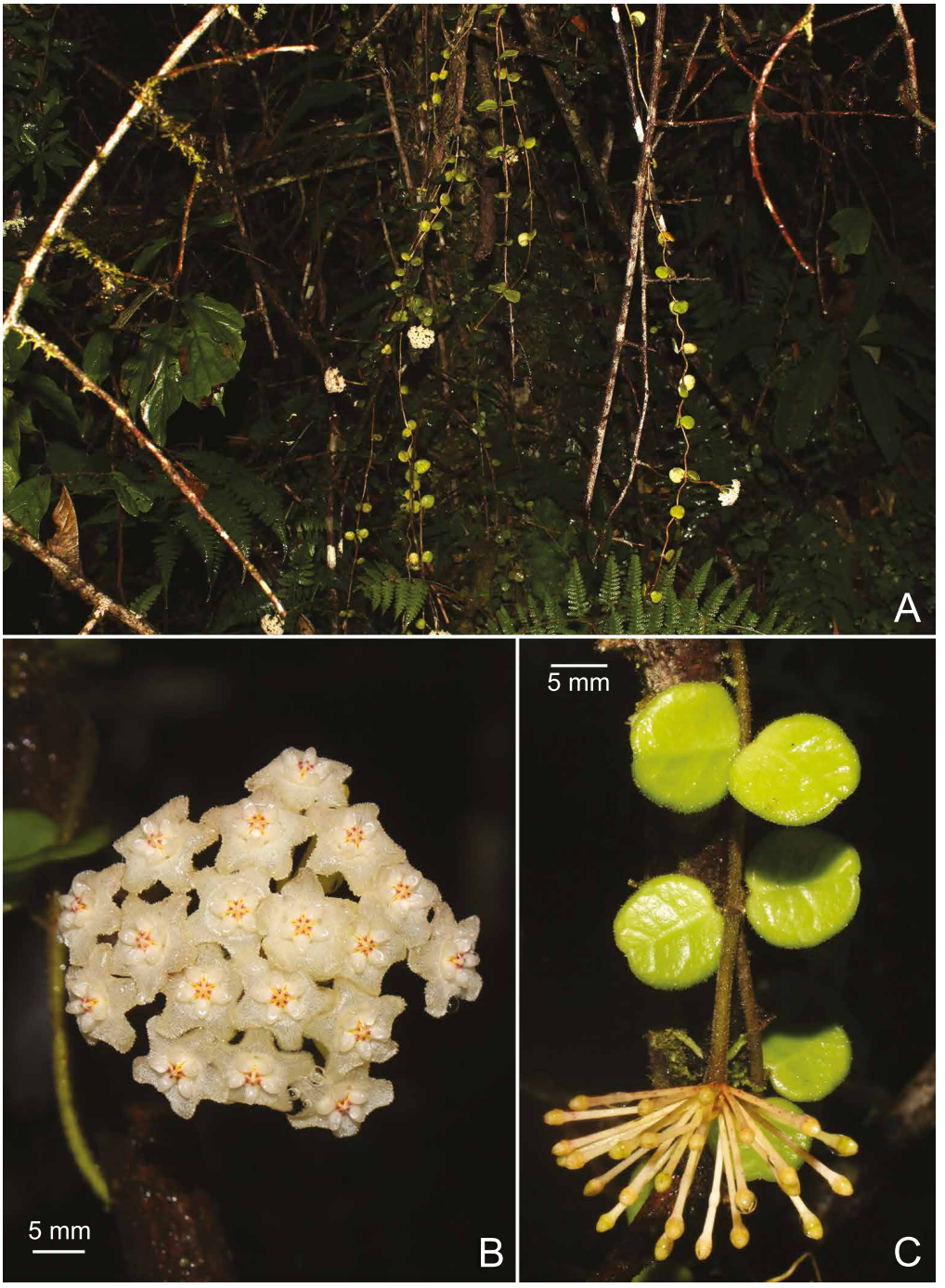

Fig. 3. *Hoya nummularia* Decne ex. Hook.f. **A.** Plant in habitat. **B.** Inflorescence. **C.** Leaves showing sub-obcordate shape and inflorescence after shedding of corollas. All from *Sahani 171* (ARUN). (Photos: V.K. Sahani)

Hoya nummularia is characterised by small, suborbicular leaves, pseudumbellate inflorescences, and corollas described as pubescent—a term that, based on historical herbarium specimens, may well include tomentose indumentum under a broader definition. Notably, the corolla of *Hoya nummularia* measures approximately 5.5 mm diameter when dry, suggesting a possible fresh diameter of about 7 mm, which corresponds closely with the dimensions reported for *H. tengchongensis*. This key character—flower size—is one of the traits used by Zhang et al. (2019) to separate *Hoya tengchongensis* from *H. serpens* (which has significantly larger flowers), but its similarity with *H. nummularia* was not discussed.

Additional morphological similarities between *Hoya tengchongensis* and *H. nummularia* include the relative length of the peduncles and pedicels; in both, the peduncles are generally longer than the pedicels. Furthermore, their phenology overlaps: *Hoya tengchongensis* flowers from September to November, while *H. nummularia* has been recorded in bloom in October, indicating no meaningful temporal separation in flowering period.

It is important to note that *Hoya tengchongensis* was described from living, cultivated material, while *H. nummularia* was described from dried herbarium specimens. This introduces two key sources of artefactual difference: (1) tissue shrinkage and distortion during drying may alter measured size and perceived texture; and (2) cultivated specimens often exhibit enhanced vigour and larger vegetative and floral parts due to favourable horticultural conditions. Such discrepancies must be carefully accounted for before publishing a new species.

In light of the strong morphological overlap, the broad and possibly overlapping definitions of corolla indumentum, similar phenology, and methodological limitations in comparing live versus herbarium material, there appears to be insufficient evidence to maintain *Hoya tengchongensis* as distinct from *H. nummularia*. We therefore propose to treat *Hoya tengchongensis* as a new synonym of *H. nummularia*.

Formerly only known from Sikkim and West Bengal in India (Jagtap & Singh, 1999), the collection from Arunachal Pradesh of *Hoya nummularia* is an extension of the distribution area.

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