Typifications and validations of taxa in the genus *Decalepis*: An economically and ethnobotanically important genus of Gymnanthereae (Apocynaceae: Periplocoideae)

Sharad Suresh Kambale,[1,2] Avinash Ramchandra Gholave,[2] Avishek Bhattacharjee[3] & Shrirang Ramchandra Yadav[2]

1 *Department of Botany, Goa University, Goa-403 206, Goa, India*

2 *Angiosperm Taxonomy Laboratory, Department of Botany, Shivaji University, Kolhapur-416 004, Maharashtra, India*

3 *Central National Herbarium, Botanical Survey of India, A.J.C.B. Indian Botanic Garden, Howrah-711 103, India*

Author for correspondence: *Sharad Suresh Kambale, ceropegias1987@gmail.com*

ORCID SSK, http://orcid.org/0000-0002-8230-7959

DOI http://dx.doi.org/10.12705/654.14

Abstract The nomenclature of the species currently treated in the genus *Decalepis* is reviewed. The names *Baeolepis nervosa*, *Decalepis hamiltonii* and *Pentanura khasiana* are lectotypified. The combinations *D. khasiana* and *D. salicifolia* are validated.

Keywords Apocynaceae; endemic; original material; syntype; validation

■ INTRODUCTION

Decalepis Wight & Arn. (Wight, 1834) comprises five species (Ionta, 2009), viz., *D. arayalpathra* (J.Joseph & V.Chandras.) Venter, *D. hamiltonii* Wight & Arn, *D. khasiana* (Kurz) Ionta ex Kambale (combination validated here), *D. nervosa* (Decne. ex Moq.) Venter, and *D. salicifolia* (Bedd. ex Hook.f.) Venter ex Kambale (combination validated here). Of these five species, *D. khasiana* is known from India (Meghalaya), Bangladesh, Laos, Myanmar and China (Guangxi, Guizhjou, Yunnan) (Ionta, 2009), while the remaining species are endemic to India. *Decalepis hamiltonii* is widespread and common in drier parts of Andhra Pradesh, Karnataka, Kerala and Tamil Nadu, while *D. arayalpathra*, *D. salicifolia* and *D. nervosa* are rare and endemic to the states of Kerala and Tamil Nadu (Jagtap & Singh, 1999).

The species of *Decalepis* are erect (*D. arayalpathra*, *D. salicifolia*) to scandent shrubs (*D. hamiltonii*, *D. khasiana*, *D. nervosa*), with milky latex, tuberous to fascicled roots (non-tuberous in *D. khasiana*), glabrous-shiny leaves (except in *D. nervosa* wherein leaves are tomentose on the lower surface), lateral to sub-terminal paniculate cymes, imbricate corolla lobes that are densely hairy within, biseriate coronas, and pairs of follicles. *Decalepis* was a monospecific genus that was originally described to include only *D. hamiltonii*. Venter & Verhoeven (1997) synonymized *Baeolepis* Decne. ex Moq. and *Janakia* J.Joseph & V.Chandras. with *Decalepis* and in 2001 also merged *Utleria* Bedd. ex. Benth. & Hook.f. into *Decalepis*. Ionta (2009) later placed *Finlaysonia khasiana* (Kurz) Venter into *Decalepis* based on the similarities in coronas and tabular nectaries.

With the exception of *Decalepis nervosa* all of the species in this genus are economically important and used by tribal groups as well as in the traditional medicine systems of India and China (Ionta, 2009; Sharma & Shahzad, 2014). Roots of *D. hamiltonii* are used for preparation of pickles, as spices and condiment (Jagtap & Singh, 1999). Amrithapala (*D. arayalpathra*), a rare and endemic plant species found in the southern forests of Western Ghat region of Kerala, is used by the local "Kani" tribe as an effective remedy for peptic ulcer, cancer-like afflictions and as a rejuvenating tonic (Pushpangadan & al., 1990).

As part of a larger study of systematic relationships among Indian Apocynaceae the authors investigated the species of *Decalepis*. After examining the protologues of the five species and subsequent publications (Venter & Verhoven, 1997; Jagtap & Singh, 1999; Ionta, 2009), we recognized the need for lectotypification of the names *Baeolepis nervosa*, *Decalepis hamiltonii* and *Pentanura khasiana* as well as that the combinations *D. khasiana* and *D. salicifolia* needed to be validated. We thus take these actions here to provide nomenclatural stability for this small group of economically and ethnobotanically important plants.

■ LECTOTYPIFICATION OF *BAEOLEPIS NERVOSA*

The genus *Brachylepis* was introduced by Wight & Arnott (Wight, 1834) to accommodate *B. nervosa*. Evidently those authors did not recognize that the generic epithet was already preoccupied by *Brachylepis* C.A.Mey, a genus of Chenopodiaceae. Thus *Brachylepis* Wight & Arn. is an illegitimate later homonym and *B. nervosa* by extension was also illegitimately published at that time. Endlicher (1841) recognized this error and attempted to correct it by introducing the new name *Cornacchinia* Endl., however that name was preoccupied by

Received: 19 Jan 2016 | accepted: 7 Apr 2016 || publication date(s): online fast track, n/a; in print and online issues, 30 Aug 2016 ||

Cornacchinia Savi, a genus of Verbenaceae, and thus *Cornacchinia* is also an illegitimate later homonym. It should be noted that Endlicher introduced only a new generic epithet for this plant and did not include any species within *Cornacchinia*. Moquin-Tandon (1849) validated the name *Baeolepis nervosa* by citing "*Brachylepis nervosa* W et Arn. = *Baeolepis nervosa* Decsn. mss" in the footnote.

Jagtap & Singh (1999: 287) cited the type of *Baeolepis nervosa* as "India: Balimjutty, Herb. Wight no. 1852, Nov. 1852 (CAL293348)". This is an error; because as such a specimen is not part of the original material. Ionta (2009) cited the type as "INDIA. Neelgherry [Nilgiri hills], location not specified. R. Wight, WC 1565 = Wall. Asclep. 107 (= Wall. Cat. 8246) (lectotype: K!; isotypes: L, P)." However that lectotypification was not effective because it was part of an unpublished dissertation.

When determining the typification of *Brachylepis nervosa* we began with the four collections cited by Wight (1834), viz., *Wight cat. n. 1565*, *Wall. Asclep. n. 107*, *Noton s.n*., and *Wight s.n*. The first two collections are at E and mounted on the same sheet but with different barcodes (E00174005 and E00174006 respectively). One sheet of *Wall. Asclep. n. 107* is housed at K. *Noton s.n*. and *Wight s.n.* were not found at K or E. The specimens *Wight cat. n. 1565* and *Wall. Asclep. n. 107* agree well with the protologue and bear Wight's annotation. Hence, *R. Wight 1565* is designated here as the lectotype following Art. 9.2 of *Melbourne Code* (McNeill & al., 2012).

Decalepis nervosa (Decne. ex Moq.) Venter in Taxon 46: 712. 1997 ≡ *Baeolepis nervosa* Decne. ex Moq. in Candolle, Prodr. 13(2): 216. 1849 ≡ *Brachylepis nervosa* Wight & Arn. in Wight, Contr. Bot. India: 63. 1834, nom. illeg. – **Lectotype (designated here):** INDIA. Tamil Nadu, Neelgherry [Nilgiri], *R. Wight 1565* (E barcode E00174005 [digital image!]).

Syntypes. – Wall. Asclep. n. 107 (E barcode E00174006 [digital image!], K barcode K000197003 [digital image!]).

Additional specimens examined. – INDIA. Tamil Nadu, Nilgiri [Neelgherry] Hills, Apr 1847, *R. Wight 23* (K barcode K000197008 [digital image!]; Peninsula Indiae Orientalis, *R. Wight 1892* (L barcode L.2704618 [digital image!]; Nilgiri Hills, *R. Wight s.n.* (P barcode P00599946 [digital image!]).

■ LECTOTYPIFICATION OF *DECALEPIS HAMILTONII*

Wight & Arnott (Wight, 1834) described *Decalepis hamiltonii* based on specimens collected from Madras (Noltie, 2005). Within the protologue (Wight, 1834: 64), Wight & Arnott cited two specimens, viz., "*Wallich Ascl. 139*" and "*Wight Cat. n. 1566*". Jagtap & Singh (1999: 297) cited the type as: "Wight, Cat. no. 1566", however, they did not cite the herbarium housing the specimen, hence their typification was not effective under Art. 9.22 of the *Melbourne Code* (McNeill & al., 2012). We here designate the representative of *Wight Cat. n. 1566* at K as the lectotype.

Decalepis hamiltonii Wight & Arn. in Wight, Contr. Bot. India: 64. 1834 – **Lectotype (designated here):** INDIA. Peninsular India, *Wight Cat. n. 1566* (K barcode K000197009 [digital image!]).

Syntype. – N. Wallich ascl. 139 (K barcode K000197002 [digital image!]).

■ LECTOTYPIFICATION OF *PENTANURA KHASIANA* AND TRANSFER TO *DECALEPIS*

Within the protologue (Kurz, 1877: 196) Kurz did not cite any specific specimen or gathering but rather only the locality "Ava hills". Ionta (2009) cited the type as "INDIA. Khasia Mountains, W.S. Kurz, commissioned from Dr. King, Mar. 1883 (lectotypes K)". That specimen cannot be the part of original material as it postdates the protologue. In addition to the aforementioned specimen there are three more specimens at K, two (*Rahman & Hossain 56*) are from Bangladesh and one (*s. coll. 357*) is from the Khasi Hills. The latter specimen (*s. coll. 357*) agrees well with the protologue, was collected before the publication of species and bears an annotation by Kurz. Hence, it is designated here as the lectotype. Ionta (2009) attempted to transfer *P. khasiana* to *Decalepis*, however the combination was not effectively published because it was included in an unpublished dissertation. We validate it here.

Decalepis khasiana (Kurz) Ionta ex Kambale, **comb. nov.** ≡ *Pentanura khasiana* Kurz, Forest Fl. Burma 2: 196. 1877 – **Lectotype (designated here):** INDIA. Khasia Mountains, *s.coll. 357* (K barcode K000545861 [digital image!]).

■ VALIDATION OF *DECALEPIS SALICIFOLIA*

Venter (in Venter & Verhoeven, 2001) transferred *Utleria salicifolia* to *Decalepis* based on floral similarities and proposed the new combination *D. salicifolia* (Bedd. ex Hook.f.) Venter. However, Venter wrongly referenced the basionym as "*Utleria salicifolia* Bedd. ex Hook.f., Gen. Pl. 2: 743. 1876" instead of "*Utleria salicifolia* Bedd. ex Hook.f., Fl. Brit. India 4 (10): 7. 1883". Though the generic name *Utleria* was published by Beddome in 1876, it included only a single unnamed species (as "Species 1"). The name *U. salicifolia* first appeared and was validly published only later in 1883. This miscitation is not a correctable error under Art. 41.8(a) of the *Melbourne Code* (McNeill & al., 2012) and thus the combination needs to be validated. Here correct reference for the basionym is given to validate the combination.

Decalepis salicifolia (Bedd. ex Hook.f.) Venter ex Kambale ≡ *Utleria salicifolia* Bedd. ex Hook.f., Fl. Brit. India 4: 7. 1883 – Lectotype (designated by Venter in Ann. Missouri Bot. Gard. 88: 564. 2001): INDIA. Madras, *R.H. Beddome 53* (K barcode K000197006 [digital image!]).

■ ACKNOWLEDGEMENTS

Authors are thankful to K.N. Gandhi (GH) for his comments on the first draft of the manuscript; Gretchen Ionta (Georgia College & State University, Milledgeville) for helpful suggestions; Lorna Glancy (E) for tracing and/or sending the necessary images; James Lendemer as well as two anonymous reviewers for comments which improved the manuscript. SSK thanks University Grants Commission (F.4-2/2006 (BSR)/BL/14-15/0489 dated 1st July, 2015) for the financial assistance. AB thanks Director, Botanical Survey of India, Kolkata for research facilities.

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