



Second-step lectotypification of three names of Araceae from India

K.M. MANUDEV¹ & SANTHOSH NAMPY²

¹Department of Botany, St. Joseph's College, Devagiri, Kozhikode District, Kerala-673 008, India. manudevkmadhavan@gmail.com

²Department of Botany, University of Calicut, Thenhipalam, Malappuram District, Kerala-673 635, India. santhoshnampy5@gmail.com

During a taxonomic revision of the genus *Arisaema* (Araceae) in India, three names, *i.e.* *Arisaema echinatum*, *A. leschenaultii* and *A. nepenthoides* were found to lack a proper typification. The erroneous lectotypifications are rectified by selecting lectotypes.

Key words: *Arisaema echinatum*, *A. leschenaultii*, *A. nepenthoides*, nomenclature, lectotype, taxonomy

Introduction

The genus *Arisaema* Martius (1831: 459) (Araceae), consisting of about 215 taxa worldwide (Govaerts *et al.* 2017), is principally Asiatic in distribution. It is represented by about 60 taxa in India, including the recently described *A. madhuanum* Nampy & Manudev in Manudev & Nampy (2014: 269) and *A. gracilentum* Bruggeman (2016: 87).

During a taxonomic revision of the genus *Arisaema* in India, authors identified problems in typification of three names *viz.* *Arisaema echinatum* (Wallich 1831: 30) Schott (1832: 17), *A. leschenaultii* Blume (1836: 93) and *A. nepenthoides* (Wallich 1824: 26) Martius ex Schott (1832: 17). The problems in typification are discussed and the erroneous earlier lectotypifications (first-step) are rectified by selecting lectotypes (second-step) conforming to the latest Code (McNeill *et al.* 2012).

Typification of names

Arum echinatum Wallich (1831: 30)

=***Arisaema echinatum*** (Wallich 1831: 30) Schott (1832: 17).

Lectotype (Step I. Chatterjee 1955: 124. Step II. designated here):—NEPAL. Sheopore?, June 1821, *Wallich 8916* (K barcode K001131834 (A–C) [digital image!] excluding D & E; isolectotype K barcode K001131831 [digital image!]), Fig. 1(A–C).

Epitype (designated here):—Plate of *Arum echinatum* Wallich (1831: t.136).

Notes:—*Arisaema echinatum* was originally described by Wallich (1831) as a species under the genus *Arum*, and was later transferred to the genus *Arisaema* by Schott (1832). Wallich cited Sheopore Mountain as the locality, without mentioning any specimens. Chatterjee (1955), Hara (1971), and Gusman & Gusman (2006) cited ‘*Wallich 8916*’ at K as the type.

There are four sheets of *Wallich 8916* collected from Nepal (written as Nipal) at K, upon which specimens of at least 5 different taxa are mounted, to which different Kew accession numbers and barcodes had been assigned. Among the four sheets, K000203000 and K000950293 have badly dried specimens of *Arisaema* mounted, and therefore their determination is uncertain. A third sheet has the annotation “*Arum echinatum* Wall., Sheopore, June 1821”, but the sheet is a mixture of different taxa. In fact, a total of 5 plants belonging to three different taxa had been mounted on this sheet. Two separate barcodes had been affixed on this sheet, K001131834 and K001131835 (see Fig. 1). The specimens are numbered as A to E for the purpose of this typification. A, B and C belongs to *A. echinatum*, D belongs to *A. vituperatum* Schott (1859: 28) as noted by Brown upon the sheet, while E is a specimen of *Typhonium* Schott (1829:72) (K001131835). Finally, also the fourth sheet is a mixture of three different taxa, *i.e.* *A. echinatum*, *A. erubescens* (Wallich 1831: 30) Schott (1832: 17), and *A. exile* Schott (1859: 26), to which separate Kew accession numbers were given, K001131831 (Wallich 8916), K001131832 (Wallich 8917) and K001131833 (Wallich 8918) respectively.

Chatterjee’s choice (1955: 124) could be considered as the first-step of the lectotypification, since the sheets are a mixture of two or more taxa. Among them, K001131834 (Fig. 1A–C) with the annotation of Wallich and echinate spadix appendix, is selected here as the lectotype (second-step), excluding the admixture. The plate of *Arum echinatum* published along with the protologue is selected here as the epitype.



FIGURE 1. Lectotype of *Arisaema echinatum* (Wall.) Schott [*Wallich Cat.* No. 8916 (K001131834) A–C, designated here] © Royal Botanic Gardens, Kew (Available online from <http://apps.kew.org/herbcat/getImage.do?imageBarcode=K001131834>).

Arum nepenthoides Wallich (1824: 26)

= ***Arisaema nepenthoides*** (Wallich 1824: 26) Martius ex Schott (1832: 17).

Lectotype (Step I. Chatterjee, 1955: 130. Step II. designated here):—NEPAL, Sheopore?, *s.d.*, *Wallich* 8919 (K barcode K001131838 (A & B) [digital image!], excluding lower leaf and spathe (C & D); isolectotypes K barcodes K001131839 [digital image!], K000499457 [digital image!] excluding leaf), Fig. 2A & B.

Notes:—*Arisaema nepenthoides* was originally described by Wallich (1824) as a species under *Arum*, which was later transferred to *Arisaema* by Martius (1831) and validated by Schott (1832). Wallich mentioned the type locality as Mount Sheopore (Nepal), but did not cite any specimens. Chatterjee (1955) examined the specimens of *A. nepenthoides* at Kew and wrote '*Wallich* 8919 (type)'. Gusman and Gusman (2006) cited "Type: EIC 8919 (lectotype, K), Nepal, N of Kathmandu, Shivapuri". In both these cases the typification could only be seen as a 'first stage', in the first case because there are more than one sheet deposited at Kew as *Wallich* 8919, and in the second case because the authors did not include the phrase 'designated here' (Art. 7.10), even if they had specified a single sheet.



FIGURE 2. Lectotype of *Arisaema nepenthoides* (Wall.) Mart. ex Schott [Wallich Cat. No. 8919, (K001131838) A & B, designated here] © Royal Botanic Gardens, Kew (Available online from <http://apps.kew.org/herbcat/getImage.do?imageBarcode=K001131838>).

We found three sheets of Wallich 8919 at K (K000499457, K001131838 & K001131839). Sheet K000499457 has a plant without an inflorescence and a spathe mounted upon it. The spathe is clearly that of *A. nepenthoides*, while the leaf belongs to some *Sinarisaema* Nakai (1950: 6). Similarly, the second sheet (K001131838) also consists of two different taxa, numbered as A to D for the purpose of this typification (see Fig. 2): A (a complete plant) and B (two inflorescences) belongs to *A. nepenthoides*, while C (a radiate leaf) and D (spathe) probably belongs to *A. erubescens*. The third sheet (K001131839) has two spathes of *A. nepenthoides*, but lacks a field ticket in Wallich's own hand writing. Nevertheless, it is annotated by Brown as the same collection of Wallich 8919. There is one more sheet at K (Wallich 8920-K001131840) bearing two spathes and two leaves, of which one spathe is marked as "8919?". The sheet K001131838 (Fig. 2A & B) is selected here as the lectotype (second step) excluding the radiate leaf and a spathe mounted at lower side (Fig. 2C & D).

***Arisaema leschenaultii* Blume (1836: 93)**

Lectotype (Step I. Nicolson, 1988: 71. Step II. designated here):—INDIA, Tamil Nadu, Nilgiris (as Nellygerry), *s.d.*, Leschenault 69 (P barcode P00390538 [digital image!]; isolectotype P barcode P00390539 [digital image!]) Available online at https://science.mnhn.fr/institution/mnhn/collection/p/item/list?full_text=Arisaema

Notes:—*Arisaema leschenaultii* was described by Blume (1836) with the citation “*In terra continenti India in montosis Nellyggerry a Leschenault reperta, fide specimen in Herbario Horti Botanici Parisiensis servatorum*”. There are two sheets in Paris herbarium (P00390538 & P00390539) collected by Leschenault from Mts. de Nellygherry (Mountains of Nilgiris). These sheets bear a field ticket (*Dracontium*, Mts. de Nellygherry No.69) probably written by the collector. There is one more sheet collected by Leschenault at L (L0537648), without any field number, but the field ticket indicates that the specimen was once part of Paris Herbarium (written ‘*Herb. Paris*’ in the upper left corner). All these sheets were used by Blume to describe *A. leschenaultii*, which is evident from the determination slip attached to them by Blume himself. Thus, they form the original material and can be considered as syntypes. In addition, there is one more sheet at P (P01751072) which bears the same field number as P00390538 and P00390539, but the plant mounted upon the sheet is *Arisaema tortuosum* (Wallich 1831: 10) Schott (1832: 17), as identified by Blume.

Nicolson (1988) cited Leschenault’s specimens at P and L as the type (“Type: Nilgiris, *Leschenault s.n.* (P) [Engler reported specimen at L]”). He attached a determination slip on the sheet at L (L0537648), tentatively referring it as the holotype of *A. leschenaultii* but with a question mark, probably based on the account of this species by Engler (1920). Thus, the choice of Nicolson (1988: 71) could be considered as the first step of the lectotypification. Among the two sheets at P, P00390538 bears a spadix and a leaf having 6 leaflets, while P00390539 four spadices. Being a perfect match of the protologue and as preferred by the original author, the sheet P00390538 is selected here as the lectotype (second-step).

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