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Typification of five names in *Pimpinella* (Apiaceae)

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Abstract: Lectotypes are designated for five names, *Pimpinella adscendens* Dalzell, *P. heyneana* (DC.) Benth., *P. tomentosa* Dalzell ex C.B.Clarke, *P. wallichiana* (Miq. ex Hohen.) Gandhi and *P. candolleana* Wight & Arn.

Keywords: *Helosciadium heyneanum, H. wallichianum,* India, Lectotype, *Pimpinella,* Western Ghats.

Introduction

The genus *Pimpinella* L. (Apiaceae) comprises nearly 150 species widely distributed throughout the Old World, especially in Asia, Europe, North West America and Africa (Mabberly, 2017). It is represented by 20 species in India (Mukherjee & Constance, 1993), distributed mainly in the Himalayas and the Western Ghats. In a taxonomic study of Apiaceae in the Western Ghats of India, we found five names, *Pimpinella adscendens* Dalzell, *P. candolleana* Wight & Arn., *P. heyneana* (DC.) Benth., *P. tomentosa* Dalzell ex C.B.Clarke and *P. wallichiana* (Miq. ex Hohen.) Gandhi, which need to be typified.

Materials and Methods

The protologues and other relevant literature were studied to resolve typification. Herbarium specimens housed at BSI, CAL and MH and digital images of specimens available in the virtual databases of B, BM, BR, BSI, C, CAL, CGE, E, G, GH, H, K, LE, M, MH, NY, OXF, P, US, and W (acronyms as per Thiers, 2024, continuously updated) were studied. For lectotype designation, Art. 9.3 of Schenzen Code (Turland *et al.*, 2018) is followed.

Typification

Pimpinella adscendens Dalzell in Hooker's J. Bot. Kew Gard. Misc. 2: 261. 1850. *Lectotype* (designated here): INDIA, *In fluminum Concanensium ripis* [banks of the Concan rivers], *s.d.*, *N.A. Dalzell s.n.* (K [K000685482 digital image!]). *Syntypes*: *S.loc.*, *s.d.*, *N.A. Dalzell s.n.* (CAL [CAL0000024881!, CAL0000031637!] K [K000685481 digital image!]). **Fig. 1**

Notes: Dalzell (1850) described this taxon based on specimens from Concan, but did not cite a type, hence, a lectotypification is necessary in accordance with Art. 9.3 of ICN (Turland *et al.*, 2018). We have found that the following materials

Fig. 1. Lectotype of *Pimpinella adscendens* Dalzell (K [K000685482]). © The Board of Trustees of the Royal Botanical Gardens, Kew (reproduced with permission).

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at K (K000685481, K000685482 digital images!) and CAL (CAL0000024881!, CAL0000031637!) collected by Dalzell agree with the protologue based on the label details and morphology of the specimens. K000685481 has an annotation "*Bombay Dalzell*" and Herb. Hookerianum stamp, and Dalzell's own annotated label as "*Pimpinella adscendens*". One of the two sheets at CAL (CAL0000031637) bears an incomplete specimen that is fragmented into pieces without a single leaf while the second sheet CAL0000024881 lacks fruiting and flowering branches along with leaves. K000685482 was the collection gifted to Kew, by Mrs. Dalzell (1878) after the demise of N.A. Dalzell. It bears four plants and has a pasted label "*Pimpinella adscendens*" by Dalzell in pencil and an annotation by C.B. Clarke as the same. An additional determinant slip is attached to the sheet by M.G. Pimenov in 2015 (pers. comm., Laura Pearce, the curator-Botanist, Science Collections, Kew). All these sheets can be considered as part of the original material. Among these, K000685482 perfectly matches with the protologue is designated here as the lectotype.

Pimpinella candolleana Wight & Arn., Prodr. Fl. Ind. Orient. 369. 1834. *Lectotype* (designated here): INDIA, *s.loc.*, *s.d.*, *Wight* 1194 (E [E00174681 digital image!]; *isolecto* NY [NY00406195 digital image!], P [P00834778 digital image!]). **Fig. 2**

Notes: Wight and Arnott (1834) described *Pimpinella candolleana* by citing "*Wight! Cat. No. 1194*", based on their collection from the mountains of the southern part of Peninsular India. Mukherjee and Constance (1993) cited a Wight specimen with a different catalogue number 1202 as the type. According to Art. 9.4, ICN, the above specimen does not belong to the original material. Noltie (2005) cited "Type details: WC 1194 Mountains in the south of the Peninsula"and mentioned the specimen at E with HWP label and number WC 1194 as the syntype.

In an updated checklist of Chinese Umbelliferae, Pimenov (2017) cited "*Peninsular India. Mountains in the south of the Peninsula, 09.1836, Wight 1173, 1194, 1202" (Lectotype K! designated here; isolectotypes E! – barcode E00174681, NY– barcode NY00406195, P–barcode P00834778)".* Pimenov cited multiple specimens and designated a lectotype deposited at K without mentioning a specific catalogue number as type. However, in K, we found one sheet of Wight 1173, and also, we couldn't trace the specimen with catalogue number 1202, and both are not part of the original material. Hence, the selected specimen was not appropriate and doesn't match the protologue, making it ineligible for consideration as a valid typification. Wight's collections are available at P, and some types are at NY, and E (Stafleu & Cowan, 1988). We traced three sheets (E00174681, NY00406195, and P00834778 digital images!). All sheets bear the original Wight herbarium label (Herb. Wight Propr.) with catalogue number "1194". The sheet P00834778 bears two fruiting and flowering branches, and a fragment of the stem with two leaves, and NY00406195 bears a flowering plant with fragmented leaves. The specimen at E (E00174681) is designated here as the lectotype which bears distinct basal leaves, and fruiting and flowering branches that match perfectly with the protologue. (Art. 9.3, Turland *et al.*, 2018).

Fig. 2. Lectotype of *Pimpinella candolleana* Wight & Arn. (E [E00174681]). © Royal Botanic Garden Edinburgh, Edinburgh (reproduced with permission).

Pimpinella heyneana (DC.) Benth. in Benth. & Hook.f., Gen. Pl. 1(3): 894. 1867. *Helosciadium heyneanum* DC., Prodr. 4: 106. 1830. *Lectotype* (designated here): SRI LANKA [Zeylon], *s.loc.*, 08.12.1797, *B. Heyne s.n.* (K [K000685520 digital image!]). *Residual syntypes:* SRI LANKA [Zeylon], Komari, 27.02.1796, *B. Heyne s.n.* (K [K000685519, K001111298 digital images!]); *S.loc., s.d., B. Heyne s.n.* (K [K001111297, K001111296 digital images!]). **Fig. 3**

Notes: Pimpinella heyneana was first published by Wallich (1829) in his catalogue, based on B. Heyne's collection. The name was invalid (Art. 6.4 of ICN, Turland *et al.*, 2018), which was later validated by Candolle (1830) as *Helosciadium heyneanum* DC. Candolle referred B. Heyne's collections cited by Wallich. Subsequently, Bentham (1867) transferred it to *Pimpinella* as *P. heyneana* (DC.) Benth. The herbarium and types of B. Heyne are deposited at B, BR, CGE, G, GH, H, K, and LE (Staflleu & Cowan, 1988), and we could locate multiple specimens associated with *Pimpinella heyneana*.

A collection at G (G00661992 digital image!) appears to be collected by B. Heyne, but do not have information about the collector or locations. So, it may or may not be part of the original material. Five collections by B. Heyne (K001111296–98, K000685519–20 digital images!) could be traced at K. K000685519 and K001111298 are from Komari, Sri Lanka (as Zeylon). K001111296 bears a field note in the left corner with a small description by Heyne. K001111297 has a label by Wallich and should be noted that an additional label "*Heyne 566*" is attached in the right corner. K000685520 has a label "*Helosciadium heyneanum*" written by Candolle

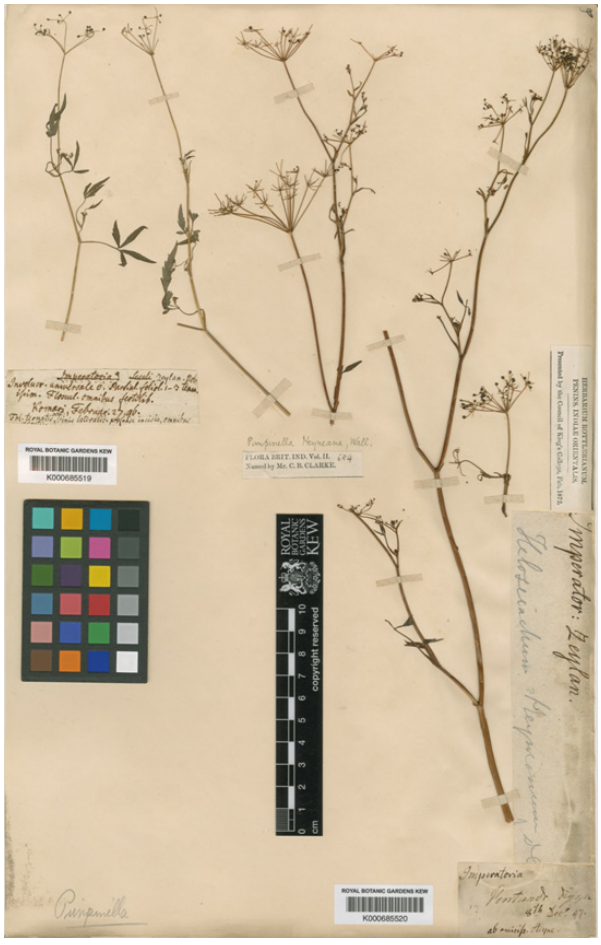

Fig. 3 Lectotype of *Pimpinella heyneana* (DC.) Gandhi (K[K000685520]). © The Board of Trustees of the Royal Botanical Gardens, Kew (reproduced with permission).

Fig. 4. Lectotype of *Pimpinella tomentosa* C.B. Clarke (K [K000685483]). © The Board of Trustees of the Royal Botanical Gardens, Kew (reproduced with permission).

in pencil (handwriting is confirmed from Burdet, 1973) which is collected from Sri Lanka (as Zeylon) and matches perfectly with the protologue, is designated here as the lectotype.

Pimpinella tomentosa Dalzell ex C.B.Clarke in Hook.f., Fl. Brit. India 2: 689. 1879. *Heracleum tomentosum* Dalzell & Gibson, Bombay Fl. 108. 1861, *non* Sm. 1806. *Lectotype* (designated here): INDIA, *s.loc.*, *s.d.*, *N.A. Dalzell s.n.* (K000685483 digital image!); *Syntypes*: *S.loc.*, *s.d.*, *N.A. Dalzell s.n.* (CAL [CAL0000031645! CAL0000031646! CAL0000031647!]). **Fig. 4**

Notes: Dalzell and Gibson (1861) described *Heracleum tomentosum,* but it is a later homonym for the earliest name published by Smith (1806) and is illegitimate (Art. 53.1, ICN, Turland *et al.*, 2018). Clarke (1879) recognized and ascribed it as *Pimpinella tomentosa,* attributing the name to Dalzell. In the protologue, he also cited "Bombay (probably in the Ghats) *Dalzell;* Concan, *Stocks*". We have traced four sheets; three from CAL (CAL0000031645! CAL0000031646! CAL0000031647!), and one from K (K000685483 digital image!). These sheets appear to have been originally collected by Dalzell, which was later gifted by Mrs. Dalzell to K in 1878, from where they were distributed to CAL. K000685483 has a complete specimen with mature fruits, distinct leaves, and flowers with an additional determinant slip by M.G. Pimenov in 2015 (from personal communication with Laura Pearce, the curator-Botanist, Science Collections, Kew). This sheet, annotated by Clarke as '*Pimpinella tomentosa*', also has Dalzell in pencil label, matches perfectly with the protologue designated here as the lectotype (Art. 9.3, Turland *et al.*, 2018).

Pimpinella wallichiana (Miq. ex Hohen.) Gandhi in Saldanha & Nicolson, FI. Hassan Distr. 417. 1976. *Helosciadium wallichianum* Miq. ex Hohen., Bot. Zeitg. 7: 775. 1849. *Lectotype* (designated here): INDIA, **Karnataka,** Mercara, *s.d.*, *R.F. Hohenacker* 633 (BM [BM000885400 digital image!]; *isolecto* C [C10008529 digital image!], H [H1035251 digital image!], M [M0172931 digital image!], P [P02543210, P02543213, P02543214 digital images!]). **Fig. 5**

Notes: Hohenacker (1849) issued a series of exsiccatae for sale with the name *Helosciadium wallichianum* Miq., based on a collection from Mercara, Karnataka. The list also included a short diagnosis, making it the valid place of publication for the species. Gandhi (1976) made a new combination as *Pimpinella wallichiana* (Miq. ex Hohen.) Gandhi. The collections by Hohenacker are distributed in various herbaria in Europe such as B, BAS, BM, FH, G, GOET, HAL, KIEL, L, M, NY, STR, UPS and W (Staflleu & Cowan, 1988). We could locate 7 sheets attached to the name deposited at BM, C, H, M, and P (BM000885400 digital image!, C10008529 digital image!, M0172931 digital image!, P02543210 digital image!, P02543213 digital image!, P02543214 digital image!, H1035251 digital image!) all are collected from Prope Mercara, Karnataka in October. All of these except BM000885400 has the printed specimen labels entitled "Pl. Ind. Or. (*Terr. Canara et confin.*) *Ed. R.F. Hohenacker 633*". Of these, the sheets C10008529, M0172931, P02543210 and P02543214 lack basal leaves and two sheets (P02543213, H1035251) possess plants with immature umbels.

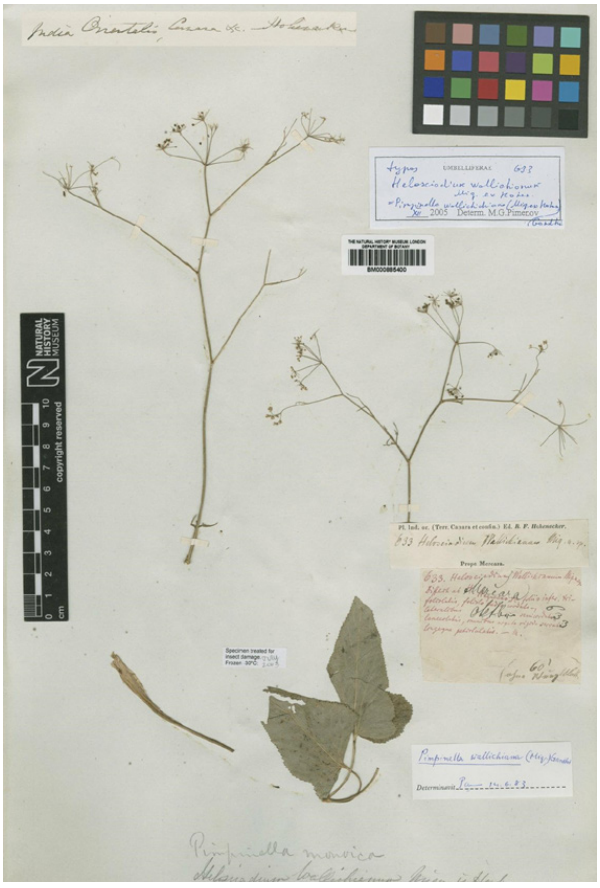

Fig. 5. Lectotype of *Pimpinella walichiana* (Miq. ex Hohen.) Gandhi (BM [BM000885400]) © The Natural History Museum, London (reproduced with permission).

The collection BM000885400 has an annotation label "*633. Differt ab H. Heyneano DC. Foliis inferioribus trifoliolatis, foliolo medio cordato-, lateralibus semi-cordato-lauceatis, Omnibus argute rigide serratis longeque petiolulatis"* in Miquel's handwriting and overlapped with the writing "*Mercara 633*" by Hohenacker. An additional label is attached to the left upper corner, annotated as "*India Orientali, Canara Hohenacker*" by Hohenacker. The specimen BM000885400 bears 2 twigs along with the basal leaves and the annotations by Hohenacker and Miquel match perfectly with the protologue, hence selected here as the lectotype (Art. 9.3 of ICN, Turland *et al.*, 2018).

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