

**NEW COMBINATIONS IN *HELIOTROPIUM*
FOR FOUR NEW WORLD SPECIES OF *TOURNEFORTIA*
(HELIOTROPIACEAE, BORAGINALES)**

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ABSTRACT

Four new combinations are provided in *Heliotropium* for New World species previously known as species of *Tournefortia*: ***Heliotropium album*** (Splitgerber ex De Vriese) Feuillet, **comb. nov.**, ***Heliotropium cuspidatum*** (Kunth) Feuillet, **comb. nov.**, ***Heliotropium melanochaeta*** (DC.) Feuillet, **comb. nov.**, and ***Heliotropium ulei*** (Vaupel) Feuillet, **comb. nov.**

Recently, with the support of morphological and molecular studies of the Boraginaceae sensu lato, Diane et al. (2002), Gottschling et al. (2001, 2004), and Hilger & Diane (2003) have provided good arguments for the resurrection of families corresponding to the subfamilies of the Boraginaceae sensu lato. In this classification (Luebert et al., 2016), the order Boraginales includes eleven families: Boraginaceae sensu stricto (ca. 90 genera / 1600–1700 species), Codonaceae (1 / 2), Coldeniaceae (1 / 1), Cordiaceae (2 / ca. 400), Ehretiaceae (7 / ca. 150), Heliotropiaceae (4 / ca. 450), Hoplostigmataceae (1 / 2), Hydrophyllaceae (12 / 240–260), Lennoaceae (2 / 4), Namaceae (4 / ca. 75), and Wellstediaceae (1 / 6). Most of those conclusions have been adopted by Stevens for the Angiosperm Phylogeny Webside version 14 (accessed 20 Nov 2019).

Resulting from the study of the Heliotropiaceae, the generic limits have been reconsidered. The genera *Euploca* Nutt. and *Myriopus* Small have been resurrected to accommodate respectively in one hand, *Schleidenia* Endl., *Hilgeria* Förther, and *Heliotropium* L. sect. *Orthostachys* R. Br. subsect. *Axillaria* I.M. Johnst. and on the other hand, *Tournefortia* L. sect. *Cyphocyema* I.M. Johnst. Furthermore, the remaining part of *Tournefortia* (sect. *Tournefortia*) has been merged in *Heliotropium*.

Only a few species of *Tournefortia* sect. *Tournefortia* have a name in *Heliotropium*. New combinations are formally made here to accommodate four *Tournefortia* species in *Heliotropium*.

1. *Heliotropium album* (Splitgerber ex De Vriese) Feuillet, **comb. nov.** Basionym: *Tournefortia alba* Splitgerber ex DeVriese, Nederl. Kruidkund. Arch. 1: 347. 1848. **TYPE: Surinam.** *Splitgerber 841* (holotype: L!; isotype: P!).

= *Tournefortia bicolor* Sw., Prodr., 40. 1788. *Tournefortia hirsutissima* f. *bicolor* (Sw.) D.L. Nash, Fl. Veracruz 18: 141. 1981. **TYPE: Jamaica.** *Swartz s.n.* (S [photo!]). Not *Heliotropium bicolor* Hochst. & Steud. = ***Euploca strigosa*** (Willd.) Diane & Hilger

Distribution—West Indies, Central and South America.

2. *Heliotropium cuspidatum* (Kunth) Feuillet, **comb. nov.** Basionym: *Tournefortia cuspidata* Kunth, in H.B.K., Nov. Gen. Sp. (quarto ed.) 3: 83. 1818. **TYPE: Ecuador.** Guayas, near Guayaquil, *Humboldt & Bonpland s.n.* (holotype: P! [photo F-039107]; isotype: P!).

= *Tournefortia obscura* A. DC., Prodr. 9: 517. 1845. **TYPE: Guyana.** Kwitaro River, *R.H. Schomburgk 1st series 571* (holotype: G–DC [microfiche!]; isotypes: BM, G, K-2! [scans!], L!).

Distribution—West Indies, Central and South America.

3. *Heliotropium melanochaeta* (DC.) Feuille, **comb. nov.** Basionym: *Tournefortia melanochaeta* DC., Prodr. 9: 520. 1845. **LECTOTYPE** (designated by Johnston 1935: 56): **French Guiana**. 1821, *Martin s.n.* (holotype: G-DC!; isotypes: GH, P!).

Distribution—Guyana and French Guiana. To be expected in Surinam.

The species name is a substantive in apposition; therefore, the gender should not be changed. The Greek "chaeta" means bristle.

4. *Heliotropium ulei* (Vaupel) Feuille, **comb. nov.** Basionym: *Tournefortia ulei* Vaupel, Notizbl. Bot. Gart. Berlin–Dahlem 6: 186. 1914. **LECTOTYPE** (here designated): **Bolivia**. Rio Madeira, Porvenir, Jan 1912, fl & fr, *Ule 9711* (K!).

= *Tournefortia miquelii* J.F. Macbr., Proc. Amer. Acad. Arts 51: 541. 1916. **TYPE: Surinam**. Surinam River near Bergendal, *Focke 1308* (holotype: L!).

Distribution—Colombia, Ecuador, Peru, Bolivia, Brazil, Venezuela, and the Guianas.

The presumed holotype of *Tournefortia ulei* Vaupel was kept at the Königl. botanischen Gartens und Museums in Berlin-Dahlem. It was destroyed during WW II and is only known by a photograph at the Field Museum in Chicago (F-1063!). I here designate the only duplicate I know of *Ule 9711*, kept at the Royal Botanic Garden, Kew, as the lectotype.

LITERATURE CITED

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