



Transfer of Madagascan species of *Gnidia* L. to *Lasiosiphon* Fresen. (Thymelaeaceae: Thymelaeoideae)



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ABSTRACT

Thirteen of the fourteen Malagasy species of *Gnidia* are transferred to *Lasiosiphon* following its re-instatement based on systematic studies of the Thymelaeoideae. New combinations are made for five of the species and the new name *Lasiosiphon leandrianus* Boatwr. & J.C.Manning is provided for *Gnidia decaryana* Leandri. The generic affinity of *Gnidia neglecta* remains uncertain.

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Introduction

Phylogenetic analyses of Thymelaeaceae subfam. Thymelaeoideae based on nuclear and plastid DNA sequences have indicated that the genus *Gnidia* L. is polyphyletic and in need of reclassification (Beaumont et al. 2009). While the majority of taxonomic changes in the subfamily, especially at the generic level, await detailed studies that are in progress (Van der Bank et al. in prep.), Beaumont et al. (2009) re-instated the genus *Lasiosiphon* Fresen. as this clade was strongly supported as monophyletic and well separated from the remaining *Gnidia* species by a clade comprising the genera *Dirca* L., *Ovidia* Raf., *Peddiea* Harv. and *Stephanodaphne* Baill. Subsequent authors have followed this treatment by providing combinations for the southern African species that as yet do not have names within *Lasiosiphon* (Manning and Boatwright 2013; Magee and Manning 2017).

Lasiosiphon, which was originally circumscribed to include only species with pentamerous flowers, was included in *Gnidia* by Peterson (1959, 1978). As currently circumscribed, however, it includes taxa with both tetramerous and pentamerous flowers but can still be distinguished morphologically from the rest of the subfamily (all of which are tetramerous) by a combination of characters, viz. flowers grouped into

involucrate heads subtended by foliaceous or petaloid bracts, pubescent hypanthia, bright yellow to orange or red hypanthium lobes, capitate stigmas, and fleshy pedicels (Beaumont et al. 2009; Manning and Boatwright 2013).

Rogers (2009), who adopted Peterson's broad circumscription of *Gnidia* for his revision of the Malagasy species, recognized 14 endemic species on the island. Beaumont et al. (2009) included seven of the 14 Malagasy species in their study, all of which were resolved within the *Lasiosiphon*-clade. This necessitates the re-evaluation of the generic position of the Malagasy species and the transfer to *Lasiosiphon* of those additional species that conform to the concept of the genus. All of the Madagascan species of *Gnidia* are readily accommodated in *Lasiosiphon* with the exception of *Gnidia neglecta* Z.S.Rogers, in which the glabrous hypanthium, few-flowered inflorescences, and the long silky hairs surrounding the gynoeceum suggest a placement other than in *Lasiosiphon*. The exact generic affinity of this rare species needs to be assessed when material becomes available.

1.1. Taxonomic treatment

The species concepts follow Rogers (2009), where complete synonymies can also be found.

Lasiosiphon Fresen., Flora 21: 602 (1838). Type: *Lasiosiphon glaucus* Fresen.

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Gnidia L. Sp. Pl. 1: 358 (1753), *pro parte* excl. type. Type: *Gnidia pinifolia* L.

Arthrosolen C.A.Mey. in Bull. Cl. Phys.-Math. Acad. Imp. Sci. Saint-Pétersbourg sér. 2(1): 356, 359 (1843), *pro parte* excl. type. Type: *Arthrosolen spicatus* (L.f.) C.A. Mey. [= *Gnidia spicata* (L.f.) Gilg.].

- Lasiosiphon ambondrombensis*** Boiteau in Bull. Trimestriel Acad. Malgache, n.s., 24: 83 (1941) [as *ambondrombense*]. *Gnidia ambondrombensis* (Boiteau) Z.S.Rogers in Ann. Miss. Bot. Gard. 96(1): 339 (2009). Type: Madagascar, Fianarantsoa, Mt. Ambondrombe, rocky summit, 1900 m, 11 Apr 1941, P. Boiteau (Hb. Jard. Bot. Tananarive) 4643 (P, holo.; MO, TAN, iso.).
- Lasiosiphon bojerianus*** Decne., Voy. Inde 4: 149 (1844). *Gnidia bojeriana* (Decne.) Gilg, Nat. Pflanzenfam. 3(6a): 228 (1894). Type: Madagascar, Antananarivo, Emirnae mtns., s.d. *W. Bojer s.n.* (P 00370315, lecto., designated by Rogers (2009)); BM, K, P[2], isolecto.).
- Lasiosiphon danguyan*** (Leandri) Boatwr. & J.C.Manning, *comb. nov.* *Gnidia danguyana* Leandri, Bull. Soc. Bot. France 77: 35 (1930). Type: Madagascar, Toamasina, Tampina forest, Dec. 1923, M. Louvel 118 [P, lecto., designated by Rogers (2009)].
- Lasiosiphon daphnifolius*** (L.f.) Boatwr. & J.C.Manning, *comb. nov.* *Gnidia daphnifolia* L.f., Suppl. Pl. 225 (1782) [as *daphnaefolia*]. *Gnidia daphnifolia* var. *glabra* L.f., Suppl. Pl. 225 (1782). *Dessenia daphnifolia* (L.f.) Raf. in Fl. Tellur. 4: 106 (1838) [as *daphnefolia*]. Type: Madagascar, Hb. Smith 688.5 [LINN-SM, lecto., designated by Rogers and Spencer (2006)].
- Lasiosiphon gilbertae*** (Drake) Boatwr. & J.C.Manning, *comb. nov.* *Gnidia gilbertae* Drake in Bull. Mens. Soc. Linn. Paris 2: 1218 (1896). Type: Madagascar, Mahajanga, 'Madounga et Antsalahanki', 1876, A. Grandidier s.n. (P, holo.).
- Lasiosiphon gnidioides*** (Baker) Boatwr. & J.C.Manning, *comb. nov.* *Dais gnidioides* Baker in J. Linn. Soc. Bot 20: 244 (1883). *Gnidia bakeri* Gilg in Nat. Pflanzenfam. 3(6a): 227 (1894), nom. Illeg. superfl. *Arthrosolen gnidioides* (Baker) Leandri in Bull. Soc. Bot. France 76: 1043 (1929). *Gnidia gnidioides* (Baker) Domke in Biblioth. Bot 27 (111): 46 (1934). Type: Madagascar, Antananarivo, 'grassy hills of the province of Imerina', s.d., *R. Baron 2061* (K, lecto., designated by Rogers (2009)); P, isolecto.).
- Lasiosiphon hibbertioides*** S.Moore in J. Bot. 58: 189 (1920). *Gnidia hibbertioides* (S.Moore) Z.S.Rogers in Ann. Miss. Bot. Gard. 96(1): 349 (2009). Type: Madagascar, s.d., *J. Thompson & J. Forbes s.n.* (BM, holo.).
- Lasiosiphon humbertii*** Leandri in Bull. Soc. Bot. France 76: 1039 (1929). *Gnidia humbertii* (Leandri) Z.S.Rogers in Ann. Miss. Bot. Gard. 96(1): 351 (2009). Type: Madagascar, Fianarantsoa, 'Isalo, mouth of Sakamarekely & Sambalinieto rivers, 500–1000 m, 19 Oct 1924, H. Humbert 2844' (P, lecto., designated by Rogers (2009)); G; isolecto.).
- Lasiosiphon leandrianus*** Boatwr. & J.C.Manning, *nom. nov.*, *pro Gnidia decaryana* Leandri in Bull. Mus. Natl. Hist. Nat. sér. 2(1): 436 (1929), non *Lasiosiphon decaryi* Leandri. Type: Madagascar, Toliara, 'Fort-Dauphin', 3 Jul 1926, *R. Decary 4332* (P [00373426], holo.; P, TAN, iso.).
- Lasiosiphon linearis*** Leandri in Bull. Soc. Bot. France 76: 1040 (1929). *Lasiosiphon decaryi* var. *linearis* (Leandri) Leandri in Bull. Mus. Natl. Hist. Nat. sér. 2(3): 154 (1931). *Gnidia linearis* (Leandri) Z.S.Rogers in Ann. Miss. Bot. Gard. 96(1): 353 (2009). Type: Madagascar, [Toliara/Fianarantsoa], savanna betw. Bemketa [Bereketa] & Malio, 15 Jun 1923, *H. Poisson 692* (P, holo.).
- Lasiosiphon occidentalis*** Leandri in Notul. Syst. (Paris) 13: 47 (1947). *Gnidia occidentalis* (Leandri) Z.S.Rogers in Ann. Miss. Bot. Gard. 96(1): 358 (2009). Type: Madagascar, Mahajanga, Kamakama forest, Ankara plateau, 14 Jul 1901, *H. Perrier de la Bâthie 1276* [P, lecto., designated by Rogers (2009)].
- Lasiosiphon perrieri*** Leandri in Notul. Syst. (Paris) 13: 49 (1947). *Gnidia perrieri* (Leandri) Z.S.Rogers in Ann. Miss. Bot. Gard. 96(1): 360 (2009). Type: Madagascar, Fianarantsoa, Andringitra Massif (Iratsy), valley of Riambava & Antsifotra, 2000–2500 m, 27 Nov 1924, *H. Humbert 3827* (P, lecto., designated by Rogers (2009)); BM, G [2], K, MO, TAN, US, isolecto.).
- Lasiosiphon razakamalalanus*** (Z.S.Rogers) Boatwr. & J.C.Manning, *comb. nov.* *Gnidia razakamalalana* Z.S.Rogers in Adansonia sér. 3(28): 156 (2006). Type: Madagascar, Toliara, Fivondronona Fort-Dauphin, Ivohibe Forest, 112 m, 29 Nov 2005, *R. Razakamalala, E. Ramisy and B. Mara 2670* (MO, holo.; K, P, TAN, iso.).

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