

Two new genera of Apocynaceae in Laos

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ABSTRACT

Examination of unidentified Apocynaceae specimens at QBG and SING lead to the discovery of one specimen of *Meladerma deciduum* and two specimens of *Harmandiella cordifolia* from Laos. *Harmandiella* was earlier considered endemic to Thailand and Vietnam while *Meladerma* was earlier reported from Thailand and Peninsular Malaysia. *Harmandiella cordifolia* and *Meladerma deciduum* are typified.

KEYWORDS: Asclepiadaceae, Asclepiadoideae, *Finlaysonia*, *Harmandiella*, Marsdenieae, *Meladerma*, Periplocoideae, typification.

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INTRODUCTION

Harmandiella Costantin is a monotypic genus of Apocynaceae-Asclepiadoideae-Marsdenieae. It is generally considered to be a synonym of *Marsdenia* R.Br. (Omlor, 1998; Endress *et al.*, 2019). A molecular phylogeny of *Marsdenia s.l.* with a comprehensive sampling of Asian taxa is not yet available though preliminary data (Liede-Schumann *et al.* in prep.) suggest that the heterogeneous *Marsdenia* will be separated into numerous smaller genera and it is likely that *Harmandiella* will be resurrected. A phylogeny of the Brazilian species of *Marsdenia* was recently published (do Espírito Santo *et al.*, 2019) and all of the Brazilian species have now been placed in the genus *Ruehssia* K.Karst. Whilst acknowledging the lack of molecular evidence, Thaithong *et al.* (2018) treated *Harmandiella* as a separate genus and their view is also accepted here.

Meladerma Kerr is a small genus of Apocynaceae-Periplocoideae with two species occurring in Thailand (*Meladerma deciduum* Kerr and *M. puberulum* Kerr) and one in Peninsular Malaysia (*Meladerma insularum* (King & Gamble) Kerr). The genus has also been considered to be a synonym of *Finlaysonia* Wall. (Sidney, 2012; Endress *et al.*, 2019) but no comprehensive molecular phylogeny of Periplocoideae has been published and, apart from *Meladerma insularum* (*F. insularum* (King & Gamble) Venter), combinations

for the other two species of *Meladerma* in *Finlaysonia* have not yet been made. In the phylogeny published by Ionta & Judd (2007), *Meladerma insularum* (as *Finlaysonia insularum*) did not form a monophyletic clade with the other *Finlaysonia* species sampled (*Finlaysonia lanuginosa* (Ridl.) Venter). However, the type of *Finlaysonia*, *F. obovata* Wall., was not included in that analysis and the results are therefore inconclusive. A preliminary phylogeny of Asian Periplocoideae (Rodda *et al.* in prep.) supports the monophyly of *Meladerma*. The genus is therefore accepted here.

Both *Harmandiella* and *Meladerma* are missing from the plant inventories of Laos (Jin *et al.*, 2016; Newman *et al.*, 2007a, b; Park *et al.*, 2018; Prossperi *et al.*, 2017) and are here published as new records for the country.

For typification of the two names, specimens have been examined in person at BK, BKF, BM, K, P and SING and online at JSTOR Global Plants (<https://plants.jstor.org/>, accessed on 15 October 2019). Protologues and type citations have been verified on Biodiversity Heritage Library (<https://www.biodiversitylibrary.org/>, accessed on 15 October 2019), JSTOR (<https://www.jstor.org/>, accessed on 15 October 2019) or at the Singapore Botanic Gardens library.

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TAXONOMY

Harmandiella cordifolia Costantin in Lecomte *et al.*, Fl. Indo-Chine 4: 89. 1912.—*Marsdenia harmandiella* Omlor, Gen. Revis. Marsdenieae 118. 1998, non *Marsdenia cordifolia* Choux (1914). Type: Vietnam?, 187?, *Harmand s.n.* (lectotype **P** [P032561], first step designated by Omlor (1998), second step designated here; isolectotype **P** [P032564]).

Notes.—*Harmandiella cordifolia* was described as the only species in the new genus *Harmandiella* and the only material cited was a Harmand specimen from Indo China “Indo-Chine: sans localité (Harmand)”. *Harmand s.n.* (**P**) was referred to incorrectly as a ‘holotype’ by Omlor (1998), correctable to an effective lectotypification. However, there are two specimens of *Harmandiella cordifolia* at **P**. They are both complete and well preserved and the one with barcode [P032561] is here designated as lectotype.

On JSTOR Global Plants (plants.jstor.org) the two duplicates are indicated as from Vietnam, however this cannot be confirmed. In Thaihong *et al.* (2018) *Harmandiella cordifolia* is indicated as from Indochina and at the same time published as a new record for Thailand. It may never be possible to verify where Harmand collected the type specimen of *Harmandiella cordifolia* but it is now clear that the species occurs both in Thailand and in Laos.

Specimens examined.—Laos, Luang Prabang, Pha Tad Ke botanic garden hill, 300–350 m, 9 Oct. 2014, *Puglisi et al.* LAOS277 (**E**, **NUoL**, **SING**); *ibid.*, 21 July 2014, *Maknoi et al.* L3-280 (**QBG** acc. no. 86276).

Meladerma deciduum Kerr, Bull. Misc. Inform. Kew 1938(10): 447. 1938. Type: Thailand, Chiang Mai, Ban Pa Sak, 540 m, 22 Jan. 1913, *Kerr 2834* (lectotype **BM** [BM000547024], designated here; isolectotypes **K** [K000910009 & K000910010]).

Notes.—*Meladerma deciduum* was described based on *Kerr 2834* without clearly stating where the specimen was deposited and therefore strictly applying Art 9.1 & 9.3 of the ICN (Turland *et al.*, 2018) a lectotype must be designated. Kerr deposited specimens at **BK** and **K**, and his private herbarium was given to **BM** in 1942 (Van Steenis-Kruseman, 1950). Duplicates of *Kerr 2834* were found at **BM** and **K**. The **BM** duplicate is complete and well

preserved and also bears pencilled sketches of flower parts and measurements in Kerr’s hand and is therefore selected as lectotype. *Meladerma deciduum* is illustrated in Thaihong *et al.* (2018: 19).

Specimen examined.—Laos, Luang Prabang, Pha Tad Ke Botanical Garden, 26 Jan. 2014, *Srisanga et al.* L1-135 (**QBG** acc. no. 78857).

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REFERENCES

- do Espírito Santo, F.S., Rapini, A., Ribeiro, P.L., Liede-Schumann, S., Goyder, D.J. & Fontella-Pereira, J. (2019). Phylogeny of the tribe Marsdenieae (Apocynaceae), reinstatement of the genus *Ruehssia* and the taxonomic treatment of the species from Brazil. *Kew Bulletin* 74: 1–79.
- Endress, M.E., Meve, U., Middleton, D.J. & Liede-Schumann, S. (2019). Apocynaceae. In: J.W. Kadereit, & V. Bittrich (eds) *The Families and Genera of Vascular Plants* 15: 207–411. Springer International Publishing, Basel.
- Ionta, G.M. & Judd, W.S. (2007). Phylogenetic relationships in Periplocoideae (Apocynaceae *s.l.*) and insights into the origin of pollinia. *Annals of the Missouri Botanical Garden* 94: 360–375.
- Jin, H.-Y., Ahn, T.-H., Lee, H.-J., Song, J.H., Lee, C.H., Kim, Y.J., Yoon, J.W. & Chang, K.S. (2016). A checklist of plants in Lao PDR. Pocheon-si: Korea National Arboretum of the Korea Forest Service.

- Newman, M.F., Ketphanh, S., Svengsuksa, B., Thomas, P., Lamxay, V. & Armstrong, K. (2007a). A checklist of the vascular plants of Lao PDR. Royal Botanic Garden Edinburgh, Scotland, UK, 375 pp.
- Newman, M.F., Thomas, P., Lanorsavanh, S., Ketphanh, S., Svengsuksa, B. & Lamxay, V. (2007b). New records of angiosperms and pteridophytes in the flora of Laos. *Edinburgh Journal of Botany* 64(2): 225–251.
- Omlor, R. (1998). *Generische Revision der Marsdenieae (Asclepiadaceae)*. Aachen: Skaker Verlag.
- Park, J.H., Bang, M., Cheng, H.C., Jin, H.Y., Ahn, T.H., Bounithiphonh, C., Phongoudome, C. & Kang, H.S. (2018). Floristic inventory of vascular plant in Nam Ha National Biodiversity Conservation Area, Lao PDR. *Journal of Asia-Pacific Biodiversity* 11(2): 300–304.
- Prosperi, J., Lamxay, V., Halle, F. & Bompard, J.-M. (2017). New records in the flora checklist of Laos, resulting from a survey of Phou Hin Poun National Biodiversity Conservation Area. *Edinburgh Journal of Botany* 75: 91–106.
- Sidney, N.C. (2012). A taxonomic revision of *Finlaysonia* and *Streptocaulon* (Periplocoideae; Apocynaceae). M.Sc. Thesis, Dept. Plant Sciences, Univ. Free State Bloemfontein, Bloemfontein, South Africa.
- Thaithong, O., Kidyoo, A. & Kidyoo, M. (2018). *Handbook of asclepiads of Thailand*. Amarin Printing and Publishing, Bangkok, 326 pp.
- Turland, N.J., Wiersema, J.H., Barrie, F.R., Greuter, W., Hawksworth, D.L., Herendeen, P.S., Knapp, S., Kusber, W.-H., Li, D.-Z., Marhold, K., May, T.W., McNeill, J., Monro, A.M., Prado, J., Price, M.J. & Smith, G.F. (eds) (2018). *International Code of Nomenclature for algae, fungi, and plants (Shenzhen Code) adopted by the Nineteenth International Botanical Congress Shenzhen, China, July 2017*. *Regnum Vegetabile* 159. Glashütten: Koeltz Botanical Books.
- Van Steenis-Kruseman, M.J. (1950). *Malaysian plant collectors and collections: being a cyclopaedia of botanical exploration in Malaysia and a guide to the concerned literature up to the year 1950*. In: van Steenis, C.G.G.J. (ed.) *Flora Malesiana*, ser. 1, Seed Plants, vol. 1, pp. 1–606. Jakarta: Noordhoff-Kolff.