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New combinations in *Hoya* for the species of *Clemensiella (Marsdenieae, Apocynaceae)*

Abstract

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Clemensiella, with two species in the Philippines, Sumatra and Sarawak, respectively, has traditionally been considered as one of the distinct genera of the tribe *Marsdenieae,* based on morphological evidence. However, new molecular phylogenetic evidence has demonstrated that *Clemensiella* is nested within *Hoya* as sister group to species of *H.* sect. *Eriostemma*. Therefore we propose to merge *Clemensiella* with *Hoya* and provide the new combinations *H. mariae* and *H. omlori* for its two species.

Additional key words: *Hoya* sect. *Eriostemma,* phylogenetic relationships, systematics, taxonomy

Schlechter (1915) described the new genus *Clemensiella* consisting of the single species *C. mariae* (Schltr.) Schltr. (Fig. 1A–B), endemic to the Philippines. Today, we know that *Clemensiella* is not only restricted to the Philippines but also occurs in Sumatra and Sarawak (Omlor 1998; Meve & al. 2009). However, collections of specimens from the latter regions were shown to belong to a second species of *Clemensiella, C. omlori* Livsh. & Meve (Fig. 1C) named after R. Omlor (Meve & al. 2009), who first recognised this taxon as distinct from *C. mariae*. This species is morphologically very similar to *C. mariae* but the shape of the corolla, which is typically campanulate in *C. mariae* and salvershaped in *C. omlori,* as well as characters of the gynostegium clearly separate the two species from each other (Meve & al. 2009). Recently, *C. omlori* has also been collected in Perak, W Malaysia (S. Somadee & T. Nyhuus, pers. comm.).

Schlechter (1915) placed *Clemensiella* in the tribe *Marsdenieae* next to *Telosma* without giving any explanation for his assessment. Omlor (1998) in his monograph of the tribe, rejected Schlechter's view and instead pointed out a more isolated position for *Clemensiella* in the *Marsdenieae,* while at the same time discussing the morphological similarity between the pollinia of *Clemensiella* and *Marsdenia* and pointing out the similarity in the epiphytic habit of both *Clemensiella* and *Hoya*. Meve & al. (2009) hypothesised that characters such as adventitious roots, persistent inflorescences and valvate corolla lobes as well as preliminary molecular synapomorphies could support a close relationship between *Clemensiella* and a group including *Hoya* R. Br. and *Dischidia* R. Br. In fact, because of this close morphological evidence, specimens of *C. mariae* have occasionally been described as belonging to the genus *Hoya* (Kloppenburg & Siar 2006).

More recently, a molecular phylogenetic study based on 77 species of *Hoya,* four of *Dischidia* and including one accession of *Clemensiella mariae,* showed that *Clemensiella* is nested inside *Hoya,* clearly separate from *Dischidia,* as the sister group of the species of *Hoya* that are generally attributed to *H.* sect. *Eriostemma* Schltr. (Wanntorp & al. 2011). While discussing characters in common to *Clemensiella* and *Hoya*/*Dischidia,* Meve &

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Fig. 1. A–B: *Hoya mariae* (≡ *Clemensiella mariae)*; C: *H. omlori* (≡ *C. omlori)*; D: *H. ciliata* of *H.* sect. *Eriostemma.* – Photographs all taken from plants in cultivation: A+B by U. Meve (Philippines, s. loc., *P. Gozon s.n.,* UBT), C by S. Somadee (Malaysia, Perak, *Somadee s.n.*), D by A. Boström (ex hort., *Boström s.n.*).

al. (2009) also pointed out characters of *Clemensiella* that are not typical for *Hoya/Dischidia* but rather place *Clemensiella* closer to the other genera of *Marsdenieae.* Among these characters are flowers having fleshy corollas with valvate lobes and clavate pollinia without pellucid margins attached to small and narrowly oblong corpuscles by long, ribbon-shaped caudicles. Interestingly, these characters are also found in species belonging to the peculiar *H.* sect. *Eriostemma* (Fig. 1D), which has been even proposed as a genus on its own (Kloppenburg & Gilding 2001), or as possible sister group to *Hoya* or the remainder of it (Wanntorp & al. 2006 a, b). Presently, there is no clear evidence supporting this sister relationship and *H.* sect. *Eriostemma* is therefore considered as part of *Hoya*. Recently, Wanntorp & al. (2006b) and Wanntorp (2007) provided clear molecular and morphological evidence supporting a nested position of the genera *Micholitzia* N. E. Br., *Absolmsia* Kuntze and *Madangia* P. I. Forst. & al. in the *Marsdenieae* and *Clemensiella* is therefore yet another example of genera that were originally described as monotypic and that cannot be kept separate from *Hoya,* if this genus has to be monophyletic.

Hoya R. Br., Prodr.: 459. 1810. – Type: *Hoya carnosa* (L. f.) R. Br.

= *Clemensiella* Schltr. in Repert. Spec. Nov. Regni Veg. 13: 566. Sep 1915 ≡ *Clemensia* Schltr. in Repert. Spec. Nov. Regni Veg. 13: 542. Jun 1915, non Merrill 1908. – Type: *Clemensiella mariae* (Schltr.) Schltr.

Hoya mariae (Schltr.) L. Wanntorp & Meve, **comb. nov.** ≡ *Clemensiella mariae* (Schltr.) Schltr. in Repert. Spec. Nov. Regni Veg. 13: 566. Sep 1915 ≡ *Clemensia mariae* Schltr. in Repert. Spec. Nov. Regni Veg. 13: 543. Jun 1915. – Lectotype (designated by Meve & al. 2009: 450):

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Philippines, Laguna, Luzon, San Antonio, 9.–10.1912, *Ramos 15962* (P; isolectotypes: BM, K).

= *Hoya viracensis* Kloppenb. & Siar in Fraterna 19(4): 5. 2006. – Holotype: Philippines, Catanduanes, Virac, Brgy. Kalatagan, secondary forest, soil clay loam, 2.12.1991, *Barbon, Garcia & Alvarez PPI 5658* (PNH; isotypes: BISH, BRIT!, CAHUP).

[– *Clemensiella dischidioides* Elmer in Merrill, Enum. Philipp. Fl. Pl. 3: 356. 1923 & in Leafl. Philipp. Bot. 10: 3549. 1938, nom. nud.]

Hoya omlori (Livsh. & Meve) L. Wanntorp & Meve, **comb. nov.**

≡ *Clemensiella omlori* Livsh. & Meve in Edinburgh J. Bot. 66: 454. 2009. – Holotype: Indonesia, Aceh, Gunung Leuser Reserve, Camp Simpang and vicinity, 3–5 km upstream Lau [stream] Ketambe, ca. 35 km NW of Kutatjane, 400–600 m, 19.8.1972, *deWilde & deWilde-Duyfjes 14377* (L; isotype: K).

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