



## An updated classification for Apocynaceae

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### Abstract

An updated suprageneric classification is provided for Apocynaceae to bring the family into better agreement with recent morphological and molecular, mainly phylogenetic-based, results. A total of 366 genera are recognized and placed within five subfamilies, 25 tribes and 49 subtribes. In Apocynaceae s. str., one new tribe (Amsonieae) and two new subtribes (Tonduziinae and Vincinae) are described in Rauvolfioideae, and one new tribe (Rhabdadenieae) and nine new subtribes (Amphineuriinae, Beaumontiinae, Chonemorphinae, Galactophorinae, Papuechitinae, Peltastinae, Pentalinoninae, Prestoniinae and Urceolinae) are described or validated in Apocynoideae. Within Asclepiadoideae, one new tribe (Eustegieae) and three subtribes (Diplolepinae, Pentacyphinae and Tassadiinae) are described or validated.

### Introduction

Robert Brown (1810) chose to split the asclepiads out of Jussieu's (1789) Apocineae, and recognized them as a separate family, Asclepiadaceae, for practical reasons. For nearly 200 years thereafter most traditional treatments recognized the two separate but closely related families, although it has long been known that for a number of morphological characters, more highly evolved taxa of Apocynaceae are more similar to Asclepiadaceae than they are to the less complex members of their own family. From the beginning, application of molecular phylogenetics in the group indicated that traditional Asclepiadaceae is not monophyletic because the included taxa of subfamily Periplocoideae came out as sister to those of Apocynoideae, rather than with the other Asclepiadaceae (Sennblad & Bremer 1996), and thus that Asclepiadaceae should be included in Apocynaceae, which, in turn, renders Apocynoideae paraphyletic. And in both Endress *et al.* (1996) and in Sennblad & Bremer (1996), Rauvolfioideae were found to be strongly paraphyletic, with all other subfamilies nested therein. In addition, these first two molecular-based studies brought to light some hitherto unexpected inconsistencies with the then-current classification of Leeuwenberg (1994) at the tribal level. For example, within Apocynaceae-Rauvolfioideae, taxa with fleshy, syncarpous berries had traditionally been considered to be “primitive” and were thus placed together at the base of classifications as the tribe Carisseae, whereas taxa with dry, dehiscent fruits were considered as “advanced”. However, in both Endress *et al.* (1996) and Sennblad & Bremer (1996), the taxon that came out at the base of the family was *Alstonia*, a genus with dry, dehiscent fruits. Furthermore, both Carisseae and Plumerieae (Rauvolfioideae) were found to be grossly paraphyletic, and there were indications that some tribes in Apocynoideae were also likely not monophyletic. This was corroborated for Leeuwenberg's (1994) Wrightieae in a study on the tribe by Sennblad *et al.* (1998), in which the included genera were dispersed among four clades; furthermore, their results hinted that essentially all other tribes of Apocynoideae, as circumscribed by Leeuwenberg (1994) were also paraphyletic, though the sample size was too small to address this question with confidence.

In a first step at bringing the taxonomy of the group into better agreement with the available morphological and molecular evidence, Endress & Bruyns (2000) published a classification, reuniting the two families and accepting five subfamilies: the two traditionally recognized in Apocynaceae (Rauvolfioideae and Apocynoideae) and the three from Asclepiadaceae (Periplocoideae, Secamonoideae and Asclepiadoideae), respectively. The two smaller subfamilies, Periplocoideae and Secamonoideae, were not further divided. Among the three larger subfamilies, 17 tribes were recognized: nine in Rauvolfioideae, five in Apocynoideae and three in Asclepiadoideae. Subtribes were

364. *Schubertia* Mart., Nov. Gen. Sp. Pl. 1: 55 (1824), *nom. cons.*, non *Schubertia* Mirb. (1812), *nom. rej.*, Taxodiaceae
365. *Stelmagonum* Baill., Hist. Pl. 10: 287 (1890).
366. *Tylodontia* Griseb., Cat. Pl. Cub.: 175 (1866).

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