
Rhodocalyx (Apocynaceae), a New Synonym of *Prestonia*

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ABSTRACT. The genus *Rhodocalyx* is reduced to synonymy under *Prestonia*. A new combination, *P. erecta*, is proposed here.

Prestonia R. Brown (Apocynaceae, Apocynaceae) is a neotropical genus of about 55 species. These lianas (rarely suffrutescent herbs) are characterized by having the corolla tube usually with a corona within (sometimes the free corona lobes are replaced by callus ridges), with a conspicuous annular corona (entire to five-lobed), clear latex, sepals with a single episepalous colleter (sometimes deeply lacerated), and truncate seeds (Woodson, 1936a; Morales, 1997a, 1997b). The genus was divided into four sections by Woodson (1936a), according to the presence or absence of the free corona lobes in the corolla tube, shape and length of the sepals, and the nature of the corolla indument. As explained by Woodson (1936a) and Morales (1997a), section *Tomentosae*, characterized by pubescent corollas, is taxonomically the most difficult section in the genus.

During studies toward a clarification of some nomenclatural problems in *Prestonia* (Morales, 1997a), it became evident that a re-evaluation of the characters traditionally used to delimit the genus, as well as an analysis of its relationships with some closely related genera, was needed in order to make the generic delimitation of the genus more natural and consistent. Recently, Morales (1997b) evaluated *Prestonia* sect. *Coalitae* and transferred three species to *Echites*, because they lacked both an annular corona and corona lobes within the corolla, the principal characters of *Prestonia*, thus maintaining both genera as natural groups.

According to the concepts of Woodson (1933, 1936a) and Pichón (1950), *Prestonia* is easily distinguished by having the corolla tube with a conspicuous annular corona, usually with five free epistaminal corona lobes within (but these sometimes absent or reduced to callus ridges), and a solitary episepalous colleter.

The two genera most closely related to *Prestonia* are *Laubertia* and *Rhodocalyx*, both of which also have a thickened annular corona in the mouth. *Laubertia* A. DC. is easily distinguished by the

eglandular sepals lacking colleters within; careful study of this genus shows that *Laubertia* could simply be a *Prestonia* that lost its calycine colleters, but here it is considered to stand as a good genus. This character is very important to separate some genera of Apocynaceae (e.g., *Rhabdadenia*, *Elytropus*, *Cycladenia*) and therefore, despite the presence of a conspicuous faucal annulus, the eglandular sepals easily separate *Laubertia*.

Rhodocalyx Müller Argoviensis (1860) has traditionally been separated from *Prestonia* by its erect habit, terminal inflorescences, and corolla tube with a conspicuous annular corona in the mouth but lacking free corona lobes (Woodson, 1933; Pichón, 1950; Ezcurra, 1992). The need to evaluate these characters when considering the reduction of *Rhodocalyx* to synonymy of *Prestonia* was previously mentioned by Ezcurra (1992), who revealed the close affinity of these genera and the similarity of *R. rotundifolius* Müller Argoviensis to *P. riedelii* (Müller Argoviensis) Markgraf.

Recently, Stranghetti and Sumiko (1996) re-evaluated *Rhodocalyx* in a comparative morphological study with two species of *Mandevilla* and two species of *Prestonia* that are vegetatively and superficially (fide Stranghetti & Sumiko, 1996) somewhat similar to *Rhodocalyx*, which reflects basically the same work as Stranghetti (1992). Stranghetti and Sumiko concluded that *Rhodocalyx* must be conserved as a monotypic genus. However, in the process of preparing a synopsis of *Prestonia* and *Mandevilla*, and after the examination and evaluation of the critical morphological characters (habit, indument, leaves, inflorescences, sepals, corollas, and gynoecia) in most of the species of both genera, I have found important evidence which indicates that *Rhodocalyx* should be included in the synonymy of *Prestonia*. Explanation is in order.

I disagree with the relationships of *Rhodocalyx* with respect to *Mandevilla* suggested by Stranghetti and Sumiko (1996). As was shown previously, the most important characters separating *Prestonia* and the closely related *Laubertia* from the rest of the neotropical genera of Apocynaceae are the shape of the style head, attachment of the anthers to the

style head, and the annular corona in the orifice of the corolla tube. *Mandevilla* never has an annular corona; instead, one of the most important morphological features shared by *Mandevilla* and the closely related *Allomarkgrafia*, *Forsteronia* (subg. *Forsteronia* only), *Macrosiphonia*, *Mesechites*, *Quiotania*, and *Tintinnabularia* is the presence of colleters on the leaf midvein adaxially (Hansen, 1985; Morales, 1996, 1997c, 1997d; Zarucchi, 1991): the leaves of *Rhodocalyx* lack colleters adaxially on the leaf blade.

Rhodocalyx is restricted to the "campos" and savannas of central and southern Brazil and the Sierra de Amambay in northern Paraguay. Commonly, species of *Mandevilla* from this phytogeographic area have terminal to subterminal inflorescences and an erect habit, in contrast to the typically axillary inflorescences and scandent habit of the genus. Despite the anomalous morphologies of these species, all the rest of the characters fall well within the range of *Mandevilla*. This suggests that those character states (erect habit and terminal inflorescence) traditionally used to separate *Rhodocalyx* from *Prestonia*, and emphasized by Stranghetti and Sumiko (1996), are insignificant.

Terminal inflorescences, a character supposedly restricted to *Rhodocalyx*, are found in some species of *Prestonia*. At the time of Woodson's (1936a) monograph, all species of *Prestonia* then known were characterized by axillary inflorescences. Since then, additional species in section *Tomentosae* have been found with both axillary or terminal to subterminal inflorescences. For example, *Steyermark et al.* 111114 (F, VEN, Z), *Prestonia parvifolia* Benth from Venezuela, has terminal or subterminal inflorescences. In addition, some recently described species (e.g., *P. tysonii* A. H. Gentry) clearly have terminal inflorescences. Therefore, the distinction of the two genera based on this character seems unwarranted.

In addition to the annular corona of the corolla tube, another important feature on which *Rhodocalyx* was segregated from *Prestonia* is the corolla tube without free corona lobes, a character supposedly restricted to *Prestonia*. Although the presence of free corona lobes is characteristic of *Prestonia* and *Cycladenia* in the New World, in some species of *Prestonia* the corolla tube lacks free corona lobes behind the anthers or only has inconspicuous callus ridges. This is obvious in *P. dusenii* (Malme) Woodson, *P. riverae* J. F. Morales, *P. mexicana* A. DC., *P. hammelii* J. F. Morales, *P. speciosa* Donnell Smith, *P. clandestina* J. F. Morales, and *P. riedelii* (Müller Argoviensis) Markgraf. This is the situation

in *Rhodocalyx*, which has conspicuous callus ridges within the corolla tube.

As to other characters used by Stranghetti and Sumiko (1996), leaf pubescence is highly variable among all the species of *Prestonia* sect. *Tomentosae* and *Rhodocalyx*. Therefore, this feature has little taxonomic value to separate *Prestonia* from *Rhodocalyx*. The differences in the corolla color are not always constant in *Prestonia*: in *P. mollis* Kunth corolla color varies from cream to cream-purple to greenish purple.

This inconsistency and the independent variation of the characters used to separate these genera suggest that it is necessary to relegate *Rhodocalyx* to the synonymy of *Prestonia*. This brings a measure of consistency to the generic classification, without which other well-defined genera, such as *Mandevilla*, could be subdivided based on the same kind of weak characters. *Rhodocalyx rotundifolius* Müller Argoviensis is thus transferred below to *Prestonia*. A new combination is proposed here.

***Prestonia* R. Brown, Mem. Wern. Soc. 1: 69. 1811.**
TYPE: *Prestonia tomentosa* R. Brown.

Haemadictyon Lindley, Trans. Hort. Soc. London 6: 70. 1826. TYPE: *Haemadictyon venosum* Lindley [= *Prestonia quinquangularis* (Jacquin) Sprengel].

Rhodocalyx Müller Argoviensis, in Mart. Fl. Bras. 6 (1): 172. 1860. Syn. nov. TYPE: *Rhodocalyx rotundifolius* Müller Argoviensis.

Belandra S. F. Blake, Contr. Gray Herb. 52: 78. 1917. TYPE: *Belandra concolor* S. F. Blake [= *Prestonia longifolia* (Sessé & Moçino) J. F. Morales].

***Prestonia erecta* (Malme) J. F. Morales, comb. nov.** Basionym: *Rhodocalyx erectus* Malme, Ark. Bot. 21 A (6): 15. 1927, nom. nov. for *Echites erecta* A. DC. *Echites erecta* A. DC., Prodr. 8: 469. 1844, non Thunberg, Gen. Echitis Observ.: 7. 1819; non Vellozo, Fl. Flumin. 113. 1829. *Rhodocalyx rotundifolius* Müller Argoviensis, in Mart. Fl. Bras. 6 (1): 173, pl. 51. 1860, nom. nov. for *Echites erecta* A. DC., non *Prestonia rotundifolia* K. Schumman ex Woodson, Ann. Missouri Bot. Gard. 23: 318. 1936. TYPE: Brazil: data lacking, *Claussen* 343 (holotype, G-DC not seen; isotype, G; photo of holotype at INB).

Prestonia erecta flowers from late August to January, and fruits are borne from January to April. This species is commonly found in savannas and open areas. For excluded species, see Woodson (1936b).

Prestonia erecta J. F. Morales is closely related to *P. riedelii* (Müller Argoviensis) Markgraf but can

be distinguished by the erect habit, short-petiolate leaves, and terminal inflorescences of the former species.

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