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Transfer of Cyphomandra (Solanaceae) and its species to Solanum

Lynn Bohs

Summary


Data from recent molecular studies demonstrate that the genus Cyphomandra is nested within Solanum. Recognition of Cyphomandra as a separate genus therefore is not tenable unless Solanum is broken up into smaller monophyletic units. All Cyphomandra species are transferred to Solanum, necessitating twelve new names and twelve new combinations.

The genus Cyphomandra Mart. ex Sendtn. (Solanaceae) includes about 35 species of neotropical shrubs and small trees (Bohs, 1994). Within the Solanaceae, Cyphomandra belongs to the subfamily Solanoideae and tribe Solaneae, characterized by flattened seeds with curved embryos and abundant endosperm, valvate, induplicate, or plicate corolla aestivation, and filaments inserted near the base of the anthers (D’Arcy, 1979; Hunziker, 1979). The Solaneae are the largest and least understood tribe in the Solanoideae, in part because they include the large and poorly known genus Solanum. Generic boundaries and phylogenetic relationships in the Solaneae have not been clear. Cyphomandra is no exception; its generic circumscription and relationship to other solanaceous taxa have been sources of confusion for many years.

Cyphomandra is one of five solanaceous genera (Cyphomandra, Lycianthes (Dunal) Hassl., Lycopersicon Mill., Solanum L., and Triguera Cav.) with poricidal anther dehiscence (D’Arcy, 1991). Among these taxa, Cyphomandra is most closely related to Solanum and Lycopersicon. It is distinguished from other Solanaceae by the presence of an enlarged connective region on the adaxial surface of the anthers and by its very large chromosomes and large amounts of DNA (Bernardello & Anderson, 1990; Bohs, 1989, 1994; Pringle & Murray, 1991; Roe, 1967; Sendtner, 1845). Although these characters may define Cyphomandra as a monophyletic group, the phylogenetic relationships of Cyphomandra, Solanum, and Lycopersicon have been elucidated only recently. Molecular systematic studies using chloroplast DNA restriction site variation and sequence data have established that Cyphomandra and Lycopersicon are nested within Solanum (Bohs & Olmstead, 1995; Olmstead & Palmer, 1992; Spooner & al., 1993). Several Lycopersicon species were either originally described under Solanum or were transferred to Solanum prior to Spooner & al.’s study; the remaining transfers to Solanum were made in their 1993 paper. Cyphomandra is thus the only large group of species that remains to be transferred to Solanum, and these transfers are made below.

An alternative strategy is to break Solanum into smaller monophyletic units, each perhaps recognized at the rank of genus. Unfortunately, much remains to be elucidated about Solanum systematics and phylogeny before this course can be followed. An active community of Solanaceae systematists is currently at work on this problem.

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The following list gives the correct names in *Solanum* for all species of *Cyphomandra* (listed in the alphabetical sequence of their epithets under the latter genus). Brief statements explain the etymology of epithets in substitute names. Complete synonymies are given in Bohs (1994).


The epithet (Latin _roseus_) refers to the pinkish hue of the corolla.


Transfer of the epithet _benensis_ to *Solanum* was deemed to conflict with the existing name *S. beniense* De Wild. (Art. 53.4 of the Code, Greuter & al., 1994; Nicolson, 1993), especially since the Britton name was based on the Rio Beni, and the epithet would be more properly _beniensis_. The new epithet, from Latin _exigus_, refers to the diminutive size of this species.

*Solanum betaceum* Cav. in Anales Hist. Nat. 1: 44. 1799 = *Cyphomandra betacea* (Cav.) Sendtn.


*Solanum latiflorum* Bohs, **nom. nov.** = *Cyphomandra calycina* Sendtn. in Flora 28: 167. 1845 (non *S. calicinum* Dunal in Poir. 1814, nec *S. calicinum* Moc. & Sessé ex Dunal 1816, nec *S. calycinum* Nees 1834).

*Solanum latiflorum* was cited by Dunal (1852) as a synonym of *Cyphomandra calycina* var. _rufescens_ and therefore was not validly published under Art. 34.1 of the Code (Greuter & al., 1994). It is taken up here as a new name for _C. calycina_.

*Solanum corymbiflorum* (Sendtn.) Bohs, **comb. nov.** = *Cyphomandra corymbiflora* Sendtn. in Flora 28: 174. 1845.


The epithet is derived from the Greek _μελισσα_, or bee, in honour of the elegant work by M. Sazima, S. Vogel, and colleagues on pollination of this species by male euglossine bees.


The epithet commemorates one of the localities where the author has collected this species: Fortuna Dam, Prov. Chiriquí, Panamá.


The epithet, from the Greek κακοσμος, “stinking”, describes the foul odour of this plant noted by many collectors.


Solanum circinatum Bohs, **nom. nov.** = *Pionandra* hartwegii Miers in London J. Bot. 4: 363. 1845 = *Cyphomandra hartwegii* (Miers) Walp. (non *S. hartwegii* Benth. 1840).

The epithet (Latin *circinatus*) describes the long coiled inflorescence of this species.


The epithet is derived from the Greek παρολος, “near the sea”, in reference to the seaside habitat of this species.


The epithet (Latin *fallax* = false) was chosen because this species actually belongs in *Solanum* sect. *Cyphomandropsis* Bitter rather than in *Cyphomandra*.


The epithet is taken from Proteus, a figure in Greek mythology capable of assuming different forms. This is in reference to the diversity in floral morphology displayed by this species throughout its range (Bohs, 1988, 1994).

Solanum ovum-fringillae (Dunal) Bohs, **comb. nov.** = *Cyphomandra ovum-fringillae* Dunal in Candolle, Prodr. 13(1): 394. 1852.


The epithet (Latin *calidus*, meaning hot) describes the hot lowland habitats occupied by this species.
Solanum pinetorum (L. B. Sm. & Downs) Bohs, comb. nov. = Cyphomandra pinetorum L. B. Sm. & Downs in Phytologia 10: 436. 1964.

Solanum premnifolium (Miers) Bohs, comb. nov. = Pionandra premnifolia Miers in London J. Bot. 4: 360. 1845 = Cyphomandra premnifolia (Miers) Dunal.

Dunal (1852) cited “Solanum premnafolium” as a synonym under Cyphomandra premnifolia (Miers) Dunal. According to Art. 34.1 of the Code (Greuter & al., 1994), S. premnifolium was not thereby validly published.


Solanum sciadostylis (Sendtn.) Bohs, comb. nov. = Cyphomandra sciadostylis Sendtn. in Flora 28: 170. 1845.


The epithet (Latin occultus = hidden) refers to the fact that plants of this species, being intermediate in morphology between Cyphomandra endopogon and C. hartwegii, were identified as either C. endopogon or C. hartwegii until C. stellata was described (Bohs, 1994).

Solanum sycocarpum Mart. & Sendtn. in Flora 24(2), Beibl. 6: 85. 1841 = Cyphomandra sycocarpa (Mart. & Sendtn.) Sendtn.


Solanum tobagensis (Sandwith) Bohs, comb. nov. = Cyphomandra tobagensis Sandw. in Kew Bull. 9: 370. 1938.


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