REUNION OF *PHAEOSPHAERION* AND *COMMELINOPSIS* WITH *COMMELINA* (COMMELINACEAE)

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ABSTRACT

The genera *Phaeosphaerion* and *Commelinopsis* are reunited with *Commelina* because they were separated solely by their indehiscent, conspicuous fruits. Showy fruits similar to those of *Phaeosphaerion* and *Commelinopsis* but dehiscent are reported in undescribed species of *Commelina* from Ecuador and Madagascar. The new combinations *Commelina rufipes* var. *glabrata* and *Commelina mathewsii* are made.

The handful of neotropical species referred to *Phaeosphaerion* Hassk. and *Commelinopsis* Pichon differ from the cosmopolitan genus *Commelina* L. in having indehiscent, conspicuous fruits—fleshy and blue to black in *Phaeosphaerion*; crustaceous and white (with the seeds adhering to the septa) in *Commelinopsis*. Although other characters may yet be found to separate these segregates from *Commelina*, the present, admittedly incomplete evidence suggests otherwise. To date the fruit characters are all that can be used to justify having three genera rather than one.

We formerly have recognized *Phaeosphaerion* and *Commelinopsis* as distinct from *Commelina* (e.g., Hunt, 1981, 1983). New evidence has convinced us, however, that these genera should no longer be maintained. First, the principal species of *Phaeosphaerion* and *Commelinopsis* are so strikingly similar to species of *Commelina* that identifying non-fruiting specimens is sometimes extraordinarily difficult. Indeed, the resemblance of *Phaeosphaerion leiocarpum* (Benth.) Hassk. ex C. B. Clarke to *Commelina texcocana* Matuda (?= *C. pallida* Willd.) is so close, at least in herbarium specimens, that one is tempted to wonder whether the genetic basis of the fruit difference could be a relatively simple one. Similarly, *Commelinopsis glabrata* D. R. Hunt (= *C. persicariifolium* sensu Pichon, non *Commelina persicariifolia* Delile) bears a very strong resemblance to *Commelina obliqua* Vahl (synonym *C. robusta* Kunth), although the two can usually be separated by flower color and leaf pubescence—flowers white and adaxial leaf surface smooth in *Commelinopsis glabrata*; flowers blue and adaxial leaf surface scabrous in *Commelina obliqua*—when fruits are lacking.

The second line of evidence is the recent discovery of two undescribed species of *Commelina* that bridge the narrow gap in fruit morphology between that genus on the one hand and *Phaeosphaerion* and *Commelinopsis* on the other. The first of these species is known from three collections from the vicinity of Guayaquil, Ecuador [*Gilmartin 762* (US); *Asplund 16628* (S); *Asplund 16645* (S)]. The fruits of this species, which resembles *Phaeosphaerion leiocarpum* in habit, are reddish or dark blue and exserted from the spathes at maturity. Unlike the fruits of *Phaeosphaerion*, however, those of the Ecuadorian species are dehiscent when fully mature.

The fruits of the second *Commelina* species, represented by *Bosser 17832* (P) from Madagascar, are also exserted from the spathes at maturity; but they more closely resemble the fruits of *Commelinopsis* than those of *Phaeosphaerion*, being crustaceous and whitish. Unlike *Commelinopsis* fruits, those of *Bosser 17832* seem to be dehiscent when mature.

The conspicuous fruits of *Phaeosphaerion* and *Commelinopsis* and the two undescribed *Commelina* species have undoubtedly evolved for bird dispersal. *Phaeosphaerion* and *Commelinopsis* have closer affinities with distantly related species of *Commelina* than with each other. They clearly represent separate and parallel evolutionary derivatives from *Commelina*. The Ecuadorian *Commelina* is apparently related to *Phaeosphaerion leiocarpum*, but technically it belongs to *Commelina* because of its dehiscent fruit. The Madagascan *Commelina* is unrelated to any of the other conspicuous-fruited species, all of which are neotropical. It represents yet another evolutionary lineage.

The already weak boundaries between *Com-*

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melina and *Phaeosphaerion* and *Commelinopsis*, respectively, are further eroded by these new *Commelina* species. It is evident that *Commelina* has produced species with berry-like fruits in several evolutionary lines. Either each of these lines must be recognized as a distinct genus or all of them must be retained within *Commelina*.

In the course of our discussions on the treatment of the Commelinaceae for the *Flora Mesoamericana*, we have concluded that *Phaeosphaerion* and *Commelinopsis* can no longer be upheld. No new combination in *Commelina* is needed for *Phaeosphaerion leiocarpum* or *Commelinopsis rufipes* because their basionyms are *Commelina leiocarpa* Benth. and *Commelina rufipes* Seubert, respectively. *Commelinopsis glabrata* appears to be conspecific with *Commelina rufipes* and will be treated in the *Flora* as a variety:

Commelina rufipes Seubert var. **glabrata** (D. R. Hunt) Faden & D. R. Hunt, comb. et stat. nov. Basionym: *Commelinopsis glabrata* D. R. Hunt in Kew Bull. 36: 199. 1981.

Phaeosphaerion pseudomonosperma (Kuntze) Steyerm. (basionym: *Athyrocarpus pseudomonosperma* Kuntze) is a synonym of *Commelina rufipes* var. *glabrata*.

The status of the other specific and varietal names in *Phaeosphaerion* and *Commelinopsis* needs to be considered. *Phaeosphaerion efoveolatum* C. B. Clarke from Venezuela is so similar to *Commelina leiocarpa* that it is probably conspecific. We are uncertain about the importance and consistency of the seed character used by Clarke (1881) to separate these taxa, so we decline to transfer *P. efoveolatum* to *Commelina* at this time.

Commelina scabrata Seubert is the basionym for *Phaeosphaerion persicariifolium* var. *scabrata* (Seubert) C. B. Clarke. Seubert's species, however, is a synonym of *Commelina obliqua* Vahl, thus it is not a synonym of any taxon of *Phaeosphaerion* or *Commelinopsis*.

We are less certain about *Phaeosphaerion mathewsii* C. B. Clarke from Peru, which is known definitely only from the type (*Mathews 148*—K). (The original spelling of the specific name, with two 't's is clearly a typographical error.) Although it would appear to belong to *Commelina rufipes*, it does not exactly match collections of either variety. It is perhaps closer to some specimens of *C. obliqua*, especially *Davidse & González 19296* (US) from Venezuela, but it does not match them perfectly either. The type of *P. mathewsii* lacks fruits, and therefore its inclusion in *Phaeosphaerion* by Clarke (1881) is questionable. Because we cannot place this specimen in any named species of *Commelina* with certainty, we are maintaining its status as a species and are transferring it to the genus:

Commelina mathewsii (C. B. Clarke) Faden & D. R. Hunt, comb. nov. Basionym: *Phaeosphaerion mathewsii* C. B. Clarke in DC., Monogr. Phan. 3: 138. 1881.

A comment may be made here about the generic name *Athyrocarpus*, which has sometimes been used interchangeably with *Phaeosphaerion*. *Athyrocarpus* was first mentioned by Schlechtendal (1855) as a possible genus, but it was not validly published until Hasskarl (1866) included it in his key to the genera of Commelinaceae. Hasskarl also described *Phaeosphaerion* in the same paper, so the priority between the two names must be determined by the earliest publication in which they are combined. Clarke (1881) appears to be the first worker to combine them, placing *Athyrocarpus* in synonymy under *Phaeosphaerion*.

Finally, it should be noted that under Art. 10 of ICBN (Sydney edition, 1983), the type of *Commelinopsis* is the same as that of *Commelina persicariifolia* Delile, which is probably referable to *C. virginica* L. or *C. paludosa* Blume (Hunt, 1981). To retain Pichon's generic concept, it would be necessary to conserve *Commelinopsis* under Art. 10.3 with a specimen that Pichon had examined, or else to choose a new name for the genus.

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