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## Sobraliinae SCHLECHT. & Elleanthinae SZLACH. – classificatory differences\*

MAGDALENA DUDEK<sup>1</sup>, PIOTR TUKALLO

Department of Plant Taxonomy and Nature Conservation, Gdańsk University, Al. Legionów 9, PL-80-441 Gdańsk, e-mail: <sup>1</sup>magdalena\_kulak@wp.pl

ABSTRACT. In spite of differences in the structure of the seeds and pollinia, some authors classified *Sobralia* with *Elleanthus*, *Epilyna* and *Sertifera* as a members of a common subtribe Sobraliinae (DRESSLER 1981, 1993; BURNS-BALOGH & FUNK 1986). SZLACHETKO (1995) separated *Elleanthus*, *Epilyna* and *Sertifera* into the subtribe Elleanthinae (Elleantheae, Epidendroideae). Also, he transferred the remaining Sobraliinae with only one genus *Sobralia* into another subfamily Vanilloideae.

Key words: Sobraliinae, Elleanthinae, Orchidaceae, classification.

Members of subtribes Sobraliinae and Elleanthinae exhibit significant morphological diversity in both generative and vegetative structures. Such diversity is likely to be caused by adaptation to different environmental conditions and various groups of pollinators. It is also the main reason of classification problems described below.

Most species of *Elleanthus* and *Sertifera* indicate the hummingbird-pollination syndrome. However, *Epilyna* and *Elleanthus* sect. *Chloidelyna*, characterized by presence of small, white flowers, can be pollinated by hummingbirds and perhaps Lepidoptera (PRIDGEON & al. 2005). Almost all members of *Sobralia* are pollinated by euglossine bees, although other bees can also serve as pollinators. Some species of *Sobralia* may be attractive to male euglossine bees because of secretion of specific fragrance. Only two species, *Sobralia amabilis* and *Sobralia callosa*, appear to be adapted to hummingbird pollination. For example, lip of *S. amabilis* is short, flat and open and pollinaria of *S. callosa* resemble those found in genus *Elleanthus*.

Sobraliinae sensu DRESSLER 1981 comprised the most primitive taxa of the subfamily Epidendroideae. The subtribe included five genera: *Arpophyllum* LLAVE & LEX.,

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*Sertifera* LINDL. & RCHB. f., *Sobralia* LINDL., *Xeorchis* SCHLECHT. and *Elleanthus* PRESL. DRESSLER, followed by BURNS-BALOGH & FUNK in 1986, classified Sobraliinae with the tribe Arethuseae. In 1993, DRESSLER discarded his previous concept and transferred Sobraliinae to New World Epidendreae. Finally, SZLACHETKO (1995), basing on differences in the structure of the seeds and pollinia, separated *Sobralia* from remaining Sobraliinae sensu DRESSLER 1993 and transferred them into the newly described tribe Elleantheae. Elleantheae, as delimited by SZLACHETKO, consists of three subtribes, Xerorchidinae and Arpophyllinae, both monotypic, and Elleanthinae with, three genera, *Elleanthus*, *Sertifera* and *Epilyna*. All three genera are characterized by similar morphology of the vegetative and floral parts, including gynostemium. The remaining Sobraliinae, with only one genus *Sobralia*, was then transferred into another subfamily Vanilloideae.

In *Sobralia*, the pollen grains are loosely held together by elastoviscin and form a more or less S-curved soft mass, not found in Elleantheae. Almost all species of *Sobralia* have seeds of *Bletia* type. In contrast, members of Elleantheae are characterized by clavate to obovoid, almost equal in size pollinia with sticky caudicles on their apices. The seeds are of *Elleanthus* type, with only one exception in species of *Xerorchis* (*Limodorum* type). Within *Sobralia* only species, *S. callosa* L. O. WILLIAMS have pollinia of *Elleanthus* type. This unusual state probably represent an interesting case of paralellism in plants pollinated by hummingbirds (PRIDGEON & al. 2005). Another diagnostic feature, spongy tilosomes, is found in both *Sobralia* and Elleanthinae. However, this feature can't be used exclusively in verification of close relationships between these orchids, as this kind of tilosomes has also been noted in many Coelogyninae, and occasionally in other groups of orchids as well (PRIDGEON & al. 1983).

The results of recent molecular studies concerning representatives of Elleanthinae and Sobraliinae indicate a close relation between *Sobralia* and *Elleanthus* (CAMERON 1999, VAN DEN BERG et al 2000, CHASE 2001, PRIDGEON et al 2005). Unfortunately, in each phylogenetic analysis both subtribes were very poorly sampled, e.g. including some undetermined species of *Elleanthus*, single accessions of *E. caravata* (AULB.) RCHB.f., and very few species of Sobraliinae sensu DRESSLER 1993. Thus, both subtribes alone still require comprehensive phylogenetic studies, mainly based on DNA markers, which will help clarify the relationships within and between them and provide valuable information about orchid evolution.

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