



Caryophyllales 2018

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Evolutionary relationships and taxonomy of *Microtea* (Microteaceae), a basal lineage in the core Caryophyllales

Alexander P. Sukhorukov (*1), Alexander N. Sennikov (2), Maya V. Nilova (1), Yuri Mazei (3), Maria Kushunina (4), Maria Salete Marchioretto (5), Pavel Hanáček (6)

(1) Department of Higher Plants, Biological Faculty, Lomonosov Moscow State University, 119234, Moscow, Russia

(2) Botanical Museum, Finnish Museum of Natural History, P.O. Box 7, 00014 University of Helsinki, Finland; also at Herbarium, Komarov Botanical Institute of Russian Academy of Sciences, Prof. Popov str. 2, 197376 St. Petersburg, Russia

(3) Department of Hydrobiology, Biological Faculty, M.V. Lomonosov Moscow State University, 119234, Moscow, Russia

(4) Department of Plant Physiology, Biological Faculty, Lomonosov Moscow State University, 119234, Moscow, Russia

(5) Instituto Anchieta de Pesquisas/UNISINOS, São Leopoldo, RS, Brasil

(6) Department of Plant Biology, Mendel University in Brno, Zemědělská 1, 613 00 Brno, Czech Republic

suchor@mail.ru

The basal position of the small American genus *Microtea* within the core Caryophyllales was suggested only recently in accordance with molecular phylogeny. However, the specific relationships within the genus were not traced. The results of our phylogenetic analysis based on the matK chloroplast gene suggest the monophyly of *Microtea* including *Ancistrocarpus* and other related genera. *Microtea* is divided into two major sister clades: clade A consisting of *M. glochidiata*, *M. maypurensis* and *M. tenuifolia*, and clade B uniting *M. debilis*, *M. sulcicaulis*, *M. scabrida*, *M. celosioides*, and *M. papillosa*. The nrDNA dataset (ITS), although containing only a limited number of accessions, shows the same species number in clade A, and the remaining species studied (*M. debilis*, *M. scabrida* and *M. celosioides*) form clade B. Subgeneric status is assigned to clades A and B corresponding with the names *Microtea* subgen. *Ancistrocarpus* subgen. nov. and *Microtea* subgen. *Microtea*, respectively. The diagnostic characters at the subgeneric level are as follows: length of pedicels, number of flowers at each node, number of stamens and styles. A multivariate analysis of 13 distinguishing morphological characters provides the information additional to the non-random emergence of taxonomically significant traits at the subgeneric level. The pericarp and seed ultrasculpture and anatomy are similar in all species. The species share the reticulate pericarp surface (regardless of presence or absence of finger-shaped outgrowths on its surface) and rugose or slightly alveolate seed sculpture. From a morphological point of view, we accept 10 *Microtea* species. A checklist includes a new diagnostic key, morphological descriptions and distribution patterns of each species. *Galenia celosioides* is the oldest legitimate name available for the plants previously known as *Microtea paniculata*. Many names were lectotypified. *Microtea sulcicaulis* is reported for the first time as native to Bolivia, and *M. maypurensis* is reported from Indonesia (Java), where it is found as an alien plant with an unclear invasion status. The study of APS, MV and MK was supported by the grant of Russian Science Foundation (project 14-50-00029).

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