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## Genus *Euastrum* (Zygnemaphyceae) in the state of São Paulo: floristic survey

Susana Petersen Shetty

### Abstract

Knowledge of diversity of the desmid genus *Euastrum* (Desmiales, Zygnemaphyceae) in the state of São Paulo, southeastern Brazil was, up to now, considered extremely poor, including that of its geographical distribution in the area. Floristic survey of the genus in the state of São Paulo is based on 450 sample units collected during the period 1963-2001, that are deposited at the Herbário Científico do Estado “Maria Eneyda P. Kauffmann Fidalgo” (SP) of the Instituto de Botânica. *Euastrum* specimens were identified from 32 localities. Thirty-six species, 23 varieties that are not the typical of their respective species, and 7 taxonomic formae that also are not the typical of their respective varieties were identified, totaling 48 taxa for the state. Twenty-six out of the 48 taxa were presently cited for the first time for the state of São Paulo and 5 most probably are new species. Simultaneously, 114 taxa that were cited in the specialized literature and form an inaccurate list of the *Euastrum* representatives for the state were evaluated. Such an evaluation resulted in a list of taxa that were excluded due to the fact that they do not have information enough for their taxonomic identification confirmation, and in the maintenance of 23 other taxa. Taxonomic identifications were based, whenever possible, on various sized populations and on the classical metric and morphological characteristics of the cell, aiming at best identifying all intra- and inter-population variability. For each taxon identified the following information was provided: complete bibliographical reference to the paper containing its original description and/or diagnosis, detailed morphological description, measures that are of interest for their taxonomical identification, list of samples in which the taxon was found, geographical distribution in the state of São Paulo, taxonomical comments, and illustrations. Every synonym cited in the São Paulo state specialized literature and in the case it exists, also the basynonym was provided. *Euastrum denticulatum* (Kirchn.) Gay var. *rectangulare* West & West, *E. denticulatum* (Kirchn.) Gay var. *quadrifarium* Krieg., and *E. ansatum* Ehr. ex Ralfs var. *ansatum* f. *ansatum* were the species that showed the broadest geographical distribution in the state; and *E. minus* (W. West) Krieg., *E. intermedium* Cleve var. *longicolle* Borge, and *Euastrum* sp. 3 were the ones of rarest occurrence. *Euastrum ansatum* Ehr. ex Ralfs and *E. sibiricum* Boldt showed a very high

degree of intra- and inter-population polymorphism which, however, did not affect its taxonomic identification. Identifications of *Euastrum* sp. 1, *Euastrum* sp. 2, *Euastrum*, sp. 3, *Euastrum* sp. 4, and *Euastrum* sp. 5 are still conditional, but they may result in taxonomical novelties pending on the analysis of a greater number of individual specimens to assure the stability, at population level, of the characteristics presently considered diagnostic. Finally, especial emphasis was given to the importance of examining populations during the process of taxonomic identification of *Euastrum* species and infra-specific categories due to the frequent polymorphism and, as a consequence, to the identification of which morphological features are the most stable and trustful for the definition and delimitation of species and infra-specific categories of that genus.

**Key-words:** taxonomy, floristic survey, Zygnemaphyceae, desmids, Brazil.

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