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EDITORIAL

Editorial

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This issue of Brazilian Journal of Botany, 41(2), contains a special section on "Use of molecular tools to the systematics of algae, fungi and plants". It is composed of five review articles dealing with several groups and specific approaches, focusing on the use of molecular markers to discriminate species, infer phylogenies, as well as to evaluate genetic diversity in distinct groups of organisms: cyanobacteria (Komárek 2018), diatoms (Medlin 2018), fungi (Badotti et al. 2018), bryophytes (Dantas et al. 2018) and angiosperms (Vinson et al. 2018).

Komárek (2018) revised the generic concepts within the cyanobacteria family, Oscillatoriaceae, whose taxonomy was traditionally based only on morphological criteria, applying a polyphasic approach using molecular markers and other useful evidences (ultrastructure, morphology, life cycle and ecology).

Medlin (2018) analyzed some critical aspects of species determination in the diverse and widespread algal group of diatoms, such as species concept, barcoding and metabarcoding, highlighting some selected study cases. Pros and cons of the several available techniques and analytical methods are critically evaluated.

Badotti et al. (2018) investigated the progress in the use of ribosomal DNA (rDNA) internal transcribed spacer (ITS) and other widely used molecular markers for fungal studies. Qualitative and quantitative large-scale data mining from literature (2012 to date) based on sequence searches was performed. Their survey indicates that the most relevant studies for fungal barcoding were published from 2012 through 2015.

Dantas et al. (2018) reviewed the phylogenetic studies involving bryophytes under a Brazilian perspective. They presented a compilation of information on DNA barcoding of bryophytes and discussed the current status of such studies in Brazil. The survey brought to light a project named "DNA barcoding of Brazilian Bryophytes", started in 2014, describing a case study to improve the identification of tropical bryophyte species.

The review by Vinson et al. (2018) focuses on Neotropical tree species, describing the most informative and widely used molecular markers for genotype analysis. The authors also described the methods for using that genotype data to understand genetic diversity and structure and mating system, pollen and seed dispersal. They discussed the types of analyses that can be performed, the softwares available and possible interpretations.

Each of these reviews highlighted the current status, as well the future perspectives and need for studies to improve our knowledge on the use of molecular tools to the systematics of the groups treated. In summary, these five review articles are expected to be very welcomed and call attention from a wide and large audience in Plant Sciences.

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