



20ª REUNIÃO ANUAL DO INSTITUTO DE BOTÂNICA

25 a 29 de novembro de 2013

Tema - Botânica: diversidade de cores e formas

Polyphasic evaluation of tropical strains assigned to the *Phormidium autumnale* complex (Cyanobacteria)

Camila Francieli da Silva Malone¹, Haywood Dail Laughinghouse IV², Annick Wilmotte², Marli de Fátima Fiore³ & Célia Leite Sant'Anna¹

¹Núcleo de Pesquisa em Ficologia, Instituto de Botânica, São Paulo, SP, cfsmalone@yahoo.com.br. ²Laboratory of Bacterial Physiology and Genetics, Centre for Protein Engineering, University of Liège, Belgium. ³Centro de Energia Nuclear na Agricultura, Universidade de São Paulo.

Cyanobacterial species assigned to the *Phormidium autumnale* complex are reported as widespread worldwide and comprise different morphotypes and ecotypes that differ slightly in subtle morphological features. However, this group is usually restricted and distinguishable by their distinct biotopes. Using a polyphasic approach, we characterized a group of morphologically similar Brazilian strains (CCIBt3412, CCIBt3446, CCIBt3447, CCIBt3448, and CCIBt3466) assigned to the *Phormidium autumnale* complex. The microorganisms examined were isolated from terrestrial environments (concrete from the Pantanal and Atlantic Rainforest) and showed a relative homogenous morphology: cylindrical trichomes, sometimes bent at the end, briefly or gradually attenuated; containing one trichome within a firm, thin an hyaline sheath attached to the trichome; apical cell capitate with flattened-conical or tapered-rounded calyptras. Trichome morphology of the *P. autumnale* complex is quite similar to *Microcoleus vaginatus*, though the latter contains several trichomes within one sheath. Based on sequences of the 16S rRNA gene, the Brazilian strains formed a clade with both *Microcoleus vaginatus* and *P. autumnale* sensu lato (98-99.9% similarity) and distant from the type species cluster of *Phormidium* (93% similarity). Besides, we observed a 17-bp insert in v6 region of the 16S rRNA gene within the strains analysed. This insert was originally described in *M. vaginatus* and has been assigned so far to strains probably belonging to the *Microcoleus* clade. Preliminary analyses using the 16S rRNA gene indicate that our sequences from the Pantanal (CCIBt3446, CIBt3448, and CCIBt 3466) form a separate clade, representing a putative novel species. According to our phylogenetic results, the Brazilian strains probably belong to a single generic entity together with the species of the *P. autumnale* complex and *M. vaginatus*. The relation between these taxa has been observed in recent studies. Moreover, the trichome morphology appears to be a key character for generic classification, instead of the number of trichomes per sheath.

Key words: 16S rDNA, Cyanobacteria, phylogeny, taxonomy.

Financial support: FAPESP (Proc. 2010/51666-0)