



Phenotypic and molecular studies of a new cyanobacterial genus from the Atlantic Rainforest, Southeast, Brazil.

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The Atlantic rainforest is one of the most important hotspots of biodiversity in the world, but the diversity of microorganisms remains almost unknown. Because of that, the number of publications resulting in descriptions of new cyanobacterial taxa from this biome has substantially increased in the last ten years. Thus, our aim is to describe a new *Nostocalean* genus based on phenotypic and molecular data. Samples were collected in the State Park of Ilha do Cardoso, sub-tropical area of the Atlantic Rainforest. The studied populations were collected on wood by scraping the substrate with spatula. Part of the samples were kept dry in paper bags, and a small part was preserved in formaldehyde 4% and held in the Herbarium of the Institute of Botany (SP), Brazil. The isolated strains are being kept in BG-11 medium under controlled conditions in the Culture Collection of the Botanical Institute (SP), Brazil. The morphology of the populations were studied under optical microscopy (n=20) and the molecular evaluation was done by the 16S rDNA sequence that was analyzed by Maximum Likelihood method. The new genus features creeping entangled filaments in the basal part, becoming erect and parallel toward the ends. Tolypotrichoid branches are often present near the apex. The trichomes are heteropolar, cylindrical and not constricted. Sheaths are yellowish and lamellated. This new genus is morphologically similar to *Streptostemon*, but differs from it mainly by the presence of isolated false branches near the apex. It differs from *Tolypothrix* by the parallel arrangement of filaments. The phylogenetic tree shows that the strains of the new genus are in a well supported cluster (bootstrap value 99%), nested in a major clade formed by Microchaetaceae, Nostocaceae and Rivulariaceae strains. Thus, based on phenotypic and molecular data we are proposing a new terrestrial genus of Cyanobacteria from Brazilian subtropical forest.

Key Words: Biodiversity, morphology, 16S, heterocytous Cyanobacteria.

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