

T3-P1

FATTY ACID CHARACTERIZATION OF CYANOBACTERIAL STRAINS ISOLATED FROM VELA LAKE AND MONDEGO RIVER RICE FIELDS (CENTRAL-WESTERN, PORTUGAL)

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It is known that particular groups of cyanobacteria are characterized by particular lipid patterns that can be used as their biological markers. The present study examined the fatty acid composition of nostocacean heterocystous cyanobacterial strains isolated from Central-western Portuguese freshwater shallow water bodies, namely Vela Lake and rice fields from Mondego River Basin. Morphological characterization showed that strains from Vela Lake belonged to *Aphanizomenon gracile* (strains UADFA16 and UADFA18), *Aphanizomenon flos-aquae* (strain UADFA15) and *Anabaena* cf. *solitaria* (strain UADFA14) species, whereas rice field strains belonged to *Anabaena cylindrica* (strain UTAD_A212) and *Nostoc muscorum* (strain UTAD_N213). Generally, biochemical characterization inferred from lipid analysis showed that the predominant fatty acid methyl esters (FAMES) in the lipids of the strains were palmitic, oleic and α -linolenic, with trace amounts of myristic and C₂₀ polyunsaturated FAMES. Palmitic acid content in UADFA16 was 2.4 and 2.6 times higher than in UTAD_A212 and UTAD_N213, respectively. Surprisingly, the two *Aph. gracile* strains had different FAME composition and the high concentration of myristic acid in UADFA14 could be indicative of some hepatotoxicity. The comparison of quantitative and qualitative FAME composition of the strains isolated from the two different habitats could explain the close chemotaxonomic relationship between the strains UTAD_A212 and UTAD_N213, both isolated from rice paddies. The same approach could be applied to the strains UADFA14 and UADFA18 isolated from the Vela Lake ecosystem. Principal component statistical analysis of variability of fatty acids belonging to the six genera is reported. To our knowledge, there is almost no information about lipid composition in freshwater cyanobacterial species living in different habitats in Portugal. Therefore, this limnological study is a contribution to our investigation on diazotrophic cyanobacteria in the framework of a comprehensive collaboration program concerning the taxonomy, phylogenetic relationships and toxicological effects of pesticides and other xenobiotics on freshwater cyanobacteria.

Key-words: cyanobacteria, fatty acids, principal component analysis, rice fields, Vela Lake.

T3-P2

CYANOBACTERIA DIVERSITY IN FURNAS THERMAL MATS, S. MIGUEL, AZORES

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Cyanobacteria are the first oxygenic photosynthetic living organisms on Earth. Their presence on Furnas' hot springs thermal mats is easily visible due to the dark green coloration that the mats display. In addition, it is possible to observe the oxygen bubbles being released from these mats. These microorganisms are found mainly in thermal springs which temperatures are always below 60-65°C. Most thermal springs where *Cyanobacteria* are the mats dominant components have iron rich thermal fluids. Even though it is known that these *Cyanobacteria* dominated mats exist at Furnas grounds their *Cyanobacteria* diversity was never studied extensively. The present work consists on the first extensive *Cyanobacteria* diversity list for Furnas lower temperature hot springs. Temperature and pH were measured at the time of the biological sample collection. All samples were observed fresh, using optical microscopy. Several microphotographs were selected to characterize each biological sample. The *Cyanobacteria* were identified until the lowest taxonomic ranking possible by using traditional diagnostic taxonomic features.

Key-words: cyanobacteria, taxonomy, Azores, hot springs, microbial communities.