Isolation and molecular identification of two novel cyanobacterial isolates obtained from a stressed aquatic system

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Isolation and molecular identification of two novel cyanobacterial isolates obtained from a stressed aquatic system

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Abstract

Cyanobacteria are immense sources of several pharmacological compounds such as flavonoids and carotenoids with anti-inflammatory and antioxidant activity. Two novel cyanobacterial isolates were isolated and identified by sequencing of *16S rRNA* gene. The results revealed that the two isolates are *Sphaerospermopsis aphanizomenoides* (KU212886.1) and *Cronbergia siamensis* (KY296358.1). The BLAST alignment showed that the nearest NCBI deposited sequences were *Cronbergia siamensis* (NR153750.1) to *C. siamensis* (KY296358.1) and *Sphaerospermopsis aphanizomenoides* (LN846950.1) to *S. aphanizomenoides* (KU212886.1) with identity ratio 94% and 93%, respectively. The phylogenetic trees confirmed the same identity ratios on the roots of clades. The two newly identified isolates could be new species with novel and unique characteristics.

Keywords

Cyanobacteria, *16S rRNA*, *S. aphanizomenoides*, BLAST, Phylogenetic

Introduction

The biological and economic importance of cyanobacteria is growing rapidly worldwide due to the great diversity of the products that can be developed from cyanobacterial biomass **(Hamed, 2016)**. The wide range of cyanobacteria biochemical products and the potential use of these compounds in the food, feed, pharmaceutical, nutraceutical, cosmetic and research industries have led to more concern of