عنوان مقاله:

Phylogenetic analysis of isolated Phormidium sp. and Cyanobacterium aponinum from Kor River

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خلاصه مقاله:

Cyanobacteria (blue-green algae) are a unique group of photosynthetic bacteria amongst the oldest forms of life, which widespread in aquatic environments including freshwater lakes, rivers and reservoirs. Furthermore, they have ability to produce a wide range of secondary metabolites with toxic property for aquatic animals, as well as human beings. Considering the importance of cyanobacteria in public health, the introduction of sensitive and reliable methods for their detection is the main aim of this study. In the present study, ۳۰ water samples were collected from six locations of the Kor River, Iran. The samples were analyzed for the prevalence of cyanobacterial species using conventional culture methods and morphological tests. Then, molecular identification of the isolates was performed by the comparative evaluation of three sets of primers (CYA۱۰۶/CYA۷۸۱; CYA۷۸۱/CYA۳۵۹; and PCα/PCβ). Furthermore, their abilities to produce cyanobacterial toxins including microcystin and nodularin synthetase enzyme complexes were investigated by using polymerase chain reaction method. The results obtained from this study indicated that two isolates were identified as Cyanobacterium aponinum and Phormidium sp. none of the isolates had ability to produce selected toxins. In addition, the results indicated that the selected pair primers were proper for detection of the isolates. Hence, due to importance of cyanobacterial isolation from water samples and their effect on human health, periodic studies in different water resources and regions seem necessary. Furthermore, among the selected primers, CYA۱۰۶/CYA۷۸۱ could be a proper primer pair for detection of cyanobacterial isolates.

کلمات کلیدی:

Cyanobacterium aponinum, Phormidium sp., Microcystin, Nodularin, PCR