ABSTRACT

The Middle East region suffers already from the gradual effects of climate change and will be among the most vulnerable regions in the future. As a result, productivity should undergo losses due to high temperatures, drought, floods, and soil degradation which threaten food security of Levantine countries. Since water is the critical factor in the region, even slight changes in air temperature and rainfall patterns will have considerable impact. It has been proven that potential climate change may disrupt, on one hand, most ecosystems through changes in their physicochemical conditions, and on the other hand the species which are living in these ecosystems. Then, the biodiversity can be found challenging. In this study, the effects of climate change on population and phytoplankton communities of Lake Karaoun were investigated since 1992. The climate regime shifts have been shown to alter the lake ecosystem. In the past, Lake Karaoun was characterized by a highly diversified microflora dominated by diatoms and green algae. Recent climatic fluctuations, with culmination in 2008–2011 and temperatures exceeding 40˚C have upset this biodiversity. Blooms of cyanobacteria, specifically *Microcystis aeruginosa* and *Aphanizomenon ovalisporum*, have occurred and disturbed both the ecosystem and the functioning of the lake.

Keywords: *Aphanizomenon ovalisporum*; Climate change; Cyanobacteria; Lake Karaoun; *Microcystis aeruginosa*; Thermal stratification