


Extraction and comparative study of seasonal antioxidant activity using *Nostoc* species isolated from Gali Ali Bag, Erbil

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 A [Correction](#) to this article was published on 21 February 2024

 This article has been [updated](#)

Abstract

Seasonal variation of water, antioxidant activities as algal pigments, total antioxidant activities, DPPH, total phenolic compound using three solvents, methanol, acetone, and diethyl ether, of two algal species, *N. commune* and *N. muscarum*, were assessed. They also determined the physio-chemical and bacteriological water characteristics at the Gali Ali Bag. A significant variation were observed with an obvious correlation in water quality parameters in different seasons, generally raised in summer and reduced in winter. The two algal species show a higher accumulation of photosynthetic and accessory pigments in spring and summer and a significant decrease in winter. Antioxidant capacity in both algal species was analyzed by a three-way ANOVA and Kruskal-Wallis test. However, the contents were significant for all solvents. Moreover, *N. muscarum* shows the highest capacity in winter and reduced in summer for DPPH; however, the opposite pattern shows by *N. commune*. Although the total phenolic content of *N. commune* recorded a significant relation, *N. muscarum* was non-significant. The Cyanophyta algae show prominent growth responses and antioxidant activities and are better adapted to changing climatic conditions. Due to their prompt responses, even to minor changes in the aquatic environment, they can be used as ecological indicators in freshwater ecosystems.