ABSTRACT

The present work was to study phycochemical and antioxidant activity of freshwater algae that is *Ulothrix zonate* (Web and Mohr) Kützing. The sample was collected from the tube well of district Kasur in October 2020 and identified under compound microscope in the Phycology lab of Government College University, Lahore. After identification, the whole sample was washed, and the well dried sample was transformed into fine powder. The powdered sample was soaked into methanol and its extract was evaporated and transformed into a syrupy residue that was later used for the evaluation of phycochemical and antioxidant activities through different tests. The qualitative analysis of phycochemical activity gave confirmation of reducing sugars, flavonoids, phenols, amino acids, alkaloids, saponins, and while terpenoids, steroids and phlobatannins were absent in methanolic extract. However, protein estimation, ash content and moisture content were determined quantitatively. It was also depicted that due to presence of bioactive compounds *Ulothrix zonate* is a natural antioxidants' source. Different antioxidant activities such TAA, FRAP, TPC and MC were performed. In *Ulothrix zonate*, the highest antioxidant activity is TAA (1.37 mg/ml of ascorbic acid) with 1.495nm absorbance (1.495nm ± 0.01), FRAP has 134.33 µM/ml of antioxidant activity with 0.176nm of absorbance (0.176nm ± 0.001). Metal chelating has 8.24% activity with the highest mean absorbance 2.90nm (2.90nm ± 0.015) while TPC has 226.125 GAE µl/ml of activity with 0.512nm of absorbance (0.512nm ±0.01). Therefore, *Ulothrix zonate* may be used in different industries like food, fuel, pharmaceutical and in preparation of cosmetics and is also a source of increasing the economy of a country.