ABSTRACT

Due to polluted inputs, the water quality of rivers, natural lakes and dams in developing countries is deteriorated. There is a significant need for adequate water quality monitoring for future planning and clean water supply management. This research examined the quality of water and the use of algae to absorb carbon as a means of reducing greenhouse gases in Rawal Lake Pakistan. Water samples from five randomly selected locations were obtained. During the Winter and Summer Seasons, Physico-chemical characteristics of water were determined. Presence of Sulphate, Nitrates and Microbes in Summer Season were found. Water Quality remained normal in Winter Season. Metal concentration (Cr, Ni, Fe, Zn, Pb, Li, Cu, and Mn) in water, sediments, and plants were determined in Winter and Summer Seasons using Atomic Absorption Spectrophotometer. Metal concentration in water during Winter and Summer Seasons were as follow Mn> Fe> Ni > Zn > Cr > Pb as well as Fe > Mn > Zn > Pb > Cr > Ni. Cr, Fe, Ni, Zn, and Pb were beyond permissible limits during Summer Season while Cr and Pb were above the limits in Winter. Metal concentration in sediments during Winter and Summer Seasons was the same as Fe> Mn> Pb> Cr> Zn> Li. Zinc and copper are main plant metals that showed different trends in the plants in both seasons as Cu was recorded in higher concentrations in *Dodonae viscosa* and *Eichhornia crassipes* while zinc remained N.D (Not Detected). Plant species living in freshwater lakes are often metal resistant and have shown the same tendency. Values of C, N, S and, H were determined in *Lyngbya majuscula*. Amount of carbon in % was highest amongst all the other parameters i.e. N, S, and H which showed that *Lyngbya majuscule* is capable of capturing carbon.