Abstract

Antibiotic pollution in the marine environment is a worldwide issue. Ciprofloxacin (CIP), Levofloxacin (LEV) and tetracycline (TET) are the members of the class of contaminants that are mostly discovered in the water bodies because of their diverse utilization, repeated input and persistence in different matrices of environment. Due to human-induced sources such as veterinary and medical-drugs application increasing levels of antibiotics in wastewater are panic. The severe risk is due to continuous consumption of antibiotics may lead to the growth of antibiotic resistance. Degradation of antibiotics by microorganisms is the eco-friendly method in the elimination of antibiotics instead of other advanced methods. The present study investigate the two different algal species *Chlorella vulgaris* and *Scendesmus obliqus* due to their acceptance and elimination of antibiotics. The impacts on the biochemical composition on the microalgal species with regards to the types of antibiotics and their efficiency to remove them are first documented in this study. The removal capability of the antibiotics was reported to be in the accordance of *S.obliqus*>*C. vulgaris.* It is reported that *Scendesmus obliqus* removed CIP (53.4%), LEV (67.9%) and TET (79.69%) with the process of biodegradation. While in the case of *Chlorella vulgaris* the total elimination of antibiotics reported for CIP is (56.16%), for LEV (50.8%) and for TET (56.31%). Both species use the mechanism of biodegradation and bioaccumulation for elimination of antibiotics. The biochemical characterization revealed the effects that stimulate the growth is efficient in both species for *Cv* lipid (26.4%), protein (26.4%), and carbohydrates (9%) and for *So* lipid (24%), protein (34%) and carbohydrates (5%) showing the benefit in the production of valuable biomass. The present study confirm the efficiency of both species to bioaccumulate, adapt, bioabsorb and biodegrade the persistent contaminants and provide the sustainable and ecofriendly solution of environmental pollution. The findings provide a concise explanation of the relationship between the bioadsorption and bioaccumulation of antibiotics in cell walls and cell matter and algal development under antibiotic exposure while also helping to address to increasing water pollution.