

# README

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###Project title: Microplastics impact the aggregation behaviour of the freshwater green alga *Tetradesmus obliquus*

###Project abstract Global plastic pollution has been identified as a major source of concern as microplastics have now been detected in environments globally. The research and monitoring of aquatic plastic pollution in particular has confirmed the wide distribution of microplastics throughout ecosystems, but the ecological implications of microplastic pollution in aquatic ecosystems remain largely unknown. Freshwater microalgae are essential primary producers and previous studies have shown that they are sensitive to microplastic pollution, in addition to other abiotic changes. Microplastics in freshwater environments have been found to negatively affect microalgal growth and photosynthetic efficiency, while also causing physical changes in microalgal colonies through self-flocculation and adsorption to the plastic particles. Increased aggregation promotes the sinking of algal biomass and consequently, the removal of a key food source for primary consumers. Furthermore, the ingestion of contaminated algal biomass likely increases microplastic accumulation in higher trophic levels, suggesting the impact microplastic pollution could be felt throughout aquatic food webs. Here, we incubated a freshwater green alga, *Tetradesmus obliquus*, with varying concentrations of polystyrene microspheres, and measured homo-aggregation using an imaging flow cytometer. We observed a significant increase in the proportion of algal aggregates in the presence of microplastics and a significant positive correlation between algal aggregate size and microplastic concentration, though microplastic exposure did not significantly affect population growth rates. Our results indicate that microplastic pollution stimulates aggregation in *T. obliquus*, which has numerous potential consequences for the productivity of contaminated aquatic ecosystems.