

Controlling Cyanobacterial Growth by Using Plant extracts

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With an increased rate of water eutrophication, Florida is facing a serious problem of frequent algal blooms. Massive development of algae can negatively impact freshwater environments in different ways; (1) decomposition of algal biomass can create anaerobic zones or (2) in the case of toxic algal blooms it can endanger human and animal health. Therefore, controlling algal growth is essential for both maintaining balanced ecosystem as well as human health. Algal growth is controlled with the use chemical agents such as copper-based algaecides. However, some of these chemical agents are known to be toxic both to humans and environment. Here we are proposing to use natural, non-toxic compounds such as plant polyphenols to control algal growth. Polyphenols are products that have antimicrobial activity and protect plants from disease and help them recover from injury. In this preliminary work, we prepared the extracts from ten different plants and screened these extracts for their anti-algal activity. For that purpose, as test organisms we used two strains of cyanobacteria (*Anabaena* sp. and *Cylindrospermopsis* sp.) which are known to cause harmful algal blooms in Florida. The cyanobacteria were grown in the presence of different concentrations of the crude extract and their growth rate was recorded. The obtained results showed that of ten plants tested, *Bucida buceras* had a bioactive compound which potentially could be used for inhibition of cyanobacterial growth. Separation of the compounds from the crude extract and identification of the active agent, is work in progress.