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Bioactivity Effect of Two Macrophyte Extracts on Growth Performance of Two Bloom-Forming Cyanophytes

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Aqueous extracts of two freshwater macrophytes; *Potamogeton pectinatus* and *Ceratophyllum demersum* (with 50% and 100% each with acetone and ethanol solvents) were tested on growth performance of two bloom-forming cyanophytes, *Microcystis aeruginosa* and *Oscillatoria tenuis*. The results revealed no significant difference between the overall total average growth performance at treatments of 50% and 100% *Ceratophyllum* acetone extracts determined by optical density (OD) and chlorophyll a (chl a). Both extracts showed stimulation of *Microcystis aeruginosa* growth. The highest growth increase in 100 $\mu\text{L}/100\text{ml}$ treatment with 50% acetone extract had a percentage rate, (R), of 94.66. On the contrary, treatment with ethanol extract recorded the highest inhibitory effect; in 1.5 $\mu\text{L}/100\text{ml}$ treatment with 50% *Ceratophyllum* ethanol extract, R was -87.54, with an LC_{50} value of 1.12 $\mu\text{l}/100\text{ ml}$. The highest stimulating effect in 10⁵ $\mu\text{L}/100\text{ ml}$ treatment with 50% *Ceratophyllum* acetone extracts against *O. tenuis* had an R of 169.4. The highest inhibition in 1500 $\mu\text{L}/100\text{ml}$ treatment with 50% *Ceratophyllum* ethanol extracts of *O. tenuis* resulted in an R of -74.32, and an LC_{50} of 0.830 $\mu\text{l}/100\text{ ml}$. While, the highest inhibition by 50% and 100% *Potamogeton* acetone or ethanol extracts of *M. aeruginosa* were in 80 and 70 $\mu\text{L}/100\text{ ml}$ treatments with an R of -99.80 for both. There are significant differences between the overall averages for each solvent, both of 50% and 100% *Potamogeton* extracts against *O. tenuis* as estimated by OD or chl a. The highest inhibitory effect for *Potamogeton* with *O. tenuis* were in 10³, 800, 200 and 180 $\mu\text{L}/100\text{ml}$ treatments, using 50%, 100%, either acetone or ethanol extracts, yielding R values of -66.56, -73.24, -85.95 and -85.95, and LC_{50} values of 932, 590, 129.50 and 101.428 $\mu\text{l}/100\text{ ml}$, respectively.