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Preliminary Study on the Effect of Agrochemical Application on Freshwater Algae

Bandara, A.M.I.D., Sachintha, J.M.D., Thavaranjit, A.C., Pathmanathan, S.*

Department of Botany, University of Jafffna, Jaffna, Sri Lanka
**sevvel@univ.jfn.ac.lk*

Abstract

The addition of agrochemicals to freshwater ecosystems can have a significant impact on the growth of algae. This study investigated the effects of fertilizers, herbicide, and insecticide on the growth of freshwater algae in selected ponds in Jaffna peninsula, Sri Lanka. Cultures of freshwater algae were grown in modified Blue green-11 (BG-11) media under laboratory conditions for three weeks and haemocytometer counts (cells/ml) were made. Similar count was made after adding eight different concentrations of fertilizer, herbicide, and insecticide. Cultures of freshwater algae were grown in glass house in trays resembling paddy field conditions for three weeks. Statistical analysis was done using Minitab 17. The results showed that the fertilizers used significantly ($p=0.05$) increased the growth of algae at all concentrations tested. The high- dose treatment of urea (3.33×10^{-3} mol/dm^3) and triple superphosphate (TSP) (1.219×10^{-3} mol/dm^3) had the greatest effect on growth, followed by low-dose treatment having lowest effect under the experimental conditions used. The results also showed that the herbicide (Kensolo bispospyribac sodium) significantly ($p=0.05$) decreased the growth of algae at all concentrations tested. The highest concentration of herbicide (0.0307×10^{-8} mol/dm^3) had the greatest effect on growth under the experimental conditions used. However, the results for Insecticide (Thiamethoxam) showed that it had no significant effect on the growth of algae under the experimental conditions used. The control treatment without the addition of fertilizer, herbicide and insecticide had no significant ($P=0.05$) effect on growth

Keywords: Freshwater algae, Insecticide, Herbicide

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