

GROWTH INHIBITION OF ALGAE BY ALLELOPATHIC EFFECTS OF MACROPHYTE-LEACHATE

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Macrophytes and algae are known to have an antagonistic relationship in aquatic ecosystems. The present study quantitatively and systemically investigated the respective inhibitory effects of eleven emergent macrophytes and two floating-leaved macrophytes on algal growth. Bioassay with the most undesirable green alga *Chlorella pyrenoidosa* and blue-green alga *Microcystis aeruginosa* revealed that all the eleven emergent macrophytes and two floating-leaved macrophytes inhibit the growth of the algae. Among the thirteen macrophytes, *P. communis* demonstrated the strongest inhibition on the growth of *C. pyrenoidosa*. Different part of the macrophyte *P. communis* demonstrated different allelopathic activity, among which, the foliage showed the strongest inhibit activity. The macrophytes prolonged the lag time of the growth curve of the algae and as a result decreased the carrying capacity of the algal culture system. Two factions showed strong inhibitory effects were isolated from *P. communis*. One of the fractions was further isolated by alkaline alumina chromatography both inhibitory and promoting allelopathic fractions were obtained.

Keywords: allelopathy; macrophyte; inhibition; algae; *Chlorella pyrenoidosa*