

EFFECTS OF MORINGA EXTRACTS ON SEDIMENTATION AND GROWTH OF *CHLORELLA VARIABILIS*

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ABSTRACT

*The effects of extraction solvents, extraction time and extracts from moringa tree parts on the sedimentation and growth of *Chlorella variabilis* NIES-2541 were investigated. Hot water extract was the most effective in inducing sedimentation of the cells. This was followed closely by cold water extract while ethanol extract was the least effective in inducing cell sedimentation. With all the three solvents tested, the efficacy of the extract in inducing cell sedimentation increased with increase in extraction time. With either hot water or cold water extract from 5g/l seed, more than 80% of the cells sedimented within 30 minutes. This is considered enough for the harvesting of microalgae during repeated batch cultivation. In comparison with seeds, the abilities of leaves, flowers, stem and root bark extracts to induce sedimentation of the cells were very low. Nevertheless, root bark extract was more effective than the leaves, flower and stem bark extracts in inducing cell sedimentation. Low concentrations of moringa seed extract (1~5 g/l) stimulated cell growth but the optimum concentration was 3 g/l. On the other hand, high concentration (6 g/l) of moringa seed extract inhibited cell growth. These results have shown that moringa seed extract can be used for harvesting of *Chlorella variabilis* cells through sedimentation without adverse effect on the growth of the cells during the subsequent batch.*

KEYWORDS: *Cell Growth, Cell Sedimentation, *Chlorella Variabilis*, Harvesting of Microalgae, Moringa Oliefera, Seed Extract*

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