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Some soil extraction experiments on the enhancement of targeted algae growth in preparation for future development of outdoor mass culture system for microalgae

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 γ ome studies have shown that algal growth has been enhanced with the addition of soil extract. However, little is known why **O**algal growth is enhanced when soil extract is added and which extraction methods are effective in enhancing algae growth. But by successfully developing the technique which will enable the growth of targeted algae to be enhanced through the addition of a particular soil extract, such knowledge is invaluable for the development of outdoor mass culture of microalgae for various useful uses. In these experimental works, soil collected from Raja Musa Forest Reserve in Malaysia was used to produce soil extracts using different extraction methods. The concentrations of Dissolved Organic Carbon (DOC), Total Dissolved Nitrogen (TDN) and Total Dissolved Phosphorus (TDP) in the soil extracts were then compared. These different extraction methods include varying the temperature and the duration of exposing the soil to a particular temperature in the extraction process. The soil extracts were then used as additives, added in different proportions to existing Conway media and tested on the growth of Nannochloropsis oculata, Chlorella sorokiniana and Chlorella vulgaris by subjecting to constant light intensity of 2000 lux with photoperiod of 12L:12D at a constant temperature of 25 oC. This experiment showed that the elemental ratios were different at various processes suggesting that the recovery of DOC, TDN and TDP was depended upon the amount of heat provided during soil extraction process. N. oculata and C. sorokiniana had shown maximum growth on the 9th day when treated with the soil extract but C. vulgaris did not show any enhancement. These experimental results are vital in the future development of a closed photo-bioreactor for outdoor mass culture production of microalgae for aquaculture industry sustainability.

Biography

Mohd Kushairi Mohd Rajuddin has obtained his PhD from the University of Newcastle Upon Tyne, England in 1997 in the field of Ecology. He is currently the Head of the Laboratory for Bio-Optical Observations at the Faculty of Engineering & Life Sciences, Universiti Selangor (UNISEL), Malaysia. He is currently one of the leaders in the SATREPS research collaboration works carried out between a number of universities and institutions in Malaysia and Japan on the aspect of developing eco-friendly and highly productive aquaculture practices in Malaysia.

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