

Growth and Biochemical Composition of Tetraselmis sp. and Chlorella sp. under Varied Growth Conditions

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Abstract : In this study, Tetraselmis sp. and Chlorella sp. isolated from Penang National Park coastal waters, Malaysia, and cultivated under combined various laboratory conditions (temperature, light and nitrogen limitation and starvation). Growth rate, dry weight, chlorophyll a content, total lipids content and total carbohydrates content were estimated at mid-exponential growth phase. Tetraselmis sp. and Chlorella sp. showed remarkably decrease in growth rate, chlorophyll a content and dry weight when maintained under nitrogen limitation and starvation conditions, as well as when grown under 12:12 h light, dark regime conditions. Chlorella sp. showed ability to counter the fluctuation in temperature with no significant effects on the measured parameters; in contrast, Tetraselmis sp. showed a decrease in growth rate, chlorophyll a content and dry weight when grown under $15\pm 1^{\circ}\text{C}$ temperature. Cultures maintained under nitrogen full concentration, and 24 h light regime showed decrease in total lipids content, compared with 12:12 h light, dark cycle regime, in the two tested species.

Keywords : microalgae, biochemical composition, temperature, light, nitrogen limitation

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