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RESEARCH ARTICLE

Optimization of sodium nitrate concentration for growth and biodiesel potential in *Phormidium* sp.

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SUMMARY

Phormidium sp. is thermophilc, filamentous, non-heterocyst, blue green algae (Cyanobacteria) belongs to Phormidiaceae family. They can grow in variety of habitat as fresh water, sewage water, waste water and rice field. In the present study, the effect of *Phormidium* sp. on growth biomass with TAG's accumulation at different concentrations of sodium nitrate ($NaNO_3$) has been discussed. Biomass productivity under sodium nitrate enriched BG11 media for *Phormidium* exhibited an increment in growth rate and biomass production at lower concentration of sodium nitrate under 21days. Biomass production was almost triple from the original concentration under different treatment. The results indicated that optimum concentration for the highest biomass and growth rate of the *Phormidium* sp. was 1.5 g/lit of $NaNO_3$ while the lipid content was increased (4.3 ml) under low concentration (0.25g/lit) of $NaNO_3$ which indicates that nitrogen deficiency provokes stress condition which increases the accumulation of lipids. Thus, the study concluded that nitrogen is necessary for the biomass production but to enhance the biodiesel production it should be grown in lower concentration of nitrogen enrichment.

Key Words : Biomass, TAG, Sodium nitrate, BG-11

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