Title : Effect of Culture Media on Growth and Chemical Composition of *Nostoc* sp.

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ABSTRACT

Cyanobacteria are photosynthetic bacteria with high potential for applications in medicine, the food industry, and agriculture due to their capacity to synthesize a wide range of valuable biomolecules. This study aimed to investigate the growth performance and chemical composition of *Nostoc* sp. cultivated in five culture media containing different NaCl concentrations: BG-11_0 (without NaCl supplementation), and BG-11_0 supplemented with 0.5%, 1.0%, 1.5%, and 2.0% (w/v) NaCl over a 14-day cultivation period. The results indicated that *Nostoc* sp. grown in BG-11_0 supplemented with 1.0% NaCl achieved the highest dry biomass (0.2053 g/L). Whereas the lowest biomass (0.0708 g/L) was observed in the BG-11_0 supplemented with 2.0% NaCl, indicating that increasing NaCl concentration inhibited the growth of *Nostoc* sp. Regarding chemical composition, cells cultivated in BG-11_0 supplemented with 2.0% NaCl exhibited the highest total lipid content (26.86 ± 0.27%) and total carbohydrate content (41.85 ± 1.14%) on a dry weight basis. In contrast, the highest total fatty acid content (3.39% dry weight) and total phenolic content (6.52 ± 0.20 mg GAE/g) were detected in BG-11_0 supplemented with 0.5% NaCl. These findings demonstrate that varying NaCl concentrations in the culture medium significantly influence both growth and chemical composition of *Nostoc* sp., and provide a practical basis for selecting appropriate culture conditions to enhance biomass production and the yield of valuable biomolecules for commercial applications.

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