



Application of Low cost Spirulina growth medium using Deep sea water

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Deep-sea water has a relatively constant temperature, abundant nutrients such as calcium, magnesium, nitrates, and phosphates, etc., and stable water quality, even though there might be some variations of their compositions according to collection places. Thus, deep-sea water would be a good substrate for algal growth and biomass production since it contains various nutrients, including a fluorescent red pigment, and β -carotene, etc. The aim of this study was to investigate the economics of a culture condition through comparative analysis to *Spirulina platensis* growth characteristic under various medium conditions for cost-effective production of *Spirulina* sp.. Growth experiments were performed with *S. platensis* under various culture medium conditions (deep sea water + SP medium). Growth tests for culture medium demonstrated that the deep sea water to SP medium ratio of 50:50(W/W) was effective in *S. platensis* with the maximum biomass (1.35g/L) and minimum medium making cost per production mass (133.28 KRW/g). Parameter estimation of bio-kinetics (maximum growth rate and yield) for low cost medium results showed that the maximum growth rate and yield of N, P, K were obtained under deep sea water to SP medium ratio of 50:50(W/W) of 0.057 1/day and 0.151, 0.076, 0.123, respectively.

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