

Effect of Fractionated Seawater on Fatty Acids Productivity of a Marine Microalga *Tetraselmis* sp. KCTC12429BP

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Requirements for huge amount of water for microalgal cultivation is a major obstacle for commercialization of microalgal biofuels. While freshwater is limited resources and its usage should be prioritized for food production, seawater resource is nearly infinite. Unlike synthetic culture medium, seawater includes various substances that could affect microalgal biomass productivity. The effects of particles in seawater and treatment methods on the biomass productivity of a green microalga, *Tetraselmis* sp. KCTC12429BP, were investigated. Seawater was fractionated by membrane filters with 0.2 μm to 25 μm . Seawater with each fraction of solids was used for preparation of modified f/2 medium and cultivation of the microalgae. The fatty acids productivity was highest in the medium filtered with 4 μm , 31% and 24% higher than those of 0.2 μm filtered group and untreated seawater group, respectively. The results indicate that the fraction with size of 0.2 – 4 μm probably contains factors beneficial to microalgae. Further studies on identification of the factors that inhibit algal growth or enhance lipid productivity will help develop methods to improve microalgal biofuels production.