

Enhanced biomass and lipid production of microalgae under high light conditions by anisotropic nature of light-splitting CaCO₃ crystal

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The aim of this work was development of microalgae-based biomass-Biomineralization CCU hybrid system. The biggest problem facing humanity at present is climate change, glacier melting and ocean acidification due to the increase of carbon dioxide. To accomplish this problem, it is required to combine biological conversion processes and mineralization processes using microalgae. In this study, the biomass was obtained by using microalgae for the reduction of large amount of carbon dioxide, and calcium carbonate was obtained through induction of calcium ion-mediated biotin mineralization during the induction stage. The present invention relates to the development of a process capable of remarkably increasing the amount of carbon dioxide in the biomass by additionally producing calcite in an induction stage. Also, it can be demonstrated using double scattering effect. The biomass containing CaCO₃-omega 3 produced in the present process can be used as various feeds and cosmetic materials, and CaCO₃ serves as an excipient.