

Enhanced photosynthetic CO₂ mitigation from microalgae via calcite-mediated doubly scattering effect

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The aim of this work is 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 calcite was obtained through calcium ion-mediated biomineralization during the induction stage. Consequently, it is possible to remove a large amount of carbon dioxide by converting carbon dioxide into calcite. Also, we can produce more biomass containing the high content of lipid because of double scattering effect.