

Outdoor mass cultivation of indigenous low temperature tolerance microalgae using piggery manure and solid fertilizer in winter season, South Korea

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The aim of this study is to investigate growth characteristics, nitrogen and phosphorous removal, and lipid components of low-temperature tolerance microalgae cultivated by outdoor mass cultivation system. In order to achieve this study, pilot-scale outdoor photo-bioreactors using piggery manure and solid fertilizer with final effluent of Daejeon sewage treatment process as medium for algal growth were established in winter of South Korea, in which belongs mid-latitude temperate climate zones that with distinct four seasons that with the average temperature not below 10°C in winter. Also, low temperature tolerant indigenous microalgae community were evaluated with 18s RNA gene analysis, DGGE, and microscopic observations.