Cultivation of Thraustochytrium sp. to Produce Docosahexaenoic Acid

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ABSTRACT

In the last few years , everyone started paying attention to personal health, and disease prevention due to the improvement of the society. Docosahexaenoic acid (DHA) has physiological effects in heart and circulatory system, inflammatory and dermatitis disease. The study was investigated on batch production of DHA by Thraustochytrium sp. using 20 L fermentor. During the batch cultivation, temperature and pH were controlled at 25 ℃ and 6.5. Agitation and airflow were adjusted to keep the dissolved oxygen above 30 % of Saturation. Samples were taken for measurements of biomass, lipid and DHA contents. The medium contained per liter:20.0 g glucose, 1.0 g ammonium sulfate. The results of experiment show that after 30 hrs, the nitrogenous source was exhausted, but there was still 11.54 g/L of carbonic source in the broth. However, the biomass and lipid were keeping raising. After 33 hrs, the biomass and lipid increased greatly. Until glucose was exhausted, biomass and lipid was decreasing. Under no carbonic source, microbe would consume the lipid which made by itself so that lipid was just decreasing. At 37 hrs, biomass was 3.48 g/L and lipid was 1.58 g/L. It was close to the stationary phase of microbial growth and lipid. At this time, docosahexaenoic acid was 251.07 mg/L. The lipid was 48 %of biomass and the doc- osahexaenoic acid was 7.61 %of biomass, respectively. Key Words ：Thraustochytrium sp. docosahexaenoic acid (DHA)

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Table of Contents

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