Japonochytrium the Significant Source of Lipids.

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JAPONOCHYTRIUM THE SIGNIFICANT SOURCE OF LIPIDS

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Fatty fishes belong to the primary sources of PUFAs in the human diet, nowadays. Human consumption of the fish oils continuously increases with people conviction of their positive health effects. Furthermore, it has been estimated that the total annual production of marine fish oil for omega-3 PUFAs (polyunsaturated fatty acids) as widely used prophylactic drugs will be insufficient to meet the worldwide demand in the closed future.

Microbial oils provide a sustainable alternative to fish oils and moreover, they don't contain the potentially toxic impurities inherent to fish oils (Hauvermale, 2006, Burja et al., 2006).

Japonochytrium sp. AN4 (order Thraustochytriales) accumulates a high content of lipids, which a significant amount of omega-3 polyunsaturated fatty acids.

The aim of our research was focused on finding conditions of extraction separation of lipids from fresh or dried biomass suspension of *Japonochytrium sp.* AN4 and on determination of individual fatty acids in their lipids. The extraction experiments were conducted with two types of extraction solvent mixtures with respect to time period of the process and the separation efficiency. The fatty acids presented in lipids were determined by their methyl esters analysis.

The laboratory tests suggest that *Japonochytrium sp.* AN4 is certainly promising source of docosahexaenoic acid (DHA, n-3). Two methods for the extraction of DHA were used. The content of DHA in the wet biomass obtained by centrifugation was approx. 80% of the total amount of 1472 mg DHA/ l suspension. The efficiency of the extraction process of the dry biomass was established at 50-55% of the total amount of DHA.

Conditions of the extractive separation of fatty acids from biomass were also determined. Challenge for the future research is the development of separation equipment for biomass-based *Japonochytrium sp.* AN4.

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