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Amino acid profile of marine eukaryotes, thraustochytrids and possibility as protein source for aqua-feeds

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World aquaculture production has continued to increase. Fishmeal is used as protein sources for aqua-feeds. However, the price is drastically increased to around 170,000/ ton in 2013 during recent 10 years because of the decrease of fish resources, anchovy. This is serious problem for sustainable aquaculture. Therefore replacement of fishmeal to another resource is urgently needed. Thraustochytrids are widely distributed in marine environment and can accumulate large amount of lipids in cell bodies. Therefore, thraustochytrids have attracted strong interests for production of valuable lipids. In the process of lipid extraction from the cultured cells, extract residue are produced as byproducts. It is considered that this extract residue except for lipids is mainly consists of protein. From the viewpoints of industrial application of thraustochytrid cells as protein sources, we have planned to apply these byproducts as protein resources instead of fishmeal for aquafeeds. In this study, we evaluated the amino acid profile of thraustochytrids as aquafeeds. In the case of a thraustochytrid, *Aurantiochytrium limacinum* mh0186, the content of crude protein and lipid per g of the cultured cell were 333 mg and 440 mg, respectively. The amino acids of the cultured cells are mainly consisted of around 20 kinds including essential amino acid such as glycine, leucine, isoleucine, glutamate and arginine. At present, we have isolated more than one hundred thraustochytrids from marine environment and are making the amino acid profile. We are searching the adequate thraustochytrid strains as protein source in the field of aquaculture.

Biography

Yousuke Taoka has completed his PhD from the United Graduate School of Agricultural Sciences, Kagoshima University and Post-doctoral studies from University of Miyazaki. He worked in a commercial fisheries company, Nippon Suisan Kaisha, Ltd. as a researcher and arrived at present post in University of Miyazaki at 2011. Recently, he has focused on the production of functional substances from marine microbes and the utilization in the field of aquaculture.

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