

Classification of Indigenous Thraustochytrids of Taiwan

by

Matrix-Assisted Laser Desorption Ionization

Time-of-Flight Mass Spectrometry

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Thraustochytrids are a group of marine osmoheterotrophic, straminipilan protists that grow in the neritic and oceanic water, especially in mangrove region, and probably play an important role as saprobes. The high content of ω -3 polyunsaturated fatty acids (PUFA) makes thraustochytrids as a candidate source for commercial docosahexaenoic acids (DHA) and eicosapentaenoic acid (EPA). To search indigenous thraustochytrids with commercial value, we tried to collect the indigenous species of thraustochytrids from mangrove regions of Taiwan and analyze their levels of PUFA (such as DHA and EPA) and carotenoids (such as astaxanthin). Besides, our previous research indicated that the ethyl acetate (EtOAc) extracts of several species of thraustochytrids have certain components with a clear inhibitory activity toward acetylcholinesterase (AChE), which is responsible for the breakdown of acetylcholine (Ach) in the neural synapse to lead “cholinergic deficit hypothesis” of Alzheimer's disease.

Although there are some established taxonomic characterization of the thraustochytrids by modern biotechnology for their molecular identification, the procedure of the species identification is still time- and cost-consuming. Recently, MALDI biotyper, based on the analysis of the expressed intrinsic proteins of microbes, is regarded as a powerful and rapid tool for the species identification of the pathogens in hospitals. In the poster, we would try to propose the biotyper database of the strains of thraustochytrids by matrix assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF MS) to facilitate the species identification of indigenous thraustochytrids from mangrove regions of Taiwan.