

ABSTRACT

Adjani Aisyah Diviansyah, 24020120190044. **Isolation and Molecular Characterization of Thraustochytrids from Different Water Samples and Decayed Mangrove Leaf in Kuala Terengganu.** Under the guidance of Anto Budiharjo and Shumpei Iehata.

Thraustochytrids are unicellular, osmo-heterotrophic marine protists that play a vital role in marine ecosystems. They are found in various environments, including marine waters, sediments, algae, and decaying mangroves. These organisms adapt to environmental changes by altering their fatty acid profiles and producing valuable polyunsaturated fatty acids (PUFAs). This study aimed to explore the genetic diversity and identification of Thraustochytrids in Kuala Terengganu. Conducted over 4 months at the Fisheries Biosystem Laboratory, Fisheries Organism Health Laboratory, and General Quality and Analysis Laboratory, Faculty of Fisheries and Food Sciences, Universiti Malaysia Terengganu (UMT), the research involved collecting samples from the mangrove decayed leaf and marine water at beach within the UMT campus. After incubation with an antibiotic cocktail and pine pollen, the samples were plated on GYP agar to isolate Thraustochytrid colonies. Morphological identification was performed by assessing colony coloration, texture, and size. Molecular identification was conducted by PCR with LABY-A and LABY-Y primers and analyzed using MEGA 11 software against GenBank databases. The result highlights the identification of two Thraustochytrid isolates from mangrove leaf was close to *Ulkenia* sp. and three isolates from marine water were high similarity with *Oblongichytrium* sp. The study provides a comprehensive view of their diversity through detailed comparisons of morphological and molecular data, concluding that these five isolates belong to the genera *Ulkenia* sp. and *Oblongichytrium* sp.

Keywords: Thraustochytrids, Marine, Protist, Mangrove, Kuala Terengganu