

ABSTRACT

Nur Muhammad Naufal, 24020121140160. **Isolation and Molecular Identification of Thraustochytrid from Mangrove Sediment using 18S rRNA Gene.** Under the guidance of Anto Budiharjo and Shumpei Iehata.

Thraustochytrid are a group of monocentric organisms in the kingdom Chromista and hold great promise for biotechnological applications. Thraustochytrid are known to be able to produce polyunsaturated fatty acids, enzymes, polysaccharides, and secondary metabolites. Mangrove ecosystems in Brebes and Demak exhibit extensive coverage and hold diverse potential, including the development of fish hatcheries and ponds and ecotourism. This research aimed to investigate the diversity of Thraustochytrid present in mangrove sediments in Brebes and Demak to provide a comprehensive understanding of their genetic variation. The study was conducted at the Molecular and Applied Microbiology Laboratory, UPT Integrated Laboratory, Diponegoro University, Semarang, Central Java, and was continued for 4 months. Isolation was performed using the pollen baiting method and glucose, yeast, and peptone (GYP) media. After isolation, macroscopic and microscopic identification were conducted, followed by primary screening using the Sudan Black B method to determine lipid content. Thereafter, molecular identification using primers 18S001 and 18S13 was performed on isolates that showed the highest lipid content. A total of four Thraustochytrids (two from Brebes SB, SB1, and two from Demak SD, SD1) were isolated, and strains SB and SD showed the highest lipid content. Phylogenetic analysis showed that the SB isolate showed the same clade as the genus *Thraustochytrium*, and the SD isolate showed the same clade as the genus *Schyzochytrium*. In conclusion, there is a difference in Thraustochytrid isolates in mangrove sediments from Brebes and Demak.

Keywords: *18S rRNA, mangrove sediment, Thraustochytrid*