

ABSTRACT

Dwi Putri, 24020221120010. **Molecular Identification and Analysis of the Biodegradation Potential of Diesel by Manglicolous Yeast Isolated from Mangrove Sediments - Tapak Semarang** (under the guidance of Anto Budiharjo and Hermin Pancasakti Kusumaningrum)

Water pollution by diesel frequently occurs in coastal areas due to shipping activities, tank leaks, and improper fuel management. The biodegradation approach becomes a safer and more environmentally friendly method to address hydrocarbon contamination, one of which is through the use of manglicolous yeast capable of using hydrocarbons as a carbon source. This study aims to identify species of manglicolous yeast from Tapak mangrove sediment, Semarang, as well as to analyze their biodegradation potential against diesel at various concentrations. The research methods include isolating yeast from sediment samples and screening growth qualitatively on selective media containing diesel. Isolates that are able to grow are then tested for their ability to degrade diesel at concentrations of 1% (K1), 3% (K2), and 5% (K3) and quantified using the gravimetric method. This study used a factorial Completely Randomized Design (CRD) with two factors: isolate factor I1 (TPK1) and I2 (TPK2), and diesel concentration factor 1% (K1), 3% (K2), and 5% (K3) with three replications. The data were analyzed using Two Way ANOVA. The results showed that isolate TPK2 had the highest degradation ability, with average abilities at 1% concentration of 77.30%, 3% of 83.72%, and 5% of 83.77%, and the most optimal growth at 1% diesel concentration. Isolate TPK2 was then molecularly identified using ITS markers as the species *Meyerozyma caribbica*.

Keywords: biodegradation, solar, manglicolous yeast, Meyerozyma caribbica