

## ISOLATION AND ACTIVITY TEST OF HYDROCARBON DEGRADING MOLD FROM THE PETROLEUM WASTE OF PT OLLOP BULA IN WEST SERAM DISTRICT

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### ABSTRACT

The high activity of offshore petroleum mining causes water pollution by crude petroleum spills which damages the ecosystem. Naturally the offshore petroleum spill disappear by the microorganism activity which uses the petroleum as a source of nutrition. Molds is a microorganism which has the capability to degrade hydrocarbons because it has certain enzymes that can break down hydrocarbons into simpler forms and are not harmful to the environment. The research results found six mold isolates and all of the isolates have a good growth activity in PDA modification + petroleum waste medium. In addition, the results of the degradation activity test of mold isolates show that the isolate V is more powerful in degrading hydrocarbon.

**KEY WORDS:** Mold, Isolates, Hydrocarbon, Ollop

### INTRODUCTION

Petroleum is the main energy source that the world population needs. Other energy sources have not been able to replace the role of petroleum as a major energy source. This encourages the development of petroleum industry to intensify exploration, transportation and processing of petroleum (Silvia, 2009). In addition to be an energy source, petroleum is also a source of foreign exchange for the country. As an energy source, petroleum has a lot of benefits such as for industrial activities, transport and households (Karwati, 2009; Astuti, 2012; Atlas., 1981). However, the existence of petroleum can also pollute land, water, and air environments around the petroleum industry operations. The petroleum contamination may come from petroleum spills during drilling, the storage system leaks, production, disposal of waste from industrial activities, seepage from the source, refining, and transportation (Astuti, 2012; Atlas, 1981; Leahly and Colwell, 1990). Petroleum contamination can cause serious problems to coastal, river, land and environmental ecosystems near the petroleum exploration. This is because petroleum contains a

contaminant which is hard to be degraded, which is hydrocarbons (Atlas, 1981; Leahly and Colwell, 1990). When these compounds contaminate the soil surface, then these substances can evaporate, swept away by rainwater, or seep into the ground and then deposited into a toxic substance that causes intoxication in living organisms, interfering the absorption of light for the photosynthesis in aquatic plants, and affect the balance of the surrounding ecosystem. This is in line with the opinion by Alexander *in* Karwati, that the presence of contaminants which are difficult to be deraded and which are toxic to the soil will interfere the growth of plants and other organisms that live in it. As a result, the quality of the environment of the living organisms becomes less good. Thus, it requires serious handling. Therefore, an appropriate, fast, effective handling is needed and which does not disturb the environment (Sudrajat *et al.*, 2015; Nugroho, 2006; Gunalan, 1993).

There are many ways that can be done to overcome petroleum contamination. In general, it can be done by, physics, chemistry and biology (Yojana, 1995). According to Doeffer *in* Shinta Sivia, the physical approach is usually used in an initial

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