

**SCREENING AND ISOLATION OF EFFECTIVE MICROBES  
FOR DECOMPOSITION PROCESS AMONG  
DIFFERENT OF ORGANIC WASTES**

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## ABSTRACT

### SCREENING AND ISOLATION OF EFFECTIVE MICROBES FOR DECOMPOSITION PROCESS AMONG DIFFERENT OF ORGANIC WASTES

The organic waste is the biodegradable material that comes from either the plant or animal. It can be decomposed over time by microbes into carbon dioxide, water, methane and other simple organic molecules. Microorganism especially bacteria and fungus are able to decompose cellulose by an enzyme known as cellulase that produced by itself. Since plant are made up from cellulose, the study is focused on isolating and identifying the microbes that are responsible in decomposing the organic waste by screening for the microorganism that are able to produce cellulose enzyme. In this experiment, we isolate the bacteria from three different samples, which are; compost product, decayed wood and empty fruit bunch mix with oil palm frond. The samples collection is only taken from the fresh decomposing organic waste. The samples undergo serial dilution, screening of ability of the microorganism to solubilize phosphate by using National Botanical Research Institute's Phosphate (NBRIP), screening of ability of the microorganism to produce cellulose enzyme by using Carboxymethyl Cellulose Media (CMC) and treated with Congo Red and NaCl for confirmation of the targeted effective microbes. The result shows that the targeted effective microbes will produce the halo zone or clear zone formation after treated with Red Congo and NaCl solution. In this experiment, we manage to isolate and identify the bacteria that responsible in producing cellulase enzyme and solubilizing phosphate and known as *Streptomyces sanglieri*. The use of these organic waste for supply the nutrient to the plant should be practiced because the microbes are cultured in NBRIP that proven can be solubilize phosphate. In the other words, the effective microbes will promote the plant uptake due to its ability in converting the nutrient into available form to the plant.

*Keywords: cellulose producing bacteria, phosphate solubilizing bacteria, effective microorganism.*