

THE ANALYSIS OF PATHOGENIC MICROORGANISM CONTAMINATION ON LITTERFALL COMPOST USING THREE ACTIVATORS AT UNIVERSITAS AL AZHAR INDONESIA

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Abstract- This study aims to determine the effect of three activator types due to the number of microorganisms on the green waste and to determine the bacterial contamination, such as *Salmonella*, *Shigella*, *Streptococcus*, *Staphylococcus*, *Coliform* and Fungi on green waste compost at Universitas Al Azhar Indonesia (UAI). The amount analysis of microorganisms is carried by the drop test on various medium, such as PCA, SSA, BP, ES, McConkey and PDA. The identification of *Coliform* is performed with biochemical activity assay and MPN test in LB broth and BGLB medium. The result of this study shows that there is no increasing amount of microorganisms with the role of three activator types. A fine commercial fertilizer still have a colony of *Salmonella*, *Shigella*, *Streptococcus*, *Staphylococcus*, *Coliform* and fungi with a few number of these bacteria.

Keywords -Microorganism contamination, Compost, UAI green waste.

I. INTRODUCTION

Universitas Al Azhar Indonesia (UAI) produces organic waste in the form of litterfall. Litterfall is managed to be composted with microorganisms. Microorganism has an important role in helping the maturation of compost. Therefore, the researcher uses three activators, such as manure, commercial compost and artificial

fertilizers from UAI students to assist the decomposition of litterfall compost.

In the composting process, some quality standards must comply with Standar Nasional Indonesia in manufacturing organic fertilizer (SNI: 19-7030-2004) [1]. In order to maintain and produce good compost, something that is needed to be considered is the number of *Coliform* and *Salmonella-Shigella* microorganisms, with each value of <1000 MPN/g and <3 MPN/g.

In addition, there are bacteria and other microorganisms that must be considered during the process of composting, such as *Staphylococcus*, *Streptococcus*, and fungi. These pathogenic bacteria and fungi are not included in ISO because they will die during the composting process.

To determine the contamination of microorganisms, the researcher conducts an analysis in order to maintain the quality of compost litter.

II. RESEARCH METHODS

Litterfall Compost

An artificial fertilizer that is used in this study is compost which is produced at Universitas Al Azhar Indonesia. The researcher uses three activators, such as manure (cow dung), commercial fertilizers, artificial fertilizers from UAI students, and has to put them into a 40L bucket which has holes on the edges to ease aeration process. There is also a homogenization process of these materials once a

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