

# I. INTRODUCTION

## 1.1 Background

Efforts to increase agricultural production are very important, especially to meet food needs. Many things have been done to overcome various kinds of obstacles that can make plant quality worse, such as declining soil quality due to overcrowding or lack of soil microorganisms in agricultural areas. With these various constraints, of course, the relevant parties are competing to find the right products to overcome the problem, for example, there are many chemical-based fertilizers found in the market which of course are not environmentally friendly or other commercial fertilizers.

To tackle these problems, of course, innovation is needed to find new products made from organic materials that are environmentally friendly. So that the idea arises to utilize organic waste such as market waste that only pollutes the environment. So from this waste, we can make beginner microorganisms better known as effective microorganisms with local waste products (LMO). Local Microorganism Solution (LMO) is a solution made from natural ingredients, as a living medium and the development of microorganisms that are useful for accelerating the destruction of organic matter (Budiyani *et al*, 2016). LMO can also be called bio-activator which consists of a collection of local microorganisms by utilizing the potential of local natural resources. MOL can function as a help in breaker decomposition process of organic matter and as a liquid fertilizer through a fermentation process (Setiawan, 2013).

In this LMO study, the materials used are very easy to find in our environment such as golden apple snails which are considered as one of the pests for farmers because they are considered to interfere with the growth of rice so that their

existence is undesirable. In addition, there are legumes that have many benefits such as beans, long beans, and peanuts which also have high nutritional content such as carbohydrates, proteins, fats, and vitamins (Astawan, 2009). In accordance with the explanation above as a form of efforts to finding organic waste products with the addition of various main compositions, namely to find effective and environmentally friendly natural products so that they can compete with similar products that have been sold commercially such as EM4 products that are well-known and have various disadvantages in terms of price which is considered expensive and the effectiveness of its performance which is sometimes not in accordance with the environmental conditions of our respective regions. Therefore, this research is expected to be a solution for farmers and related parties in overcoming agricultural problems in the field of farming, and being able to replace EM4 products as the king of effective microorganism in the world of agriculture today which also has a lack of expensive product prices.

### **1.2 Problem Formulation**

- a) What groups of microorganisms are contained in LMO and what is the total presence of these microorganisms and what is the comparison with EM4?
- b) What is the quality of compost produced from the composting process using LMO and EM4 (Control)?

### **1.3 Research Objectives**

- a) To find out the comparison of groups and the total number of microorganisms contained in LMO with EM4.
- b) To find out the quality of compost produced using LMO and EM4.

### **1.4 Benefits of Research**

The benefit of this research is to provide information about the existence of local microorganism products (LMO) made from local organic waste that is easily obtained and has benefits that can compete with commercial products such as EM4.

