Isolation and Identification of Bacterial Composition of Composting Process

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ABSTRACT

The research was aimed to identify species and characteristic of bacteria that live in Galuga waste dump site, and to compare hot composting (closed bin) and cold composting (ventilated bin). 7 bacterial genus (Lysteria, Neisseria, Kurthia, Rothia, Acinetobacter, Streptobacillus and Streptococcus) were able to be purified from Galuga waste dump site. Gram positive bacteria are Lysteria, Kurthia, Rothia. and Streptococcus. Gram negative bacteria are Neisseria, Acinetobacter, and Streptobacillus. Among 7 isolated bacteria Lysteria, Neissena, Kurthia, Rothia, Acinetobacter, and *Streptobacillus* belong to mesophilic bacteria. Meanwhile, Streptococcus is thermophilic bacteria. Composting in closed bin (hot composting) indicated better result than composting in ventilated bin (cold composting). For better cornposting process, material composting should not only leaves but also other organic materials.

1. INTRODUCTION

1.1. Background

Composting, sewage treatment, and certain types of fermentation have been practiced by humankind since the beginning of recorded history, and all these utilize microbial processes. Evidence of kitchen middens and compost piles dates back to 6000 B.C. And the more modern use of bioremediation begin over 100 years ago with the opening of the first biological sewage treatment plant in Sussex, UK, in 1891. Yet the word bioremediation is fairly new. Its first appearance in peer-reviewed scientific literature was in 1987 (Hazen, 1997).

Composting is a natural biological process, carried out under controlled aerobic conditions (requires oxygen). In this process, various microorganisms, including bacteria and fungi, break down organic matter into simpler substances. The effectiveness of the composting process is dependent upon the environmental conditions present within the