

ISOLATION AND MOLECULAR IDENTIFICATION OF BACTERIA FROM PARTIALLY COMPOSTED RICE STRAW WITH CELLULOSE DEGRADATION POTENTIAL ¹

JENILYN C. GAJES

ABSTRACT

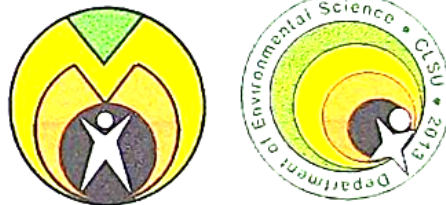
Background: The purpose of this study was to identify the pre-isolated bacterial species potential for cellulose degradation present in partially composted rice straw samples using molecular techniques. Also, to evaluate and confirmed the cellulose degrading ability of the pre- isolated bacterial species. **Methods:** Bacterial species present in partially composted rice straw was isolated using CMC assay. The bacterial species with cellulose degradation potential was identified using molecular assay approach. **Results:** During the preliminary cellulose assay screening, there are three (3) isolates that showed clear zone around its colony. The sample with code R2 isolate shows a clear zone around it during the confirmation. Colony PCR using 16S universal primer followed by sequencing and BLAST analysis identified the isolate as *Pseudomonas* sp. (KF542910.1). Literature suggest that this species found to have a potential for degrading cellulose and has a many used in biotechnological processes. **Conclusions:** Results indicated that the bacterial species identified as *Pseudomonas* sp. was confirmed to degrade cellulose after CMC assay. The importance and usefulness of these bacteria in the remediation of environment needs to be validated.

Keywords: bacteria, cellulose degradation, molecular technique and polymerase chain reaction

¹ An undergraduate thesis presented to the Faculty of the Department of Environmental Science, College of Arts and Sciences, Central Luzon State University, Science City of Muñoz, Nueva Ecija in partial fulfillment of the requirements for the degree of Bachelor of Science in Environmental Science. Prepared under the supervision of Associate Professor Dr. Jerwin R. Undan, and Assistant Professor Krstine Grace D. Waing. June 2017. **ENV-BIO-02-17-010**

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in Partial Fulfillment of the Requirements
for the Degree of

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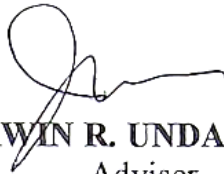
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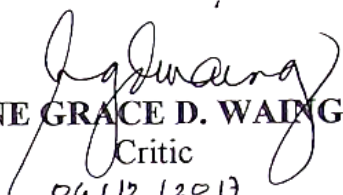
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APPROVAL AND ACCEPTANCE


The undergraduate thesis entitled **ISOLATION AND MOLECULAR IDENTIFICATION OF BACTERIA FROM PARTIALLY COMPOSTED RICE STRAW WITH CELLULOSE DEGRADATION POTENTIAL** prepared and submitted by **JENILYN C. GAJES** in partial fulfillment of the requirements for the degree of **BACHELOR OF SCIENCE IN ENVIRONMENTAL SCIENCE** is hereby

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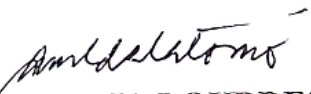

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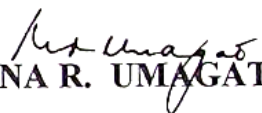

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