CENTRAL LUZON STATE UNIVERSITY

SEQUENCING AND CHARACTERIZATION OF LAC2 GENE OF *Ganoderma lucidum* STRAIN

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An Undergraduate Thesis Submitted to the Faculty of the Department of Biological Sciences, College of Arts and Sciences, Central Luzon State University, Science City of Muñoz, Nueva Ecija, Philippines, In Partial Fulfillment of the Requirements for the Degree

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ABSTRACT

DE VERA, DARLINA PRADO, Bachelor of Science in Biology, Department of Biological Sciences, College of Arts and Sciences, Central Luzon State University, Science City of Munoz, Nueva Ecija, Philippines, June 2017, **SEQUENCING AND CHARACTERIZATION OF LAC2 GENE OF *Ganoderma lucidum* STRAIN**

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The partial sequence of GL_LAC2 from available mycelia of *G. lucidum* was isolated in this study. The amplified product have 1.5 kb region with 559 bp using primer LacF1 and LacR1.The resulting sequence was extracted using Geneious v.9.05 ad De Novo assembly was performed to assemble the consensus sequence of the partial amplified LAC2 gene. Meanwhile, the GL_LAC2 have shown the closest resemblance with *Ganoderma weberianum* with at 67% confidence level, followed by *Ganoderma lucidum* and *Ganoderma tsugae* based on Phylogeny analysis which suggest that multiple genes evolutionarily derived from different ancestral laccase genes and phylogenetic structure. The GL_LAC had 84.18 % similarity with LAC2 gene of *G. weberianum* (KF384100.1), particularly exhibiting 115 number of polymorphism sites, indicating the uniqueness and diversity of this gene among the said strain. On the other hand, the GL_LAC2 of *G. lucidum* had 79.56 % similarity with *G. lucidum* (DQ914869.1), having 246 polymorphism indicating distant relativity or few conservation among the target

region. This study compared the laccase gene of *G. lucidum* to other *Ganoderma* sp. found in NCBI to determine the diversity and availability of sequences.

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