MOLECULAR IDENTIFICATION AND PHYTOCHEMICAL PROFILING OF MICROALGAE USING THIN LAYER CHROMATOGRAPHY

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ACCEPTANCE SHEET

This undergraduate thesis entitled "**MOLECULAR IDENTIFICATION AND PHYTOCHEMICAL PROFILING OF MICROALGAE USING THIN LAYER CHROMATOGRAPHY**" prepared and submitted by **KASSANDRA JLIN B. MARIANO**, in partial fulfillment of the requirements for the degree of **BACHELOR OF SCIENCE IN BIOLOGY (MICROBIOLOGY)**, is hereby accepted.

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BIOGRAPHICAL SKETCH

The author's name is Kassandra Jlin B. Mariano, born on April 7, 1998 at Gapan City Nueva Ecija. She finished elementary from Gapan South Central School at Gapan City, Nueva Ecija having awarded the 2nd honourable mention. She graduated high school from Juan R. Liwag Memorial High School in 2014 and was under a Special Science Curriculum. She took up Bachelor of Science in Biology major in Microbiology at Central Luzon State University in Science City of Muñoz, Nueva Ecija. Her on-the-job training was completed at the Agronomy, Soils, and Plant Physiology Division of the Philippine Rice Research Institute. She is a Department of Science and Technology – Science Education Institute Junior Level Science Scholarship (DOST-SEI JLSS) scholar from S.Y, 2016-2018. She also achieved academic scholarships during three different semesters for 2014-2017.

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ABSTRACT

MARIANO, KASSANDRA JLIN B., Department of Biological Sciences, College of Arts and Sciences, Central Luzon State University, Science City of Muñoz, Nueva Ecija, Philippines, **JUNE 2018, MOLECULAR IDENTIFICATION AND PHYTOCHEMICAL PROFILING OF MICROALGAE USING THIN LAYER CHROMATOGRAPHY**

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The study was focused on the molecular identification of the microalgae and evaluation of the phytochemicals it contain through thin layer chromatography.

The genomic DNA was extracted and was subjected to PCR amplification using nrDNA ITS and *rbc*L gene markers. The sample was amplified by using ITS gene marker. After the sequencing procedure, it was revealed in the BLAST analysis that the sample has 95% similarity to *Dictyosphaerium* sp. and was found out that the morphological characters of the two conform. The similarity of the morphological characters of the two supports the successful molecular identification of the microalgae with the use of ITS gene marker.

On the other hand, the results of the phytochemical screening revealed that phenols, steroids, triterpenes, essential oils, anthraquinones, coumarins, anthrones, phenolics compounds, tannins, alkaloids, and flavonoids were present in one sample and the other was also positive for all the constituents tested except for tannins. The phytochemical screening showed that the microalgae sample contain phytochemicals that have great importance in the medicinal field which can be used for future studies.

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