MYCOCHEMICAL SCREENING, ANTI-OXIDANT ACTIVITY, CYTOTOXIC, AND TERATOGENIC PROPERTY OF *Boletus* sp. COLLECTED FROM CENTRAL LUZON STATE UNIVERSITY

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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 of

BACHELOR OF SCIENCE IN BIOLOGY
(Major in Zoology)

JUNE 2019

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ABSTRACT

VILLANUEVA, LYRA MAE D.C, Department of Biological Sciences, College of Arts and Sciences, Central Luzon State University, Science City of Munoz, Nueva Ecija, Philippines, **JUNE 2019, MYCOCHEMICAL SCREENING, ANTI-OXIDANT ACTIVITY AND CYTOTOXIC PROPERTY OF *Boletus* sp. COLLECTED FROM CENTRAL LUZON STATE UNIVERSITY**

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Health benefits of regular consumption of macrofungi or bioactive compounds isolated from mushroom and the use of its functional food or nutraceutical product gain great importance, when it comes to the potential pharmacological properties of edible macrofungi. Several studies have been conducted on various macrofungi, however little is known about the *Boletus* sp. collected from Central Luzon State University.

In this study, secondary metabolites were detected using thin layer chromatography. DPPH radical scavenging activity assay was used for antioxidant activity. Cytotoxic property was also evaluated using *Artemia salina* nauplii in different treatment concentrations and *Danio rerio* was used to evaluate the teratogenicity in different concentrations of *Boletus* sp. extract.

Boletus sp. generally exhibited significant human healthful benefits. Its mycochemical constituents such as alkaloids, anthraquinones, anthrons, coumarines, essential oils, fatty acids, flavonoids, phenols, steroids, tannins, and triterpenes which contribute to its bioactivity are essential to the pharmacological industry. A great potential source of antioxidant compounds was exhibited by the mushroom with 26.09% radical scavenging activity and appreciable amounts of total phenolic content with 26.92%. After 24 hours of exposure of brine shrimp nauplii to varying concentrations, 10000 ppm and

1000 ppm is not comparable to the control. However, 100 ppm is comparable to 500 ppm which suggests that *Boletus* sp. has high toxicity containing bioactive compounds with LC_{50} of 34.25 ppm making it highly toxic.

The varying treatment concentrations of the *Boletus* sp. significantly revealed high mortality rates of the developing *D. rerio* embryos and suggests hatchability success within 36 hours of exposure. In terms of heartbeat, embryos exposed on lower concentrations, 0.10% with 143.33 beats per minute and 148 beats per minute in 0.05% were not significantly different with embryos in the control having 145.80 beats per minute while embryos at higher concentrations obtained 100% mortality thus, heartbeat rate was not observed. *Boletus* sp. extract generally exhibited teratogenic activity such as growth retardation, scoliosis, stunted tail, malformation of head, malformation of tail, limited movement and little pigmentation were the notable teratogenic effects of the extract to the developing embryos. Coagulation and no heartbeat were the most observed toxic effects.

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