CENTRAL LUZON STATE UNIVERSITY

PHYTOCHEMICAL SCREENING AND DETERMINATION OF THE BIOLOGICAL ACTIVITIES OF *Bambusa blumeana* J. A. and J. H. Schultes AND *Bambusa vulgaris* Schrad.ex Wendl. SHOOT EXTRACTS

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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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APPROVAL SHEET

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KIMBERLY CALLO AUSTRIA

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ABSTRACT

AUSTRIA, KIMBERLY C., 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, **PHYTOCHEMICAL SCREENING AND DETERMINATION OF THE BIOLOGICAL ACTIVITIES OF *Bambusa blumeana* J. A. and J. H. Schultes AND *Bambusa vulgaris* Schrad. ex Wendl. SHOOT EXTRACTS.**

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This study was carried out to evaluate the phytochemical constituent and to determine the different biological activities which include the antibacterial properties, antioxidant activity and phenolic content of the ethanol and hot water extracts of *Bambusa blumeana* (Kawayang Tinik) and *Bambusa vulgaris* (Kawayang Kiling) shoots.

Phytochemical screening revealed the presence of cardiac glycosides, saponins and tannins in all tested bamboo extracts. However, flavonoids are only found in ethanol and hot water extract of *B. vulgaris*, while steroids and terpenoids are present only in the ethanol extract of the tested bamboo shoots. Antibacterial activities as eradicant and protectant against *E. coli* and *S. aureus* were evaluated at 12 and 24 hrs of incubation. For eradicant test against *E. coli,* at 12 and 24 hours of incubation the widest zone of inhibition was observed in plates treated with *B. blumeana* ethanol extract with 10.05 mm while in *S. aureus* the widest zone of inhibition was observed in plates treated with *B. vulgaris* with 14.63 mm and 13.76 mm, respectively at 12 and 24 hours of incubation.

Moreover, protectant test showed that the smallest zone of bacterial colonization of *E. coli* and *S. aureus*, were observed in plates treated with *B. vulgaris* ethanol extract with 7.54 mm, 6 mm, 14.25 mm and 8.89 mm respectively, at 12 and 24 hours of incubation.

DPPH radical scavenging assay and total phenolic content revealed the antioxidant potential of bamboo shoots. Among the tested bamboo shoot, *B. blumeana* ethanol extract had the highest radical scavenging activity while *B. vulgaris* had the highest total phenolic content.

The results of this study showed that the antibacterial and antioxidant potentials of the bamboo shoot extracts tested that can be attributed to their phytochemical composition, total phenolic contents and radical scavenging activities.

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