FUNCTIONAL ACTIVITIES AND IMMUNOSTIMULATING POTENTIAL OF ETHANOL EXTRACT OF BROWN SEAWEEDS ON NILE TILAPIA AGAINST *Aeromonas hydrophila*

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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
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ACCEPTANCE SHEET

This undergraduate thesis entitled "**FUNCTIONAL ACTIVITIES AND IMMUNOSTIMULATING POTENTIAL OF ETHANOL EXTRACT OF BROWN SEAWEEDS ON NILE TILAPIA AGAINST *Aeromonas hydrophila***" prepared and submitted by **PRINCESS LEANNE G. RIEGO**, in partial fulfillment of the requirements for the degree of **BACHELOR OF SCIENCE IN BIOLOGY (ZOOLOGY)**, is hereby accepted.

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BIOGRAPHICAL SKETCH

The full name of the author is Princess Leanne Garcia Riego. She was born on December 30, 1997 in Taguig City. Her parents are Edilberto Riego and Lilian Riego. She is the eldest among her three other siblings. She's currently residing in San Leonardo, Nueva Ecija. She graduated primary education in Holy Cross College on year 2010 with honors, and graduated secondary education in Holy Cross College on year 2014 with honors. On her tertiary education, she took up Bachelor of Science in Biology Major in Zoology in Central Luzon State University.

She had been part of the following seminars and training: Symposiums of CLSU-Department of Biological Sciences with the themes "Current Trends in Food Safety and Quality Assurance", HIV: AIDS "Survival of the Fittest. The Human Culture Media", "Philippine Biodiversity and National Museum", "Role of Biologists in the Environmental Impact Assessment and Management Projects", and seminar of the Research, Extension, and Training Office entitled "Healthy Eating, Active Living: Sharing Best Practices of Nutrition Education in the Community".

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ABSTRACT

RIEGO, PRINCESS LEANNE G., Department of Biological Sciences, College of Arts and Sciences, Central Luzon State University, Science City of Munoz, Nueva Ecija, Philippines, **JUNE 2018, FUNCTIONAL ACTIVITIES AND IMMUNOSTIMULATING POTENTIAL OF BROWN SEAWEEDS ETHANOL EXTRACT ON NILE TILAPIA AGAINST *Aeromonas hydrophila***

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Immunostimulants increase resistance to infectious disease, not by enhancing specific immune responses, but by enhancing non-specific defense mechanisms. In the present study, *Turbinaria ornata* and *Sargassum polycycstum* were assessed for the phytochemical composition, antioxidant activity, antibacterial activity, and immunostimulating potential in Nile Tilapia against *Aeromonas hydrophila.* Phytochemical screening of the extracts revealed the presence of alkaloid, terpenoids, steroids, flavonoids, coumarins, and quinones, and absence of tannins, saponins, phenols, and glycosides. *T. ornata* and *S. polycystum* showed radical scavenging activity of 22% and 23.02%, respectively. Ethanol extract *T. ornata* and *S. polycystum* showed weak bacterial inhibitory activity *A. hydrophila* with diameter zone of inhibitions of 7.67 mm and 7.72 mm respectively after 24 hours of incubation. Immunostimulation assessment of the extract revealed that extract supplemented fish had increased in leukocyte level, normalized erythrocyte, reduced clinical symptoms of the pathogen, low mortality rate and high index of efficacy possibly indicate increase of immune system function of immunostimulating activity of the *T. ornata* and *S. polycystum.*

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