NEEM LEAVES (*Azadirachta indica* A. Juss) CRUDE EXTRACT AGAINST GUAVA FRUIT FLY (*Bactrocera dorsalis* Hendel)

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ACCEPTANCE SHEET

This undergraduate thesis entitled **"NEEM LEAVES (*Azadirachta indica* A. Juss) CRUDE EXTRACT AGAINST GUAVA FRUIT FLY (*Bactrocera dorsalis* Hendel),"** prepared and submitted by **JOCELYN T. NEUDA,** in partial fulfillment of the requirements for the degree of **BACHELOR OF SCIENCE IN ENVIRONMENTAL SCIENCE (ENVIRONMENTAL CHEMISTRY),** is hereby accepted:

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BIOGRAPHICAL SKETCH

On the 9th day of September 1999 the author, JOCELYN T. NEUDA was born in Bibiclat, Aliaga, Nueva Ecija. She is the third eldest among five children of Mr. Orlando V. Neuda and Mrs. Josephine T. Neuda.

She finished her Elementary Education at Bibiclat Elementary School. She graduated her Secondary Education in Central Luzon State University Laboratory High School- Bibiclat with honor. Now, she is studying at Central Luzon State University taking Bachelor of Science in Environmental Science major in Environmental Chemistry.

She participated during the symposium entitled "Role of Biologists in the Environmental Impact Assessment and Management Projects held at the University Auditorium, Central Luzon State University on November 22, 2016. She attended a seminar on Environmental Awareness with the theme "Kilos Para sa Kalikasan: Building Resilience Philippines" on November 15, 2017 held at the College of Arts and Sciences Little Theater. These experiences provided her a valuable experience and insight in the awareness towards the environment, considering the concerns and issues. She was a recipient of the scholarship Iskolar ng Bayan during second semester of the school year 2016-2017 and whole semester of the school year 2017-2018.

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ABSTRACT

NEUDA, JOCELYN T., Department of Environmental Science, College of Arts and Sciences, Central Luzon State University, Science City of Muñoz, Nueva Ecija, Philippines, **February 2020, NEEM LEAVES (*Azadirachta indica* A. Juss) CRUDE EXTRACT AGAINST GUAVA FRUIT FLY (*Bactrocera dorsalis* Hendel)**

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Use of synthetic pesticides to control fruit flies in farming could be hazardous to human health and damage to the environment. An alternative to these synthetic agents are natural products that can be derived from various plant sources such as the neem tree leaves. Thus, this study was conducted to determine the total phenolic content of the leaves of neem (*Azadirachta indica* A. Juss) and test the adulticidal and larvicidal activity of the crude extract against guava fruit fly (*Bactrocera dorsalis* Hendel). Leaves of *Azadirachta indica* were extracted with 95% ethanol. Thin layer chromatography screening was conducted to identify the phytochemicals in the crude extract. Total phenolic content (TPC) was measured using the Folin-Ciocalteu method. Phenolic compound such as flavonoids, tannins and phenols, triterpenes and anthraquinones are found present in the neem leaf crude extract. The total phenolic content of *Azadirachta indica* leaf crude extract was 152.47 mg gallic acid equivalents (GAE)/g. Table 5 shows the percent mortality of Trial 3. Lowest percent mortality was recorded in the control after 24 hours with 53.3% in adulticidal assay. The treatments (1.25, 2.5, 5.0, 7.5, and 10%) neem crude extract seems to be more effective than the control after 24 hours. Emergence of pupa in 10% and 7.5% concentration was low compared to the control. Emergence of living fruit flies also affected by the concentration of neem. Higher concentrations (10%, 7.5% and 5%) has no

emergence of living fruit flies. The bioactivity can be attributed to the phytochemical components identified. *Azadirachta indica* exhibit adulticidal and larvicidal property against guava fruit flies and can be used as alternative plant-based pesticides.

Keywords: *Azadirachta indica* A. Juss leaves; Total Phenolic Content; Thin Layer Chromatography; Larvicidal and adulticidal activity

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