ALLELOPATHIC TANNINS FROM GUYABANO (*Annona muricata* L.) LEAF EXTRACT AGAINST THE RICE WEED *Echinochloa crus-galli*

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APPROVAL AND ACCEPTANCE

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF APPENDIX FIGURES

LIST OF APPENDIX TABLE

ALLELOPATHIC TANNINS FROM GUYABANO (*Annona muricata* L.) LEAF EXTRACT AGAINST THE RICE WEED *Echinochloa crus-galli*[1]

ANDREI PHILSEN N. ESPIRITU

ABSTRACT

Background: Allelopathy is a biological phenomenon where one plant inhibits the growth of another. The application of the allelopathic properties of some plants is a natural and environment-friendly approach which increases crop yields, decreases our dependence on synthetic herbicides, and improves the ecological environment. This study aimed to extract the tannins from *Annona muricata* L. leaves and determine the allelopathic effect on the germination and seedling growth of the rice weed, *Echinochloa crus-galli*. **Methods:** The dried powdered leaves of *Annona muricata L.* were extracted using 80% ethanol. Tannins were extracted with 50% acetone using column chromatography. Phytochemical analyses ($FeCl_3$ test, gelatin test and TLC) on the crude extract and fractions were done to confirm the presence of tannins. The total tannin content on the leaves of *Annona muricata* L. was also determined. The tannin fraction was characterized by UV-Vis and IR spectrophotometry. The allelopathic effect of the tannin fraction of *Annona muricata L.* on the seed germination and seedling growth of *Echinochloa crus-galli* rice weed was also noted. **Results:** The total tannin content of the fraction was 25.33±00 mg GAE g^{-1}. The tannin present was probably and ellagitannin based from the UV-Vis and FTIR Spectroscopy. The percent germination was 66.67±5.77% and 0 in all treatments. Highest inhibitory effect on the seedling growth was observed in the 8 and 10 mg/mL fractions. However, no significant differences on the tannin fractions were observed but showed significant difference from the control. **Conclusion:** The probable ellagitannin from guyabano leaves inhibits seed germination and seedling growth of the rice weed, *Echinochloa crus-galli* and has the potential as a weedicide.

Keywords: tannin, *Annona muricata L.,* allelopathy, *Echinochloa crus-galli* rice weed

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