

# INVESTIGATING ALLELOPATHIC EFFECTS OF AQUATIC WEEDS IN AGRICULTURAL SCIENCES

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Aquatic weeds such as muskgrass (*Chara* spp.), water lettuce (*Pistia stratiotes*), water hyacinth (*Eichhornia crassipes*), hydrilla (*Hydrilla verticillate*), filamentous algae (*Lyngbya wollei*), and duckweed (*Lemna minor*), are commonly found in farm canals within the Everglades Agricultural Area (EAA) of South Florida. These plants have invaded many aquatic ecosystems in the area and have no economic benefits. Thus, discovering ways in which these weeds can be best managed or utilized will help to address environmental concerns.

The release of allelopathic compounds by these aquatic weeds can have a beneficial or harmful effect on surrounding organisms. The overall goal of this research is to study the allelopathic effects of six aquatic weeds that commonly proliferate in South Florida watersheds, and to determine the allelochemicals potential use in agriculture, in order to develop organic alternatives to conventional pesticides in the future.

Aqueous ethanol extracts and powdered aquatic weeds at different concentrations were prepared for three sets of experiments in order to determine their potential use as (i) biomicrobicides against bacteria, to evaluate their antibiotic activity; (ii) bioinsecticides in sweetcorn production, to test the effects on fall armyworm (*Spodoptera frugiperda*) survival and growth, as well as the feeding preference; and (iii) bioherbicides on terrestrial weeds, to test their inhibitory activity towards seed germination and root growth of pigweed (*Amaranthus* spp.), yellow nutsedge (*Cyperus esculentus*), common lambsquarters (*Chenopodium album*), and common ragweed (*Ambrosia artemisiifolia*).

**PRESENTER BIO:** Yuting is a graduate student working towards a master degree in Soil and Water Sciences at University of Florida. She works under Dr. Bhadha at the Everglades Research and Education Center, researching the allelopathic potential of aquatic weeds that are commonly found in the canals within the Everglades Agricultural Area.