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school of environmental sciences

The Research Seminar Presentation by

Lindsey Jackson

will be held on

Tuesday November 28, 2017

At 1:00 pm

ALEXANDER HALL 337

Assessment of Duckweed for Remediation of Greenhouse Nutrient Feedwater and Production of Biomass

Abstract

Greenhouse Nutrient Feedwater (GNF) is the nutrient rich wastewater produced by greenhouse that has been implicated in the reduction of water quality in the Great Lakes. When nitrogen (N) and phosphorous (P) from discharged GNF enter the Great Lakes, algal blooms and eutrophication result. Duckweed is a small, floating, aquatic plant which grows rapidly and can sequester nutrients from wastewater, making it an excellent candidate for remediation of GNF. Depending on the initial concentrations of nutrients, duckweed phytoremediation systems can remove nitrate (NO_3^-) at daily rates of 120–590 mg NO_3^- m^{-2} (73%–97% of initial concentration) and phosphate (PO_4^-) at 14–74 mg PO_4^- m^{-2} (63%–99% of initial concentration). The duckweed biomass produced during remediation is also easy to harvest and is highly valuable as it can be high in protein (up to 45% of dry weight) or starch (up to 75% dry weight). This study will assess N and P removal from GNF as well as growth rates and biomass yield at various temperatures and photoperiods, using three different duckweed species native to Ontario; *Spirodela*, *Lemna* and *Wolffia*.

Everyone is welcome to attend

(This is a Research Proposal presentation by students in ENVS*6900)