

1997

Allelopathy in *Echinacea Angustifolia* D.C. Roots

Peter A. Jauert
South Dakota State University

R. Neil Reese
South Dakota State University, neil.reese@sdstate.edu

Follow this and additional works at: https://openprairie.sdstate.edu/oak-lake_research-pubs

Recommended Citation

Jauert, Peter A. and Reese, R. Neil, "Allelopathy in *Echinacea Angustifolia* D.C. Roots" (1997). *Oak Lake Field Station Research Publications*. 53.
https://openprairie.sdstate.edu/oak-lake_research-pubs/53

This Article is brought to you for free and open access by the Oak Lake Field Station at Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. It has been accepted for inclusion in Oak Lake Field Station Research Publications by an authorized administrator of Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. For more information, please contact michael.biondo@sdstate.edu.

ALLELOPATHY IN *ECHINACEA* *ANGUSTIFOLIA* D.C. ROOTS

Peter A. Jauert and R. Neil Reese
Department of Biology/Microbiology
South Dakota State University
Brookings, SD 57007

ABSTRACT

The purpose of this study was to examine the allelopathic effects of compounds of different molecular weights taken from *Echinacea angustifolia* D.C., the common purple coneflower. Roots were collected from ten plants from five geographic locations and from five fresh plants that were grown in the greenhouse. Water extracts were made from ground dried roots and crushed fresh roots. These extracts were then separated into a high and a low molecular weight fractions using a 10,000 dalton cut-off ultrafilter (Phenomenex, Torrance, CA). Lettuce seeds (*Lactuca sativa*) were germinated with the high molecular weight, low molecular weight, and a crude extract from each plant. After four days the seed germination was counted and the root lengths were measured. Analyses of variance of the data were made using the general linear model procedure (SAS Institute, Cary, NC). The crude and the low molecular weight extracts exhibited the most severe allelopathic effects. High molecular weight fractions did not cause a significant inhibition of lettuce seed germination. Partitioning of the active fractions with chloroform and methylene chloride are in progress to isolate the biologically active components.