Effects of Tannins on Carbon and Nitrogen Dynamics. (S03-kraus162711-Poster)

Authors:

- T.E.C.Kraus - *University of California, Davis*
- R.A.Dahlgren - *University of California, Davis*
- R.J.Zasoski - *University of California, Davis*
- W.R.Horwath - *University of California, Davis*

Abstract:

Tannins are a significant portion of terrestrial biomass C; plant foliage may contain up to 25% tannins by weight. Tannins have been shown to influence nutrient cycling by affecting organic matter degradation, mineralization rates and microbial activity, and tannins' ability to precipitate proteins is thought to be primarily responsible for these effects. Tannins are divided into two major classes: condensed and hydrolyzable. However, within these two classes there are a tremendous structural variations. In this study we examined the effects of well-characterized tannins purified from nine different species on carbon and nitrogen dynamics of a forest soil A horizon. Added tannins (1% by weight) decreased N mineralization substantially, and in most cases resulted in net N immobilization. Based on previous reports, we expected the hydrolyzable tannins to serve as microbial substrates while the condensed tannins were expected to inhibit mineralization. However, our results showed no clear trends between condensed and hydrolyzable tannins. Some of the purified tannins appeared to act as a C source and increased C mineralization, while others reduced C mineralization rates.

Corresponding Author Information:

Tamara Kraus
University of California, Davis
LAWR-Soil Science, UC Davis, 1 Shields Avenue
Davis, CA 95616

phone: 530-752-1491
fax: 530-752-1552
e-mail: tekraus@ucdavis.edu

Presentation Information:

Presentation Date: Monday, November 11, 2002
Presentation Time: 9:00-11:00 am
Poster Board Number: 1805

Keywords:
tannins, polyphenols, carbon and nitrogen cycling, gross and net mineralization