TITLE:

Data from: Optimization of hydrolytic and oxidative enzyme methods for ecosystem studies

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DATA SET OVERVIEW:

This data set contributes information on soil enzyme activities measured under a variety of conditions (i.e. pH changes, different buffers, NaOH addition, etc.)

BACKGROUND:

<http://www.eeescience.utoledo.edu/Faculty/weintraub/Projects.htm>

DATA COLLECTION:

*Soil Enzyme Activities*: Hydrolytic extracellular enzyme activities were analyzed using soil samples. Samples were analyzed for β-glucosidase (BG), N-acetyl-β-glucosaminidase (NAG), acid phosphatase (PHOS), and leucine amino peptidase (LAP). BG produces glucose from the hydrolysis of cellulose oligomers; NAG, a chitinase, produces N-acetyl glucosamine from the hydrolysis of chitin derived oligomers; PHOS produces phosphate from the hydrolysis of phosphate monoesters such as sugar phosphates; LAP produces leucine and other amino acids from the hydrolysis of peptides. Hydrolytic enzyme activities (BG, NAG, LAP, and PHOS) were analyzed using the fluorometric assay described by Saiya-Cork *et al*. (2002). For more information, see German *et al* (2011).

NAMING CONVENTIONS:

The following refer to headers or terms used in the data spreadsheets:

*General definitions:*

pH: soil pH of Udipsamment soils used in study

NaOH addition: + (added at end of plate incubation) or (-) not added at end of incubation

replicate: replicate number (n=6)

*Enzymes*

BG: Beta glucosidase activity, nmol hr-1 g-1 soil (fluorescent enzyme assay protocol)

NAG: N-acetyl-beta-glucosaminidase activity, nmol hr-1 g-1 soil (fluorescent enzyme assay protocol)

PHOS: Phosphatase activity, nmol hr-1 g-1 soil (fluorescent enzyme assay protocol)

LAP: Leucine amino peptidase activity, nmol hr-1 g-1 soil (fluorescent enzyme assay protocol)

LINKS:

<http://www.eeescience.utoledo.edu/Faculty/weintraub/Projects.htm>

REFERENCES:

German, D. P., Weintraub, M. N., Grandy, A. S., Lauber, C. L., Rinkes, Z. L., & Allison, S. D. 2011. Optimization of hydrolytic and oxidative enzyme methods for ecosystem studies. Soil Biology and Biochemistry, 43(7), 1387-1397.

Saiya-Cork KR, Sinsabaugh RL, Zak DR, 2002. The effects of long term nitrogen deposition on extracellular enzyme activity in an Acer saccharum forest soil. Soil Biology and Biochemistry 34: 1309e1315.