Effect of Soil Applied S and P on Enzyme Activities In Upland Soil. (S03-baligar105621-Poster)

Authors:

- V.C.Baligar* - *USDA-ARS,Beltsville MD*
- J.L.Hern - *REIC Lab Beckley, WV*
- R.J.Wright - *USDA-ARS, Beltsville, MD*

Abstract:

Soil management practices and the type of plant cover influence soil biochemical properties. Such changes are known to influence the level of enzyme activities and subsequently might influence the plant productivity. The acidic infertile upland soils are relatively colder in crop growing season, application of S and P are needed to improve the crop production on such soils. Field experiment was carried out on acid soil under white clover cover. In this study initial application of four levels of S (0, 16.8, 33.6, 67.2 kg S/ha) and three levels of P (22.4, 89.6, 358.4 kg P/ha) were used. Acid posphatase (AP), arylsulfatase (AS) and urease (UR) activities were determined three years after the inital fertilizer application. Increasing levels of soil applied S decresed enzyme activities, however highest level of applied S (67.2 kg S/ha) in fact stimulated higher enzyme acivities. Incresing levels of soil applied P reduced AP acitivities significantly, and resulted in reducing trend in AS and UR acivities. Overall the enzymes activities were reduced significantly with increasing soil depth. Activities of all enzymes were significantly correlated with soil moisture content, total C N, and S and organic sulfur.

Corresponding Author Information:

Virupax Baligar
USDA-ARS
Bldg 001, Room 342, 10300
Baltimore Av, BARC-West
Beltsville, MD 20705-2350

phone: 301-504-6492
fax: 301-504-5823
e-mail:
vbaligar@asrr.arsusda.gov

Presentation Information:

Presentation Date: Wednesday, November 13, 2002
Presentation Time: 2:00-4:00 pm
Poster Board Number: 1729

Keywords:

Enzymes, soil properties, Sulfur, Phosphorus