N and P Adsorption and Desorption on Ion Exchange Resins Under Freeze-Thaw or Wet-Dry Conditions. (S02-mamo162706-Poster)

Authors:

- M.Mamo University of Nebraska
- R.Renken University of Nebraska
- D.Ginting University of Nebraska
- B.Eghball USDA-ARS, Lincoln, NE

Abstract:

The stability of resins used in organic matter mineralization studies is not well known under various physical environmental conditions. The objective of this study was to measure the changes in N and P adsorption and desorption by resins subjected to freeze-thaw or wet-dry cycles. Mixed bed resins (1:1 anionic-cationic by weight) were subjected to 1, 3, 10, and 30 freeze-thaw or wet-dry cycles. The wet condition was set to field capacity (FC) at 0.33 MPa and the dry condition was set when resins reached 70% FC. Wet resin was kept in forced-air oven at 27 oC for 28 h and rewetted to FC for 20 h. Resin at FC was frozen for 16 h and thawed to room temperature for 8 h daily. Alternating and prolonged cycles of freeze-thaw or wet-dry did not change the stability of resin. Freezethaw cycles did not induce N and P desorption from resin, however, wet-dry cycles induced desorption of N and P associated with shrinkage of resins and expulsion of interstitial liquid. Scanning electron microscopy revealed that environmental conditions did not physically alter the surface of these resins.

Corresponding Author Information:

Martha Mamo University of Nebraska 242 Keim Hall Lincoln, NE 68583-0915 phone: 402-472-8493 fax: 402-472-7904 e-mail: mmamo3@unl.edu

Presentation Information:

Presentation Date: Wednesday, November 13, 2002 Presentation Time: 2:00-4:00 pm Poster Board Number: 1319

Keywords:

resin, ion exchange, adsorption, desorption