Method for Continuous Collection of Soil Solution for Phosphate Analysis. (S11-nelson120212-Poster)

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Abstract:

Porous plates or cups are commonly used to collect soil solution samples in field studies or from intact soil columns. The choice of material for the porous plate is important because some materials commonly used may adsorb soil solution constituents such as P or metals. An alternative to using a porous plate is to use a membrane filter with a known pore size and bubble point. The objective of this study was to evaluate the utility of polyethersulfone membranes (pore size 0.45 um and bubble point greater than 0.2 Mpa) for the extraction of soil solution in field studies and intact soil columns for phosphate analysis. Polyethersulfone membranes (47 mm dia.) were inserted in reusable polysulfone membrane holders that were modified to act as small lysimeters. Lysimeters with 0.01 Mpa vacuum collected soil solution between 0 and -0.004, -0.010, and -0.012 Mpa soil moisture tension in loamy sand, sandy loam, and sandy clay loam soils respectively. Lysimeters continued to hold a vacuum to -0.077 Mpa soil moisture tension. Preliminary results from membrane lysimeter operation in a long-term field study and column leaching study will also be presented.

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