

Determination of physical and chemical soil parameters on selenium adsorption, desorption by rice growing soil

ABSTRACT

Studies on Selenium adsorption was conducted in laboratory studies for some different rice growing soils of Malaysia at pH 4 and 7. Soils were equilibrated with 0.01 M CaCl_2 and Na_2SeO_3 solution to measure relative adsorption of Selenium as sodium Selenite ions. In general, the adsorption of Se on different soils at both pH, increased with increase in the level of Se added. Adsorption data were fitted well to Langmuir model. Maximum adsorption (Q_m) was correlated with organic carbon at both pH 4 ($R = 0.77^{**}$) and pH 7 ($R = 0.76^{**}$) and $\log K$ ($R = 0.71^{**}$ and $R = 0.81^{**}$) at pH 4 and 7 respectively and also Q_m was correlated with percent of clay ($R = 0.59^*$) and CEC ($R = 0.58^*$) at pH 7. Desorption data showed the higher amount of desorbed Se was achieved at pH 7 than pH 4 in all type of soil except TIP2, KBK, Mb and UPM.

Keyword: Adsorption; Desorption; pH; Selenium; Soil