

Release of Mg from sepiolite mineral under the influence of two organic acids

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Abstract: Organic acids, such as malic, citric, and oxalic, play important roles in agricultural soils. They can affect chemical and physical properties of the rhizosphere and therefore, increase cation and anion concentration in soil solution. This increases the uptake of elements by plants. A factorial experiment with a completely randomized design was conducted to investigate and compare the influence of two organic acids (oxalic and citric), two pH values (6 and 4), two concentrations (1 and 10 mM) and two sizes of mineral particles (5 and 50 micron) in different contact times (2, 6, 12, 24, 48, 72, 168 hours) on the release of Mg from sepiolite. For each experiment, a control was run. All experiments were conducted using three replications. Results revealed that the amount of Mg released from sepiolite particles in citric acid treatments was much more than those of oxalic acids. Results also illustrated that with the increase in shaking time and concentration of both organic acids and the decrease in pH value and the size of particles, the release of Mg from sepiolite mineral increased. However, it seems that among all parameters studied, the size of sepiolite particles has the least influence on the Mg release.

Keywords: *Sepiolite; particle size; concentration; contact time and pH.*

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