Biological evaluation of layered double hydroxides effect on the growth of corn plants

Servilia OANCEA - USAMV Iasi
Andrei Victor OANCEA - Universitatea "Al. I. Cuza" Iaşi

The Layered Double Hydroxides are useful in many domains due their physical and chemical properties; in agriculture they are useful in order to obtain organic products. In this work, a study concerning the plant growth dynamics of corn plant during the LDH action is presented. To study the effect of LDHs on plant growth, we prepared MgAlLDH (Mg Al Layer Double Hydroxide), MgAlLDH+sodium paranitrophenolate and MgAlLDH+ sodium paranitrophenolate +Fe3O4. Seeds of corn (Zea mais) were put into Petri dishes on double filter paper together with suspensions from these anionic clay and they were kept here for 5 days. The dynamic of germination and the growth has been monitorized during the first phenophase of growth. After that the germinated seed were planted in soil where they continued to growth. The content of photosynthetic pigments has been obtained spectrophotometrically. Despite the fact that the germination was faster for the control than the other variants, the content of the photosynthetic pigment was very closed for control and treated plants. The effect of magnetite introduced in structure of LDH was positive, it moderated the toxicity of sodium paranitrophenolate. Because are not toxic LDHs can be materials of great interest especially in organic agriculture. Therefore they can substitute some fertilizers or plant growth stimulators, (especially toxic chemical compounds) in order to obtain organic products.