Growth dynamics of corn plants during anionic clays action

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Layered double hydroxides (LDHs) known as anionic clays are an important class of ionic lamellar solids. The anionic clays exhibit anion sorption, anion diffusion and exchange properties together with surface basicity making them materials of importance for many modern applications. The LDHs clays are useful in agriculture due their physical and chemical properties, in order to obtain organic products. This work is a study concerning the plant growth dynamics of corn plant during the LDHs action. To study the effect of anionic clays on plant growth, we prepared MgAlLDH (Mg Al Layer Double Hydroxide)+ sal and Mg Al LDH + sal +Fe3O4. Seeds of corn (Zea mays) were put into Petri dishes on double filter paper together with suspensions from these anionic clays and they were kept here for 3 days. The dynamics of germination and the growth has been monitorized during the first phenophase of growth. After that the germinated seeds were planted in soil where they continued to growth. The content of photosynthetic pigments has been obtained spectrophotometrically. The best anionic clay from point of view of plant growth was the clay containing Mg, salicylic acid and magnetite. Despite the fact that the germination was faster for the control than the other variants, the content of the photosynthetic pigments was greater for the treated plants. A slow release of the active substance from nanocomposite material can be exploited for control release formulation of some pesticides or plant growth stimulators; this means the intercalation of pesticides or plant growth stimulators into layers of LDH is a feasible solution. Because are not toxic they 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.