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Phytotoxicity of Natural and Synthetic Coagulants by *Zea mays* Lethality Assays in Treated Waters from the Magdalena River, Colombia

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Abstract : This studyaimed at evaluating lethality effect of natural coagulants (*Moringa oleifera*) and synthetic coagulants (Aluminum Sulfate type B) in treatment of raw waters, through bioassays. A completely randomized experimental design was carried out, based on lethality bioassays of the *Zea mays* species in waters treated with natural and synthetic coagulants. Assays were done during different times using standardized methods. Weather did not affect phytotoxicity of solutions obtained from the flocculation process, both with artificial and naturalcoagulant. Nonetheless, there are significant differences between toxic effects of the artificial and the natural coagulantsfor both seasons. Coagulation residues with *Moringa oleifera* resulted to be significantly less toxic than those obtained with artificial coagulant, except for the natural coagulant supernatant corresponding to the rainy season, which was statistically of similar toxicity as the artificial one. It can be affirmed that the residues obtained from flocculation made with *Moringaoleifera* turn out to have less phytotoxic effects than with Aluminum Sulphate; making it more attractive as a friendly alternative for water treatment.

Key Words : *Phytotoxicity, Magdalena river, Moringaoleifera, Aluminum sulfate, coagulant activity.*

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