

Effect of Different Treatment of Clay Soil and its Application to the Removal of Ammonium, Nitrite and Nitrate ion during Phytoremediation

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Submission Category:

(A) Technical research proposal to solve concrete problems

SDGs Targets/Indicators:

Towards sustainable development goals, a green approach by combination of plant and soil as remediators are used to treat surface water. A very low cost and environmental friendly approach is proposed to achieve SDGs targets specifically clean water and sanitation, affordable and clean energy, life below water and life on land.

Abstract:

Contaminants such as nitrogen have become the main element of surface water pollution, leading to eutrophication, sedimentation and deterioration of water quality. The source of contaminants is basically comes from run-off fertilizer of near agriculture activities. Phytoremediation of *Nelumbo nucifera* and adsorption of clay soil serve as a green approach technique in polishing and improving surface water quality replacing the high cost conventional treatment. The objective of this research is to measure ammonium, nitrite and nitrate removal efficiency during phytoremediation process as well as the adsorbing capacity

of different treatment of clay soil in adsorbing contaminant during phytoremediation process. Ammonium, nitrite and nitrate concentration will be measured colorimetrically by using UV-vis spectrophotometer by sampling water from the tank growth with *Nelumbo nucifera* added with ammonium nitrate as fertilizer and treated clay soil as adsorbent. Size separation followed by treatment of clay soil will be done to produce nanoparticle clay soil for contaminant adsorption comparison.

Graphical Abstract:

