

## Recovering the Phosphate from Animal Farm Effluents through Phytoremediation: A Possible Source of Bio-Phosphorus Fertilizer

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Farm effluent is one of the substances which has the highest phosphorus (P) recovery potential. The aim of this study was, to assess the effectiveness of farm effluent treated *Salvinia molesta* as a P source using Mung bean (*Vigna radiata*) and Rice (*Oryza sativa*). After *Salvinia* was saturated (21 days) with phosphorus (1.26% P in dry matter basis), they were oven-dried and ground to prepare as a fertilizer. Rice and Mung bean plants were grown in pots filled with soil having a low content of P (2.91 mg P/kg of soil). These pots were exposed to 3 different P treatments; T1 (No TSP), T2 (Department of Agriculture (DoA) recommended P dose) and T3 (DoA recommended P dose was replaced with *Salvinia* powder). There was no difference observed between T2 and T3 with respect to shoot height, number of leaves, shoot P content, shoot dry weight and number of seeds per pod in mung bean ( $P < 0.05$ ). Number of pods per plant and grain yield per plant had increased in T2 than T3 by 1.9 fold. In rice, there was no difference between T2 and T3 respect to shoot height, P in shoots, number of seeds per plant and grain yield per plant ( $P < 0.05$ ). Results revealed that under saturated soil conditions *Salvinia* powder can effectively release phosphorus. These findings open up the possibility of utilizing farm effluent treated *Salvinia* in making organic fertilizer. Additionally, phosphate removal by *Salvinia molesta*, *Pistia stratiotes* and *Cyperus papyrus* from farm effluents (28 ppm) were studied for 14 days. P removal rate was 3.67, 1.81 and 1.13 mg of P from initial fresh weight, while tissue P content had increased by 10.8% 85.2% and 90.7% in *Salvinia*, *Pistia* and *Cyperus* respectively during the 14 days period.

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