

# The Impact of Soluble Calcium on Phosphate Uptake Efficiency of *Pistia stratiotes*

Song, Emily (School: Shanghai American School - Puxi Campus)

The increase of non-point source agricultural chemical runoff and inadequate waste disposal systems has made remedying eutrophication one of China's most pressing issues. Phytoremediation is being considered as a potential solution due to its minimized environmental damage and sustainability. However, a critical flaw of phytoremediation is the inefficiency of contaminant uptake. In an address to this problem, I propose the addition of soluble calcium into phosphate contaminated waters in order to increase the phosphate uptake efficiency of macrophyte *Pistia stratiotes*. Reasons for choosing the *Pistia stratiotes* include its hardiness, cheapness, and easiness to procure in the China region, firstly establishing economic feasibility for potential mass phytoremediation. *Pistia stratiotes* were first grown in normal conditions for two weeks, then grown in solutions of varying levels of calcium and 10mg/L of phosphate. Water systems with calcium incorporated demonstrated a significant difference when compared to the control. Next steps include isolating optimum calcium values for maximum uptake efficiencies and investigating the effects of *Pistia stratiotes* in bio-habitats.