

Utilizing Raman Spectroscopy to Study the Aqueous Recovery of Phosphate Pollutants

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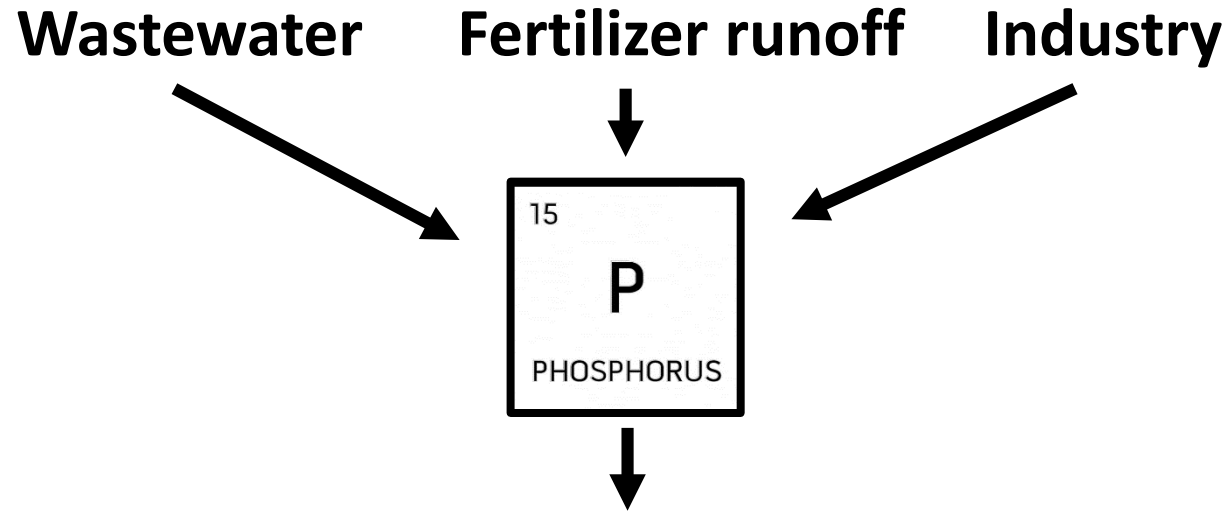
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Phosphorus pollutes surface waters



Effects:

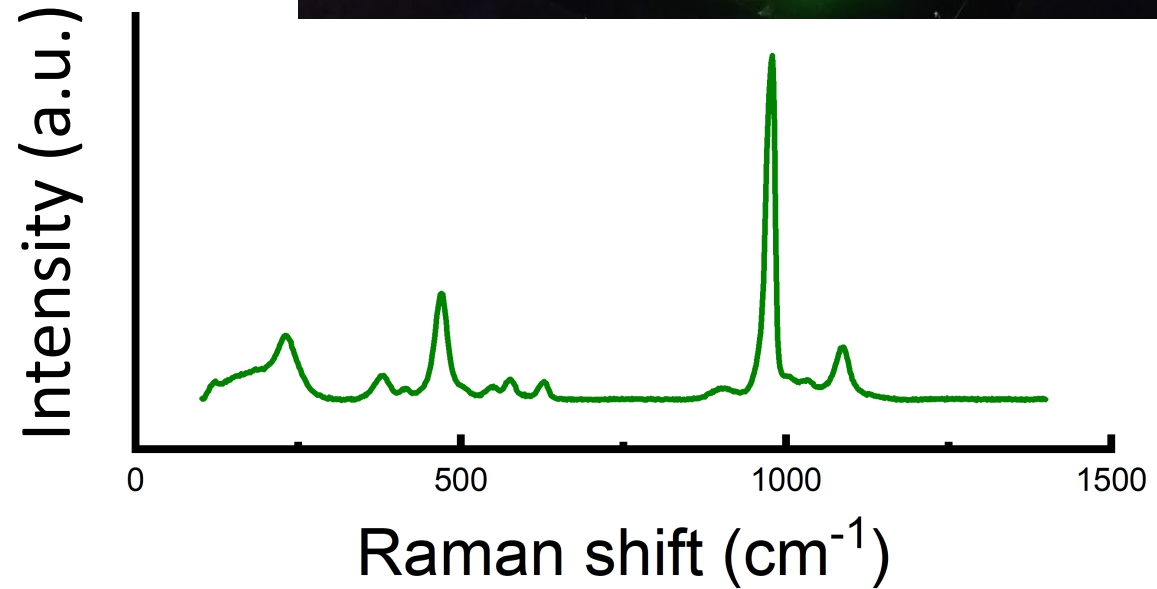
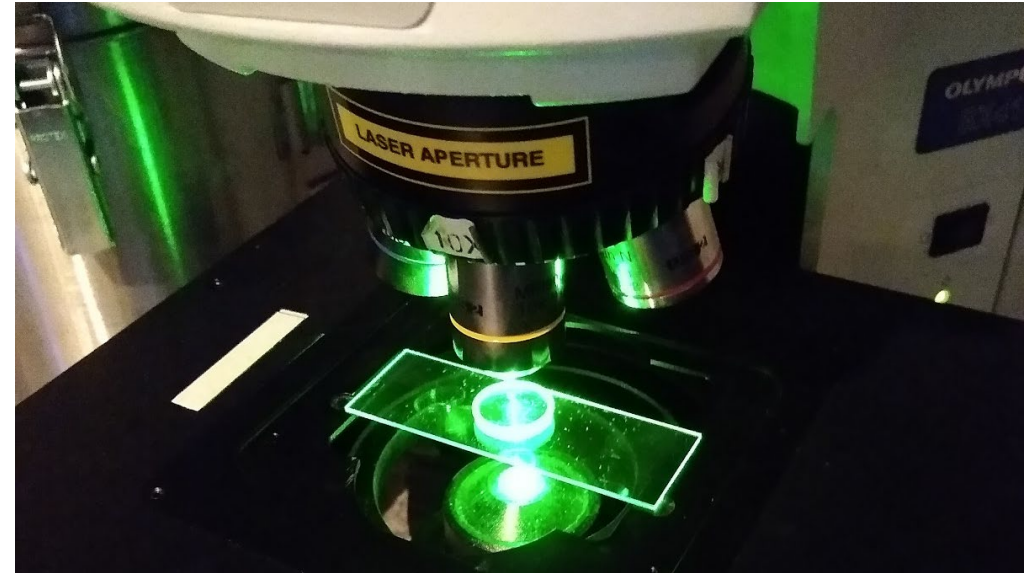
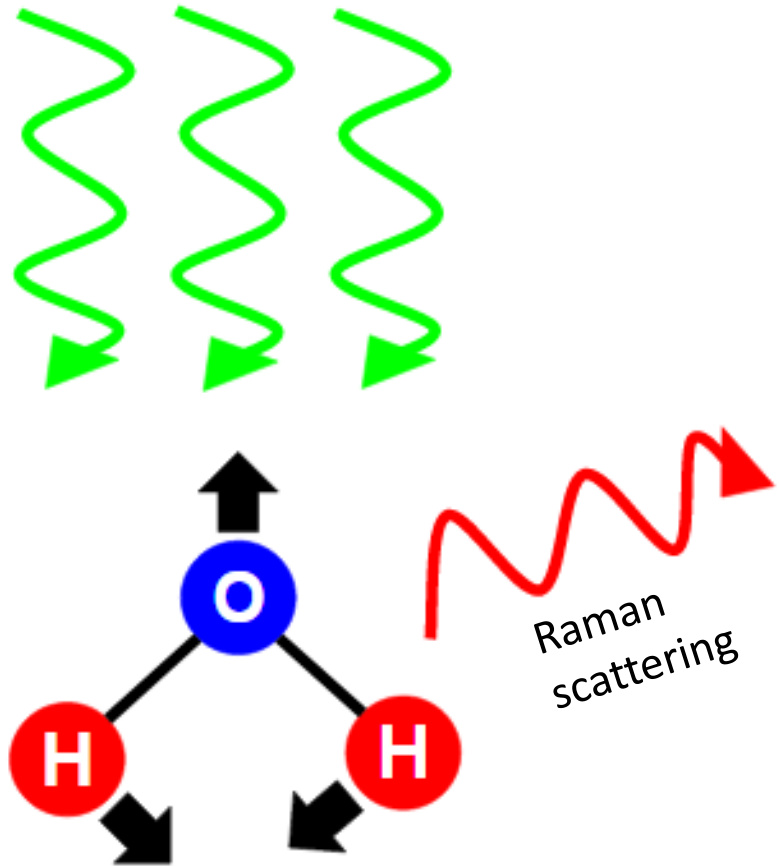
Kills wildlife

Water becomes unusable

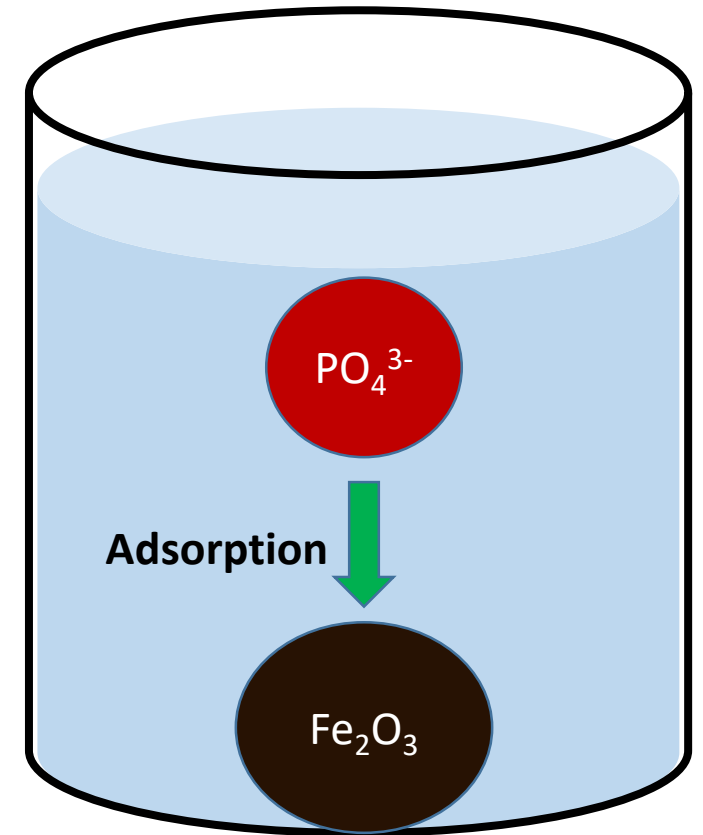
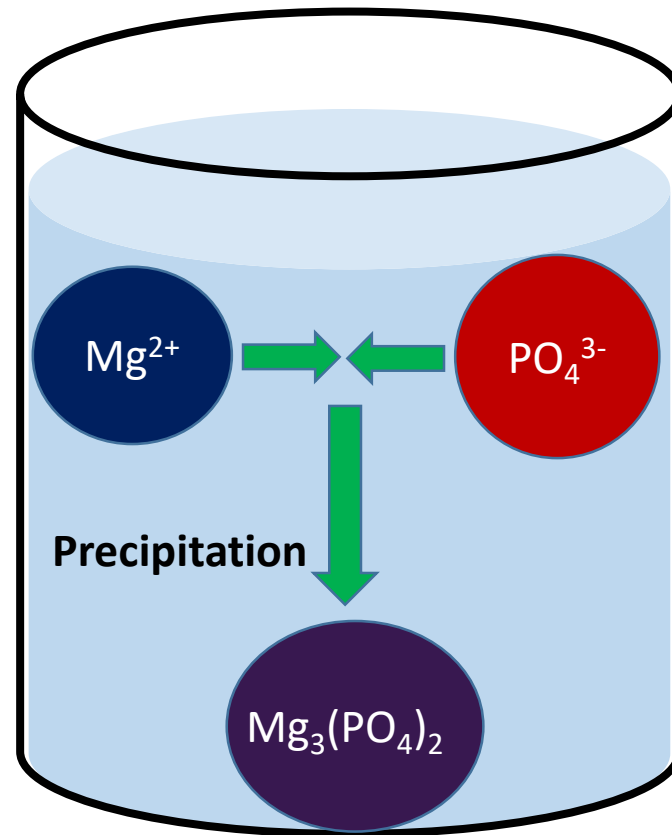
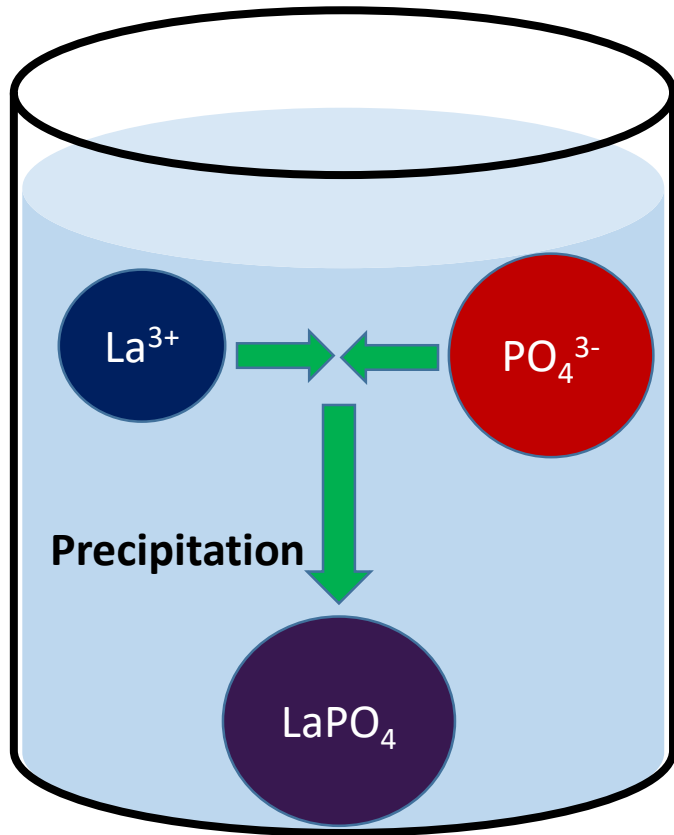
Fertilizer wasted



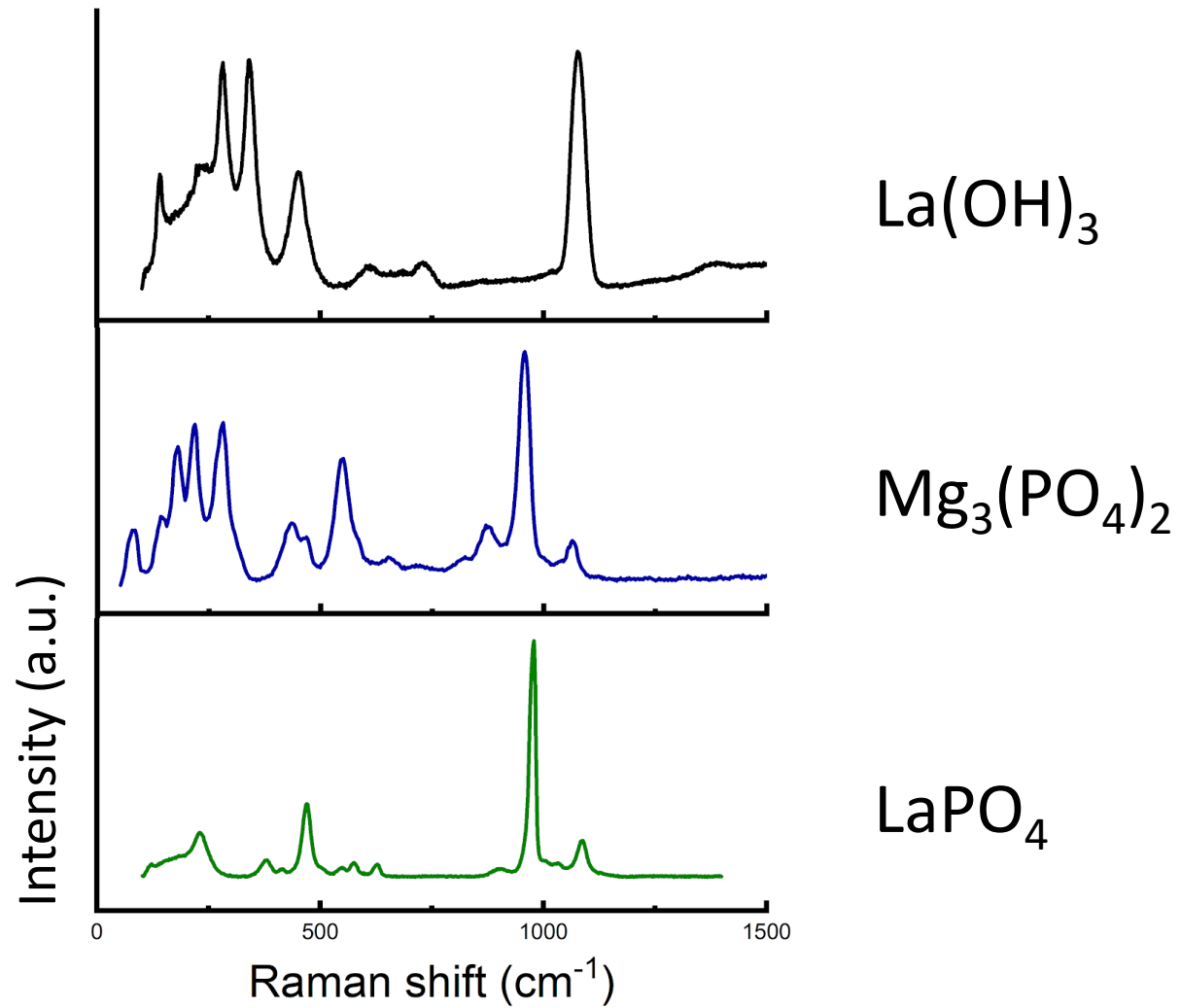
Raman spectroscopy (RS) vibrates molecules to analyze them



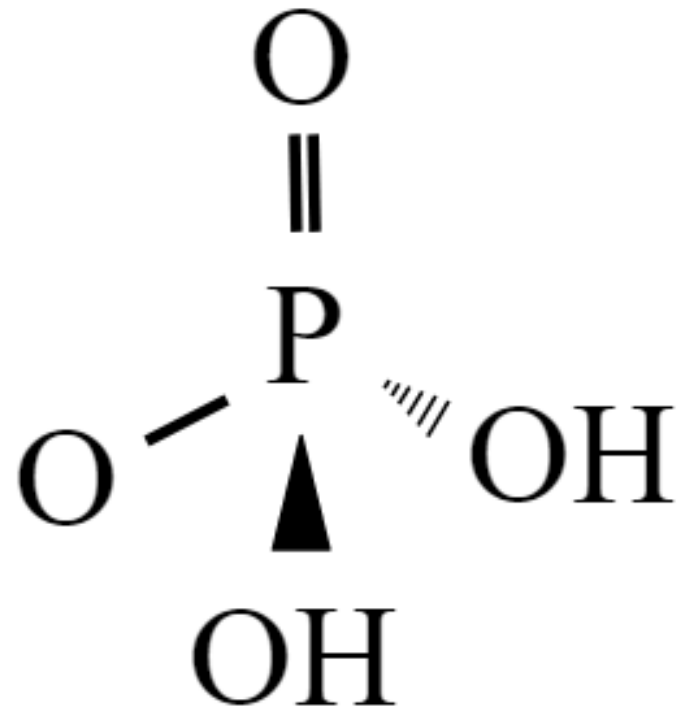
Common phosphate recovering processes include



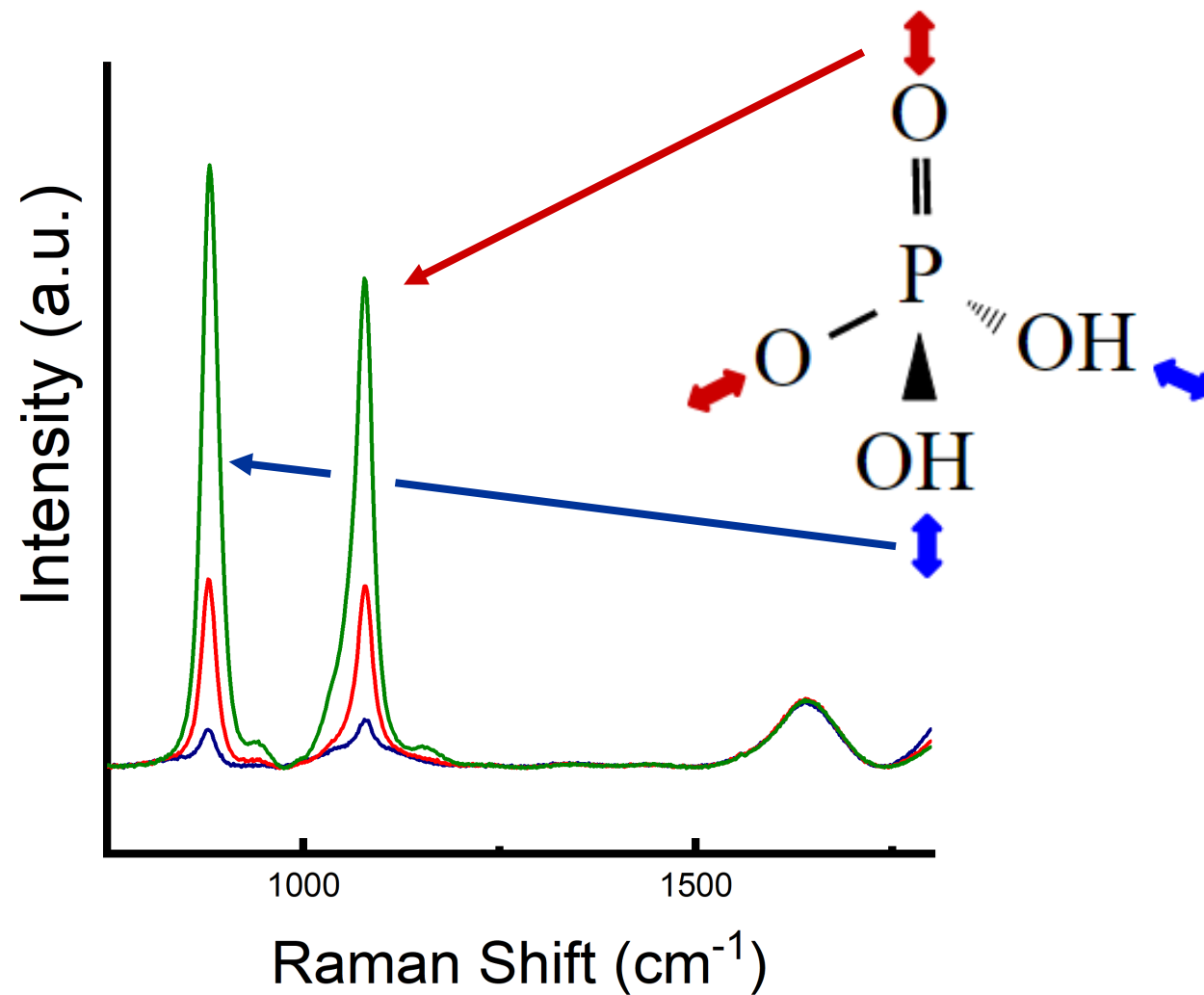
RS is sensitive to relevant chemicals



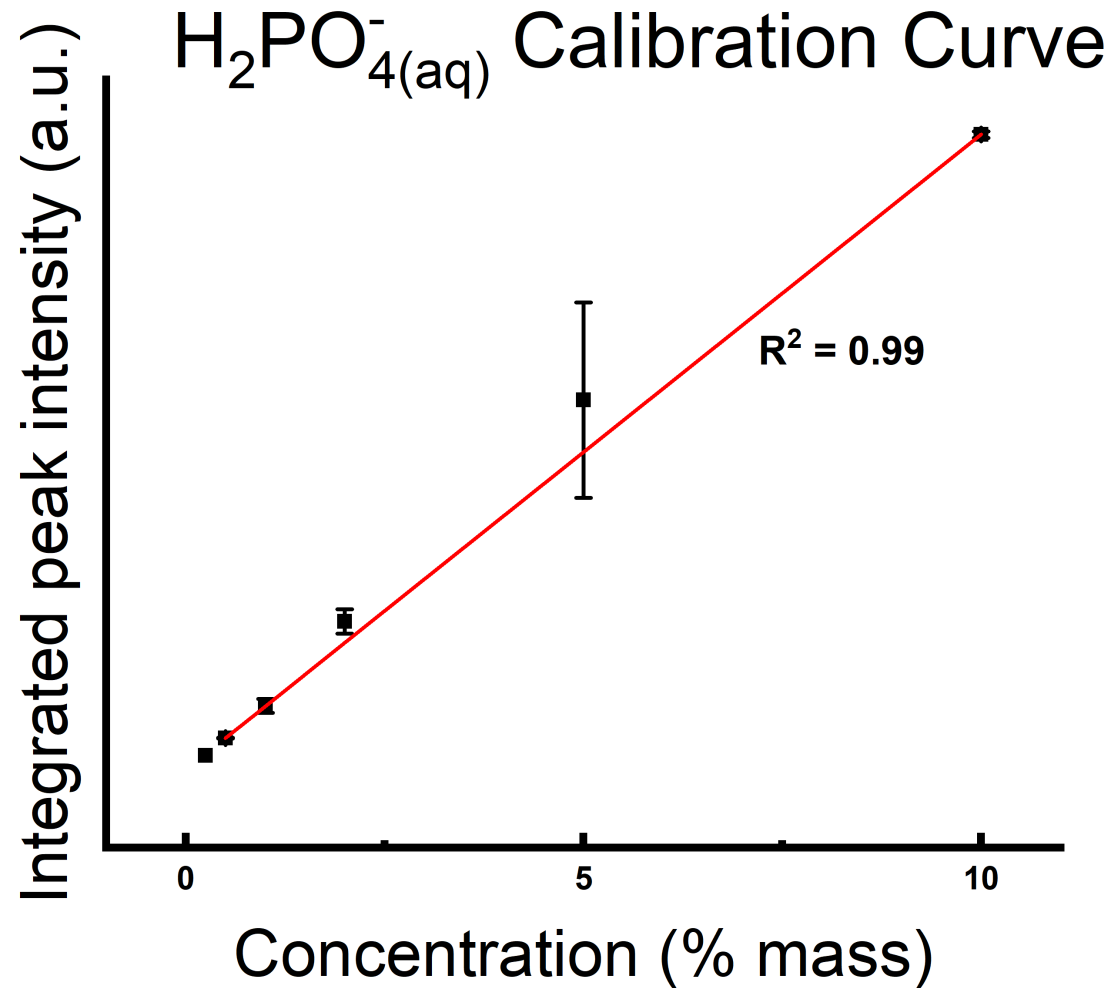
Dihydrogen phosphate (H_2PO_4^-) is a common phosphate



RS can detect H_2PO_4^- in water



RS can quantify concentrations of phosphates in water without disturbing the solution



Conclusions

RS is sensitive to chemicals in several phosphate recovery processes

RS can non-destructively detect and quantify phosphates in water

Future studies can be done in the reaction mixture