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## Iron rich glauconite sand as an efficient phosphate immobilising agent in river sediments

Lei Xia<sup>1</sup>, Mieke Verbeeck<sup>2</sup>, Yaana Bruneel<sup>3</sup>, and Erik Smolders<sup>1</sup>

<sup>1</sup>Division of Soil and Water Management, Department of Earth and Environmental Sciences, KU Leuven, Kasteelpark Arenberg 20 bus 2459, 3001 Leuven, Belgium.

<sup>2</sup>Rothamsted Research, Sustainable Agriculture Sciences, North Wyke, EX20 2SB, UK.

<sup>3</sup>Laboratoire de Mesure et Modélisation de la Migration des Radionucléides (L3MR), CEA Commissariat à l'énergie atomique et aux énergies alternatives, Paris-Saclay, France

The reductive dissolution of iron (Fe) (oxy)hydroxides in sediments releases phosphorus (P) to the overlying water and may lead to eutrophication. Glauconite sands (GS) are rich in Fe and may be used as readily available P sorbents. This study was set up to test effects of dose and type of GS on the P immobilisation in sediments under hypoxic conditions. Three different GS were amended to a P-rich river sediment at doses of 0% (control), 5% and 10% (weight fractions) and incubated with overlying water in batch laboratory conditions. Glutamate was added to the solution after 15 days to deplete any residual dissolved oxygen from the sediment-water interface. In the first 15 days, the P concentration in the overlying water peaked to 1.5 mg P L<sup>-1</sup> at day 9 in the control and decreased to 0.9 mg P L<sup>-1</sup> at lowest Fe-dose and to 0.03 mg P L<sup>-1</sup> at the highest Fe-dose, the effects of GS type and dose were explained by the Fe dose. After 15 days, the added glutamate induced a second, and larger peak of P in the overlying water in sediment, that peak was lower in amended sediments but no GS dose or type related effects were found. This suggests that freshly precipitated P species at the sediment-water interface can be remobilised. This study highlights the potential for using this natural mineral as a cheap and easily available sediment remediation material, but its longevity under rare extreme conditions needs to be further investigated.