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**Supplementary Figure 1.** The filtering unit used in the P leaching studies. All experiments were conducted in triplicates.

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**Supplementary Figure 2.** X-ray diffraction pattern of a maple biochar sample. Calcite= CaCO3; Quartz= SiO2



**Supplementary Figure 3.**  X-ray diffraction pattern of a hardwood biochar sample. Sylvite = KCl

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**Supplementary Figure 4** X-ray diffraction pattern of a pine biochar sample.