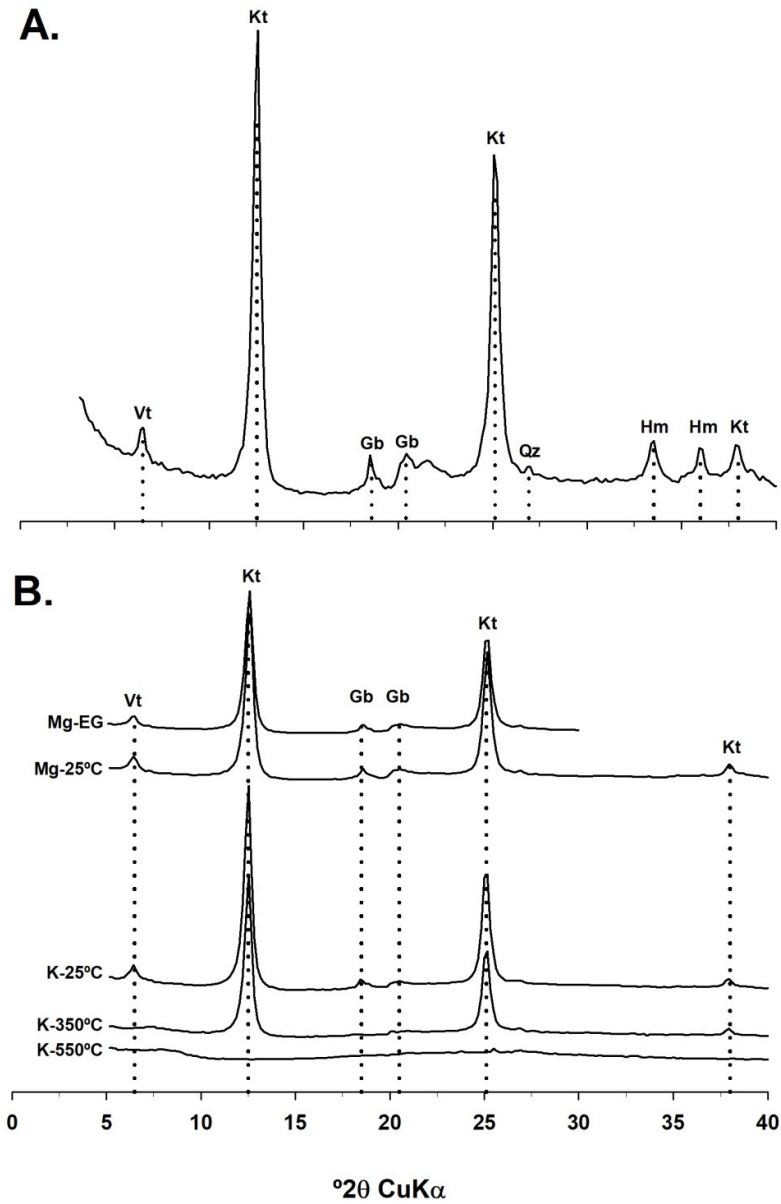


**Figure S1.** Maximum phosphate adsorption capacity (MPAC) of a clayey Rhodic Hapludox as adjusted to the Langmuir isotherm.



**Figure S2.** X-ray diffractograms of non-deferrified (A) and deferrified (B) clay fraction at room temperature (K-25°C), K<sup>+</sup> heated at 350°C and 550°C (K-350°C and K-550°C, respectively), Mg<sup>2+</sup> at room temperature (Mg-25°C) and Mg<sup>2+</sup> solvated with ethylene glycol (Mg+EG). Gibbsite (Gb), Hematite (Hm), Kaolinite (Kt), Quartz (Qz) and Vermiculite (Vt).