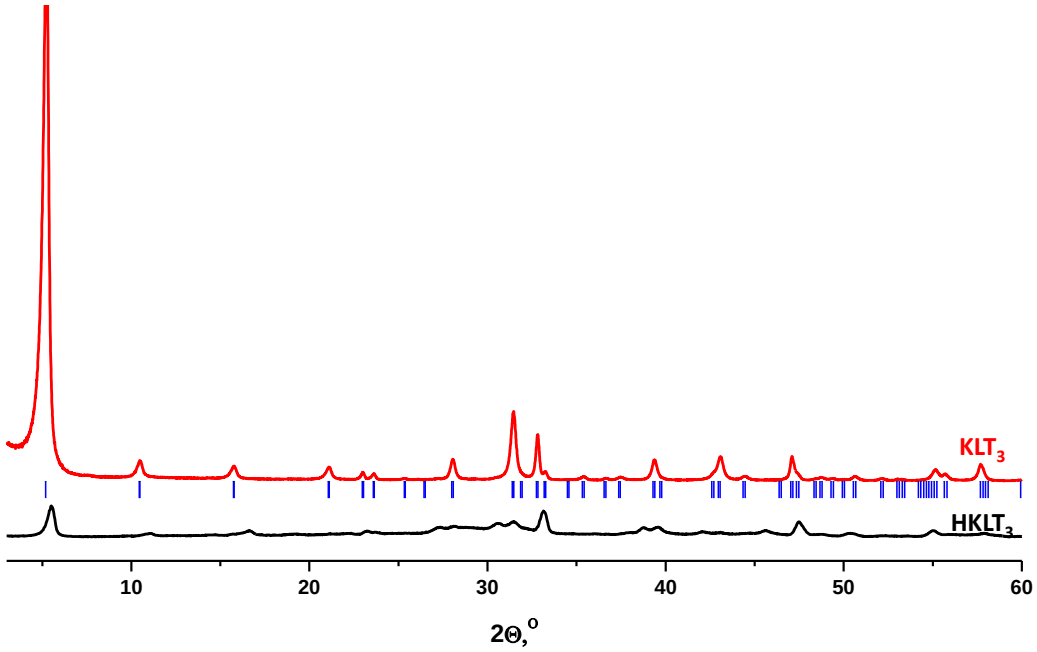

Figure S1. XRD patterns for as-prepared $K_2La_2Ti_3O1_0$ (KLT_3) and the product after 24 h water treatment $HKLT_3$

XRD patterns for as-prepared $K_2La_2Ti_3O1_0$ (KLT_3) and the product after 24 h water treatment ($HKLT_3$); blue lines indicate the calculated reflections for p4/mmm space group (a = 3.8585 Å, c = 16.814 Å)

The diffraction peaks are slightly broadened compared to the samples, obtained by conventional high-temperature ceramic technique [1], which indicates the decrease in the crystallite size. All of the diffraction peaks correspond to the hydrated $K_2La_2Ti_3O10 \cdot 1.6H_2O$ adopting the P4/mmm tetragonal structure (ICDD card № 01-087-11-68). The treatment of as-prepared KLT_3 leads to the formation of a multiple-phase product. The shift of *00l* reflections to the higher angles range indicates the decrease in an interlayer distance *d*, induced by substitution of bigger potassium cations by smaller protons.

1. Toda, K.; Watanabe, J.; Sato, M. Crystal structure determination of ion-exchangeable layered perovskite compounds, $K_2La_2Ti_3O_{10}$ and $Li_2La_2Ti_3O_{10}$. *Mater. Res. Bull.* **1996,** *31*, 1427-1435, doi.org/10.1016/0025-5408(96)00135-3.