Water photolysis by the $K_2Ln_{2/3}Ta_2O_7$ and $K_2LnTa_3O_{10}$ $(Ln=La, Pr, Nd)$ tantalates$^1$ HOOVER VALENCIA-SANCHEZ, Escuela de Química, Universidad Tecnológica de Pereira, La Julita, Pereira, Colombia, ALICIA NEGRON-MENDOZA, Instituto de Ciencias Nucleares, DWIGHT ACOSTA-NAJARRO, Instituto de Física, PABLO DE LA MORA, Facultad de Ciencias, GUSTAVO TAVIZON, Facultad de Química, Universidad Nacional Autónoma de México. Cd. Universitaria — Six compounds of the hydrated phase of $K_2Ln_{2/3}Ta_2O_7$ and $K_2LnTa_3O_{10}$ were prepared by the polymerizable complex method; these compounds were characterized in crystal structure, specific surface area (BET), optical band gap (DRS) and reactivity for water photolysis using a 300 W Hg-lamp. Tantalates containing La, Pr and Nd show a shift in the band gap value, from 3.8, 2.6 and 2.07 eV, respectively. Hydrogen production without co-catalyst has been observed, and no noticeable difference appears when NiO$_x$ was impregnated to powders. The hydrogen production notably increases when a sacrificial agent as methanol was used. In this work we compare the hydrogen production efficiencies for the bi-octahedral and three-octahedral tantalum hydrated compounds.

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