Removal of ethylenediaminetetraacetic acid and its cobalt complex by layered double hydroxide/titanium dioxide from aqueous solution

Reda R. Sheha\textsuperscript{a}, Ahmed H. Harb\textsuperscript{a,*}, Ibrahim El-T. El-sayed\textsuperscript{b}, Hanan H. Someda\textsuperscript{a}

\textsuperscript{a}Nuclear Chemistry Department, Hot Laboratories Center, Atomic Energy Authority, Cairo, Egypt, email: rsheha68@yahoo.com (R.R. Sheha), Tel. +2 01159724053; emails: harb_chem@yahoo.com, harbchem22@gmail.com (A.H. Harb), hanan_someda@yahoo.com (H.H. Someda)

\textsuperscript{b}Faculty of Science, Chemistry Department, Menoufia University, El menoufia, Egypt, email: ibrahimtantawy@yahoo.co.uk

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\textbf{ABSTRACT}

TiO\textsubscript{2}–LDH photocatalysts as mechanical mixture (MCPC) and core-shell (CSPC) were successfully synthesized and characterized by XRD, TEM, and EDX techniques. The band gaps were determined by UV–vis diffuse reflectance. The photocatalytic efficiency of the catalysts for removal of ethylenediaminetetraacetic acid (EDTA) and its cobalt complexes (Co(II)-EDTA) was evaluated under ultraviolet (UV) irradiation. Results showed that the employed catalysts not only has higher removal efficiency for both EDTA and Co(II)-EDTA than TiO\textsubscript{2}, but also easily separated from the aqueous phase. Removal percentages of about 83 and 88\% (for EDTA) and 71 and 81\% (for Co(II)-EDTA) are achieved by MMPC and CSPC, respectively.

\textbf{Keywords}: Mechanical mixture; Titanium; Core shell; Photocatalytic degradation; EDTA