

# Cr(VI) photocatalytic reduction under sunlight followed by Cr(III) extraction from TiO<sub>2</sub> surface

**Ridha Djellabi, Fouzi M.Ghorab, Sana Nouacer, Abdelaziz Smara, Ouahida Khireddine**

**Abstract:** The main objective of this work was the extraction of Cr(III) from TiO<sub>2</sub> surface deposited after Cr(VI) reduction by TiO<sub>2</sub> solar photocatalysis. The results show that the reduction of Cr(VI) to Cr(III) by TiO<sub>2</sub> under natural sunlight is total after 2 h using tartaric acid (A.T) as a hole scavenger under the following conditions: [Cr(VI)]: 20 ppm, [TiO<sub>2</sub>]: 2 g/L, [A.T]: 60 ppm and pH: 2.2. The produced Cr(III) is divided between deposited onto TiO<sub>2</sub> surface (39.75%) and in the solution (60.25%). The Cr(III) removal from TiO<sub>2</sub> surface by the sequential extraction after three washing were 90.13% and 42.62% using citric acid and EDTA respectively.

**Keywords :** Chromium, Reduction, Deposition, Solar light, extraction, TiO<sub>2</sub> surface