

## Abstract

Optimized ratios Zn:Ti (1:1) of ZnO–TiO<sub>2</sub> nanocomposites synthesized via the sol–gel method were annealed at; 500 °C, 600 °C, 700 °C, 800 °C and 900 °C. The structural, morphological thermal, optical and chemical changes provoked by thermal treatment at different temperatures were characterized by XRD, SEM/TEM, TGA, DRS and FTIR respectively. The effect of annealing temperature was studied by photocatalytic degradation of methylene blue dye in UV light. XRD revealed mixed phases with high crystallinity whereas SEM images had different particle morphologies for the samples annealed at different temperatures. The photodegradation reported the highest rate for samples annealed at 700 °C which was attributed to the ZnTiO<sub>3</sub> phase, increased crystallite growth and reduced band gap with annealing temperatures.