ABSTRACT

In precedent studies, Zr doped TiO\textsubscript{2} nanoparticles were successfully supported on CaO. Prepared Zr-TiO\textsubscript{2}/CaO nanocomposite was characterized with X-ray diffraction, scanning electron microscopy, transmission electron microscopy, fourier transform infrared spectroscopy and energy dispersive X-ray analysis. The photocatalytic activity of sample was evaluated for the degradation of methylene blue under solar light. The effect of reaction parameters such as effect of catalyst concentration, dye concentration, pH value and contact time were studied for the decolourization of methylene blue dye. Zr-TiO\textsubscript{2}/CaO nanocomposite showed significant photocatalytic activity under solar light. The photodegradation followed pseudo first order kinetics with rate constant of $2.9 \times 10^{-2}$ min\textsuperscript{-1} and correlation coefficient ($R^2$) of 0.9885.