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DEGRADATION OF METHYLENE BLUE VIA GEOPOLYMER COMPOSITE PHOTOCATALYSIS

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ABSTRACT

A series of experiments were carried out to study the degradation of methylene blue (MB) by TiO_2 anatase (A), TiO_2 from titanyl sulfate (TS), geopolymer (GP), geopolymer with anatase (GPA) and geopolymer with titanyl sulfate (GPTS) in aqueous solution. Changes of UV–vis spectrum of MB with a prominent absorption peak occurred at around 660nm and 610nm. During the progress of 60min reaction time, the absorption intensity of MB component in solution became weaker along with the irradiation time. This phenomenon indicated that MB molecules were attacked and removed in the presence of other compound. Sample A had 89.22%MB component was residual in the solution, followed by TS 41.96%, GP 14.46%, GPA 8.65% and GPTS 5.7%. Without the geopolymer addition, the reaction of MB with the samples is very slow which can be resulted in the poor conversion of MB component. consequence and not surprisingly in this experiment it was observed that UV irradiation of MB ink on samples without geopolymer and with anatase produces very light blue and white colour accordingly as compared to other samples (GPTS, GPA and GP) that shows the colourless pattern.

Keywords: geopolymer composite; photocatalyst; UV Vis;

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