

**SINTESIS DAN KARAKTERISASI FOTOKATALIS PERAK FOSFAT
(Ag₃PO₄) MENGGUNAKAN METODE KOPRESIPITASI DAN
AKTIVITAS DEGRADASI ZAT WARNA *REMAZOL BRILLIANT BLUE R*
(RBBR)**

INTISARI

Dalam penelitian ini telah dilakukan sintesis dan karakterisasi fotokatalis perak fosfat (Ag₃PO₄) menggunakan metode kopresipitasi dan aktivitas degradasi zat warna *remazol brilliant blue r*. Sintesis Ag₃PO₄ dilakukan dengan metode kopresipitasi dengan mencampurkan prekursor perak nitrat AgNO₃ dan diammonium hidrogen fosfat (NH₄)₂HPO₄. Hasil sintesis yaitu padatan material Ag₃PO₄ berwarna kuning yang selanjutnya dikarakterisasi menggunakan instrumen XRD, SEM, dan TEM diaplikasikan untuk degradasi zat warna *remazol brilliant blue r*. Dari hasil XRD dapat diketahui bahwa hasil sintesis terbentuk material Ag₃PO₄ yang murni tanpa pengotor, ukuran kristalin yang diperoleh sebesar 69,136 nm, dan puncak-puncak yang terbentuk sesuai dengan JCPDS card No.06-0505. Karakterisasi SEM diperoleh morfologi permukaan dari material Ag₃PO₄ dengan perbesaran 11.000 kali dan 25.000 kali menunjukkan partikel berbetuk bulat, persebaran partikel merata, dan terdapat aglomerasi. Hasil TEM diperoleh rerata ukuran diameter partikel sebesar 320 nm. Uji aktivitas fotodegradasi zat warna *remazol brilliant blue r* dilakukan dengan beberapa variasi, diantaranya adalah pengaruh pH larutan *remazol brilliant blue r* dengan persen degradasi tertinggi berada di pH 3 sebesar 86,59%, pengaruh konsentrasi larutan *remazol brilliant blue r* diperoleh persen degradasi tertinggi pada konsentrasi 20 ppm sebesar 80,535%, dan pengaruh waktu kontak diperoleh persen degradasi tertinggi pada waktu 120 menit sebesar 84,45%.

Kata kunci: Fotokatalis, Fotodegradasi, Remazol Brilliant Blue R, Ag₃PO₄, Kopresipitasi

**SYNTHESIS AND CHARACTERIZATION OF PHOTOCATALYST
SILVER PHOSPHATE (Ag_3PO_4) USING COPRECIPITATION METHOD
IN DEGRADATION ACTIVITIES OF REMAZOL BRILLIANT BLUE R
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ABSTRACT

In this research, the synthesis and characterization of silver phosphate (Ag_3PO_4) photocatalyst has been carried out using the coprecipitation method and the degradation activity of the dye remazol brilliant blue r. Synthesis of Ag_3PO_4 was carried out by coprecipitation method by mixing silver nitrate precursor AgNO_3 and diammonium hydrogen phosphate $(\text{NH}_4)_2\text{HPO}_4$. The result of the synthesis was a yellow Ag_3PO_4 material which was then characterized using XRD, SEM, and TEM instruments and was applied to the degradation of remazol brilliant blue r dye. From the XRD results, it can be seen that the synthesis results form pure Ag_3PO_4 material without impurities, the crystalline size obtained is 69,136 nm, and the peaks formed are in accordance with JCPDS card No.06-0505. SEM characterization obtained the surface morphology of Ag_3PO_4 material with magnifications of 11,000 and 25,000 showing particles of round, uniform distribution of particles, and there is agglomeration. TEM results obtained an average particle diameter of 320 nm. The photodegradation activity test of remazol brilliant blue r dye was carried out with several variations, including the effect of the pH of remazol brilliant blue r solution with the highest percentage of degradation at pH 3 of 86,59%, the effect of concentration of remazol brilliant blue r solution obtained the highest percentage of degradation at the concentration 20 ppm of 80,535%, and the effect of contact time obtained the highest percent degradation at 120 minutes of 84,45%.

Keywords : Photocatalyst, Photodegradation, Remazol Brilliant Blue R, Ag_3PO_4 , Coprecipitation