

PREPARATION OF SILICA SUPPORTED-SILVER NANOPARTICLE USING BARK REDUCING AGENT AND IT'S APPLICATION ON THE PHOTODEGRADATION OF CONGO RED

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ABSTRACT

This research aims to study the preparation of silica supported-silver nanoparticle on using bark reducing agent and it's application on the photodegradation of Congo red.

The preparation of Ag@SiO₂ was carried out by mixing bark extract with AgNO₃ and SiO₂ then heated at 65°C. Ag@SiO₂ catalyst was characterized by using XRD, UV-Vis DRS, and SEM-EDX, the adsorption test was conducted in the dark condition and photodegradation test of Congo red was under sunlight.

The results of the research showed that Ag@SiO₂ catalyst was successfully prepared by the biosynthesis method. Ag@SiO₂ contained 0.06% Ag and 14.67% Si respectively and its band gap was 1.84 eV. The ability of Ag@SiO₂ on the photodegradation of Congo red under sunlight was greater than SiO₂.

Kata Kunci: *Ag@SiO₂, Congo red, photocatalyst, photodegradation*