

Efficiency comparison of TiO₂-coated pine wood, bamboo and coconut shell charcoals in real textile wastewater decolorization / Khanitta Hathaisamit, Phitchayapron Adsunjhon, Nattapong Janthong, Yanisa Tantipalakul

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Abstrak

ABSTRAK

The photocatalytic decolorization of real textile wastewater using pine wood (PW), bamboo (BB) and coconut shell (CS) charcoals TiO₂-coated under UV irradiation were investigated. Biomass charcoals TiO₂-coated were synthesized by the sol-gel and dip-coating technique. The structure features of biomass charcoals TiO₂-coated were investigated by X-ray diffractometer (XRD) and scanning electron microscopy (SEM). our finding indicated that XRD data characteristic anatase phase reflections and SEM showed that TiO₂ thin films distributed in the pores and cover on biomass charcoals. BB-TiO₂ and CS- TiO₂ showed high covering films of TiO₂ on surface and filled full in the small pores but PW- TiO₂ still had many large pores. decolorization of real textile wastewater using photocatalytic process was measured by Space Unit Method; S.U. with UV-VIS spectrophotometer. the photocatalytic tests indicated that decolorization of biomass-TiO₂ were CS-TiO₂, BB-TiO₂ and PW-TiO₂, respectively. details of the synthesis of biomass charcoals TiO₂-coated and results of the characterization and decolorization studies are presented in this paper.