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.