Abstract (บทคัดย่อ)

Project Code : TRG5780112

Project Title : ความสามารถในการเป็นตัวเร่งปฏิกิริยาเชิงแสงของแก้วสีสังกะสีบอโรฟอสเฟตชนิดใหม่ (Photocatalytic activities of novel colored zinc borophosphate glasses)

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In this report, we demonstrated the catalytic activity of colored zinc borophosphate glasses, specifically their photocatalytic activity. The catalytic activity of the colored zinc borophosphate glasses was investigated using four different methods, including photooxidation reactions, photoreduction reaction, antibacterial testing, and radical polymerization. Novel colored zinc borophosphate glasses were synthesized by a conventional melt-quenching technique at 1200 C. The obtained zinc borophosphate glasses were white, purple and dark green, depending on the metal oxide colorants in the glass matrix. These colored zinc borophosphate glasses improved water dissolution, which is an inherent limitation of pure phosphate glasses. Characterization of the glasses was performed by X-ray diffraction (XRD), scanning electron microscopy (SEM), high-resolution transmission electron microscopy (HRTEM), and Raman and UV-Visible spectroscopy

Keywords : photocatalysts, borophosphate glasses, antibacterial, photobleaching