

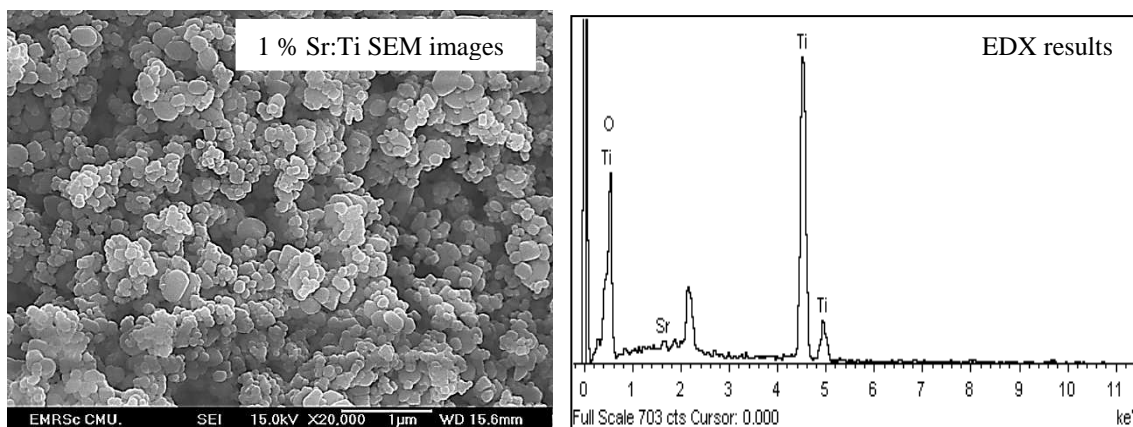
## Investigation of Sr/TiO<sub>2</sub> photocatalysts for benzoic acid photodegradation

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Benzoic acid is the intermediate for insect repellent and food preservatives production. So the wastewater containing benzoic acid is the serious threat toward water quality. The photocatalysis is one of the methods to lower benzoic acid. The research aimed to prepare Sr/TiO<sub>2</sub> photocatalysts by impregnation for benzoic acid photodegradation. Afterward, the characterization methods consisted of laser particle size analysis, surface area analysis, scanning electron microscopy (SEM-EDX), X-ray diffraction (XRD), photoluminescence spectroscopy (PL). While the photodegradation was carried out by using 50 ppm benzoic acid for 120 min. The varying parameters involved atomic ratio %Sr: Ti (1, 5, 10, 20%), the irradiation type, and the addition of H<sub>2</sub>O<sub>2</sub>. The results showed that 1% Sr: Ti atomic ratio with UVC+H<sub>2</sub>O<sub>2</sub> gave 100% of benzoic acid photodegradation compared to that without photocatalyst + UVC of 0.12% system. The particle sizes and the surface areas exhibited 410 nm and 17.4 m<sup>2</sup>/g, respectively. From EDX result, it indicated that Sr atoms existing on the surface gave higher photoactivity than TiO<sub>2</sub> did. Additionally, the new Sr oxide peaks from the XRD results. The evidence clarified that Sr impregnation incorporated into TiO<sub>2</sub> lattice. It can be concluded that Sr/TiO<sub>2</sub> photocatalyst is for photodegradation activity for benzoic acid.



**Keywords:** Photocatalysis; Benzoic acid photodegradation; Impregnation catalyst