

**SYNTHESIS OF FE(III)/ZNO AS COMPOSITE
CATALYST USING IMPREGNATION METHOD
FOR SONOCATALYTIC DEGRADATION IN
TEXTILE WASTEWATER TREATMENT**

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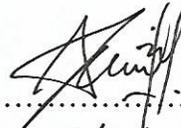
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I declare that the work in the thesis was carried out in accordance with the regulation of University Technology MARA. It is original and is the results of my own, unless otherwise indicated or acknowledge as reference work.

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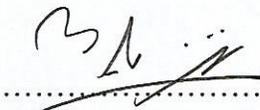
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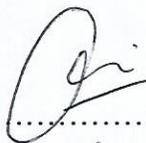
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ABSTRACT

The present study addressed the properties effecting from textile wastewater such as high colour content, high variability in composition, high BOD and COD level. This wastewater also may contain carcinogenic material and harmful to aquatic life. The activity of a composite catalyst Fe(III)/ZnO in the presence of ultrasonic irradiation for degradation of synthetic dye, Reactive Blue 4 (RB4) as treatment of wastewater solution is to be determined. The composite catalyst was prepared through impregnation method. Different characterization techniques such as FT-IR, TGA, UV-VIS and Spectrophotometer were conducted to analyze the properties and performance of the composite catalyst. The performances on degradation of RB4 for both of composite catalyst Fe(III)/ZnO and bare ZnO were compared and studied. In term of the catalytic degradation of RB4, three system of sonication methods had been carried out which were sonolysis (without catalyst) and sonocatalytic by using ZnO and Fe(III)/ZnO respectively. The wastewater degradation showed the better performance of composite catalyst Fe(III)/ZnO with 33.533 % degradation rate compared to bare ZnO with only 8.383 % degradation rate through the absorbance analysis.