

**A REVIEW ON WASTE DERIVED
HETEROGENEOUS CATALYST FOR FENTON-
LIKE OXIDATION PROCESS**

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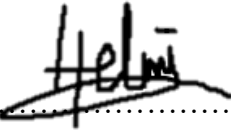
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AUTHOR'S DECLARATION

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

I, hereby acknowledge that I have been supplied with the Academic Rules and Regulations, Universiti Teknologi MARA, regulating the conduct of my study and research.

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SUPERVISOR'S CERTIFICATION

I declared that I read this thesis and in my point of view this thesis is qualified in terms of scope and quality for the purpose of awarding the Bachelor of Chemical Engineering (Environment) with Honours.

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ABSTRACT

Fenton process is one of the most popular method used to treat organic wastewater where Fe^{2+} is used as catalyst and hydrogen peroxide (H_2O_2) as an oxidant. In this comparative study, a waste derived heterogeneous catalyst from many type of materials such as metal waste and agricultural waste were analyses. The aims of this study is to review the potential of waste derived heterogeneous catalyst for the removal of organic pollutant in wastewater and to analyses the limitation of the potential waste derived heterogeneous catalyst for Fenton-like process. The data used in this study were the secondary sources such as online journals and articles and online books. Process parameters such as pH, catalyst dosage, H_2O_2 concentration, initial dye concentration and temperature were reviewed. From the results, catalyst derived from waste material can degrade more than 90% of the organic pollutant in the wastewater. The result also shows that the catalyst can operates at wider pH range. Instead of using room temperature, some of the waste derived catalyst can also operates at temperature more than 40 °C. Lastly, the used of waste derive heterogeneous catalyst can reduce the cost of operating and reduce the amount of solid waste send to the landfill. Hence, it is a good practice to save the environment.