WATERMELON RIND AND BLACK PEPPER CRUDE EXTRACTION AS CORROSION INHIBITOR ON MILD STEEL

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Final Year Project Report Submitted in
Partial Fulfilment of the Requirement for the
Degree of Bachelor of Science (Hons.) Chemistry
in the Faculty of Applied Science
Universiti Teknologi MARA

JULY 2016

This Final Year Project Report entitled **"Watermelon Rind and Black Pepper Crude Extraction as Corrosion Inhibitor on Mild Steel"** was submitted by Muhammad Taqiuddin bin Sharuddin, in partial fulfilment of the requirements for the Degree of Science (Hons.) Chemistry, in the Faculty of Applied Science, and was approved by

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ABSTRACT

WATERMELON RIND AND BLACK PEPPER CRUDE EXTRACTION AS CORROSION INHIBITOR ON MILD STEEL

Nowadays, the use of green corrosion inhibitor has been widely used than synthetic inhibitor and have proven that it is efficient and practicable against corrosion process. This study are to investigate the potential of extract watermelon rind and black pepper crudes as green corrosion inhibitor towards mild steel in hydrochloric acid (HCl) solution and to compare the inhibitor efficiency for both crude extractions under two condition, which are temperature and the concentration of inhibitor. To prepare the extraction, some solvents were used among them. Watermelon rind powder were extracted by hydrochloric acid, while for black pepper extracted by using 2-propanol and calcium carbonate. Both solution were extracted by reflux process. After the extraction of both watermelon rind and black pepper crude extract done, the corrosion test were done by putting mild steel coupons into different concentration of both extract at different temperature. Surface morphology of the mild steel were identified by using FESEM. FTIR also used to identify the functional group of the compound inside both inhibitor. Gravimetric study also was done to identify which one between two inhibitors is the most potential as corrosion inhibitor. For the result, the highest percentage of inhibition efficiency for WMRE was 99.268 % while for BPE was 99.434 %. Thus, it show the BPE was good extraction to become a corrosion inhibitor.