

INTEGRATED BIOLOGICAL TREATMENT OF SEWAGE

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DECLARATION

“I hereby declare that this report is the result of my own work except for quotations and summaries which have been duly acknowledged”



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ACKNOWLEDGEMENT

“In The Name of Allah Almighty and the Most Merciful and Blessings Be Upon His Messenger Prophet Muhammad s.a.w. and His Companions”

Bismillahirrahmanirrahim,

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ABSTRACT

The purpose of this study is to characterize sewage from Kolej Mawar before and after an integrated biological sewage treatment and to study the effectiveness of different stage of biological treatment in the present of Effective Microorganism (EM). The removal efficiency from Kolej Mawar oxidation tank flow continuously through grounded constructed wetland (A) to the second point of measurement (B) and finally to the floating constructed wetland (C). These three different points were measured to evaluate the trends for the overall performance of sewage characteristics. The samples of sewage from Kolej Mawar were taken three times for each point of measurement. The average of three reading for each point was analysed. The flow inlet through the constructed wetland systems was controlled at the first day (14th August 2009) at high, second day (17th August 2009) at medium and last day (19th August 2009) at low. Then, the experimental analysis was tested for the chemical oxygen demand (COD), removal of suspended solid (TSS), ammonium, chlorine included free chlorine and total chlorine, colour, turbidity, and dissolved oxygen (DO). From the results and analysis, the constructed wetland with present of EM have shown the ability to reduce the amount of chemical oxygen demand (COD), removal of suspended solid (TSS), ammonium, chlorine (free chlorine and total chlorine), colour, turbidity and dissolved oxygen (DO) from sewage at second point of measurement during medium flow. This integrated biological treatment of sewage has capability in treating and reducing sewage constituents.

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