CONCRETE WASTE AS TRICKLING FILTER MEDIA IN WASTEWATER TREATMENT WITH AIR SUPPLY AND WITHOUT AIR SUPPLY

By

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DECLARATION BY CANDIDATES

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledgement as referenced work. This topic has not been submitted to any other academic or non-academic institution for any degree or qualification.

I hereby, acknowledgement that I have been supplied with the Academic Rule and Regulation for Under Graduates, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

The population in Malaysia has shown an increasing trend year by year will result the huge volume of wastewater and high demand of residential. This will burden the existing wastewater treatment especially for trickling filter treatment. Trickling filter will use up the natural resources such as sand, silt and rocks. Concrete waste can be an option to solve this problem as trickling filter media in biological treatment of wastewater due to its present in abundant as this waste can be found in every construction or development. The objective of this study is to investigate the ability of concrete waste as filter media for the removal of COD and reduction of colour from wastewater and to evaluate the efficiency of trickling filter media with supply air and without supply air. Concrete waste at size (100mm x 100mm x 100mm) was used as trickling filter in hybrid tower through continuous flow approach. Concrete waste can remove 25.7%, and reduce 51.6% of the chemical oxygen demand (COD) and colour in the trickling filter process. Besides, it can be concluded that the treatment of concrete waste as a trickling filter media is more efficient in the condition of supply air as compared to without supply air. In addition, concrete waste is suitable to be used in domestic wastewater treatment for trickling filter process.

Keywords: Adsorbent, Air Supply, Concrete Waste, Chemical Oxygen Demand (COD), Trickling Filter Media, Wastewater Tower, Wastewater Treatment, Without Air Supply,

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TABLE OF CONTENTS