ENVIRONMENTAL SUSTAINABILITY Report 2022

Universiti Teknologi MARA Sarawak

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BIOLOGICAL TREATMENT FOR POLLUTED WATER

Water treatment is defined as any process that improves water quality to make it safer to be discharged back into the environment. One of the processes of water treatment is the coagulation process. Traditionally, chemical coagulation such as aluminium and iron coagulants are used in the water treatment process. The study was conducted by researchers from UiTM Sarawak, led by Dr. Rafidah Husen, who has identified a biological coagulation process using a low dosage of plant-based coagulant to remove high chemical oxygen demand (COD) and turbidity.

The research conducted used plant-based pineapple leaf coagulant to achieve high COD and turbidity removal. The coagulation was performed using a jar test experiment of pond water at different pH followed by different dosages of pineapple leaf coagulant. It was found that the final COD and turbidity values are lower compared with results from other studies that used high dosage coagulants. Moreover, the final pH, COD, turbidity, dissolved oxygen (DO), and total suspended solids (TSS) values of the treated pond water were below the standard limits set by the National Water Quality Standards for Malaysia (NWQSM) class IIB, which represents water bodies suitable for recreational use with body contact (DOE, 2016).

Therefore, it is expected that the newly-formulated waste utilisation of pineapple leaf coagulants can reduce the usage of chemical coagulants and can further be used for different types of water. The research was published in the Journal of Asian Scientific Research, indexed by Excellence in Research for Australia (ERA).

Establishing MEMORANDUM of Understanding with Industry Expert

Another initiative by UiTM Sarawak is by inviting industry experts as research partners in water treatment. A Memorandum of Understanding (MOU) was signed between UiTM and GA Consortium Sdn. Bhd. Besides joint research on water treatment, the MOU also enables technical knowledge transfer from experts in GA Consortium Sdn. Bhd. to the students and staff of Diploma in Chemical Engineering.

Figure 5.12 *Signing MOU between UiTM Sarawak And GA Consortium Sdn. Bhd*

Figure 5.13 *Sharing Session from Expert in GA Consortium Sdn. Bhd*

Editorial Board Members

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