SCREENING AND ISOLATION OF POTENTIAL BACTERIA FOR MICROBIAL FUEL CELL

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ABSTRACT

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The study aimed for the isolation of electron producing bacteria from mangrove and for the comparisons of their electricity production. In this context, samples were collected from the Kuala Selangor mangrove. The pure cultures of selected two strains KS2 and KS3 were isolated from the serial dilution of the samples respectively and the plating was made on ISP2 Agar medium. The bacteria were then incubated at 37˚C for 7 days. DNA from the bacterial samples was isolated and 16S rRNA gene amplification was carried out followed by phylogenetic trees construction to determine the phylogenetic position of the strains. The results showed that strains were from the *Streptomyces* species. The two strains were then used in inoculum development by incubation in two batches, 1 week incubation period and 2 weeks incubation periods before dilution by adding 1.8L seawater containing pre-treated bagasse. After dilution, the inoculums were incubated for another 1 week. The results for electricity production showed that the microbial isolates produced differing levels of currents. As for 1 week pre-dilution incubation, strain KS2 started with increase of electricity production for the first three hours and began to drop at the 4^{th} and 5^{th} hour while strain KS3 started with high reading and began to drop from the 1^{st} hour. 2 weeks pre-dilution incubation showed an ironic result; strain KS2 started to produce highest electricity form the 1^{st} hour and continue to drop while strain KS3 produced highest electricity at the 3^{rd} hour and began to drop at the 4^{th} and 5^{th} hour.