ISOLATION OF BACTERIA FROM THE ACIDIC PEAT SWAMP FOREST SOIL AND THEIR LIGNIN DEGRADATION POTENTIAL

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Abstract

The tropical peat swamp forest in Malaysia has reduced significantly due to increasing pressure for development and demand for agricultural land. Pekan peat swamp forest is part of the 200,000 hectares of peat swamp forest located in Pahang, Peninsular Malaysia. While more extensive studies were done on flora and fauna, the study on microbial diversity in this habitat is very limited. The highly acidic environment, low concentrations of nutrients and anoxic condition of the peat are among challenges that hampered the cultivation of microorganism from this environment. In this study two types of agarbased medium, M1 minimal medium (M1) and peat water medium (PW) supplemented with glucose, methanol and lignin were used to isolate bacteria from the peat sediment. In comparison to M1, the use of PW has resulted with higher number of isolates with different morphologies. The PW mainly contains the acidic peat water that was collected from the sampling location. Based on the growth on medium supplemented with lignin, selected isolates were identified using 16s rDNA sequencing. At least three of the isolates showed sequence similarity to Burkholderia sp., which is one of the common species, studied on their ligninase- producing abilities. The results from this study serve as the preliminary data for further work on growth characteristics and enzymatic potential of isolates from acidic peat swamp soil.

Keywords

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