The Isolation of a Lipopeptide Biosurfactant-producing Bacillus sp.

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A number of biosurfactant-producing bacteria were isolated from two kinds of soil samples namely those contaminated with mineral and palm oils. Strains were cultivated on oil-l-agar plates; those having an emulsified halo were presumed as biosurfactant producers for further screening. This work has obtained 107 isolates having an emulsified halo. After screening based on the ability to reduce surface tension and yield of acid precipitated, six potentials isolates were resulted . Four isolates originated from palm oil contaminated soil were Bacillus licheniformis BMN14, Bacillus circulans BMN27, Bacillus pantothenticus BMN57, and Bacillus pantothenticus BMN58. The remaining two isolates were originated from mineral oil contaminated soil namely Bacillus circulans BMB4 and Bacillus pantothenticus BMB18. Further screening using thin layer chromatography analysis showed that Bacillus licheniformis BMN14 and Bacillus circulans BMN27 have the ability to produce surfactin, i.e, a lipopeptide- type of biosurfactant. The characterization of isolates showed that Bacillus licheniformis BMN14 yielded acid precipitate of 0.81 g/l, 2.24 g/1 of biomass and surface tension reduction of 34.4 mN/m, whereas Bacillus circulans BMN27 yielded acid precipitate of 0.85 g/l, 1.44 g/1 biomass and surface tension reduction of 33.4 mN/m. HPLC analyses of the surfactin are being conducted.