

# # C726504 : MAJOR INDUSTRIAL MICROBIOLOGY

KEY WORD:

Biosurfactant / *Bacillus sp.* / Surface tension

BONGKOH SUTTHIVANITCHAKUL : UTILIZATION OF AGRICULTURAL WASTES  
FOR BIOSURFACTANT PRODUCTION FROM *Bacillus licheniformis* F2.2

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Attempt has been made to produce biosurfactant by cultivating *Bacillus licheniformis* F2.2 in chemical defined medium by which the organisms could produced biosurfactant in high amount in the present of glucose as carbon source. Such organism could employed 2 % (w/v; reducing sugar) rice straw hydrolysate in place of glucose and ammonium nitrate at 0.2 % (w/v) as nitrogen source, manganese sulfate at 1.71 mg. per liter as trace mineral. Cultivation of the organism in medium containing suitable carbon, nitrogen and trace element above along with 75 mM phosphate buffer with initial pH 8.0, at 30°C, for 24 hrs. and agitation rate of 250 rpm could reduce surface tension of the corresponding supernatant from 66 mN/m down to 28.3 mN/m and 39.3 mN/m when diluted by 100 folds and oil displacement value of 33.7 units.

Preliminary characterization of the biosurfactant produced revealed its pH stability over a broad range of 6-12 as well as stable at temperature 55 and 80°C upto 5 hours. The surface tension reduction ability will drop when NaCl concentration exceed 10 %. Furthermore HPLC profile of the biosurfactant produced revealed a distinct chromatogram differ from that of standard surfactin.

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