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Upscale fermentation of Bacillus licheniformis to produce probiotic for poultry, using cheap media (molasses)

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The main objective of this study was to use Bacillus licheniformis as probiotic to get the beneficial effects on poultry birds for the organic chicken, for this purpose Bacillus licheniformis KT443923 which has high antimicrobial activity, large zone of inhibition and CFU/g was cultured in molasses which is a cheap media. After optimization of shake flask parameters like pH, temperature, NaCl concentration, time, inoculums size, LB media and molasses upscale batch fermentation process was carried out in 7 liter Bioflo fermenter with 3 liters working volume and 6ml/100 ml of clarified molasses were used as medium at 37℃ for 24 hrs on 200 rpm/min for bacterial growth. For the fermentation of aerobic bacteria 2.5 vvm of dissolve oxygen/min was selected. The cell mass was centrifuged at 60,000 rpm for 15 minutes, pellet was lyophilized finally 4 gm (CFU 5.1×10 10) product was obtained. It was observed that cell mass production was maximum in fermenter (4 g/L) as compared to the shake flask which was (1g/L).

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