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Title: Enhanced Production of Pectin Lyase and Pectate Lyase by *Debaryomyces nepalensis* in Submerged Fermentation by Statistical Methods

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Abstract: Production of pectic lyases (PL and PGL) from *Debaryomyces nepalensis* has been optimized in submerged fermentation using Plackett-Burman design and response surface methodology. Four of the eleven fermentation variables (yeast extract, galactose, lemon peel and temperature) tested by Plackett-Burman design showed significant effect on both pectin lyase and pectate lyase production. The four screened variables were further optimized by central composite design. The optimal values of yeast extract, galactose, lemon peel powder and temperature for PL production was found to be 1.885, 0.956, 2.39% and 31.5°C and for PGL was at 2.5, 0.55, 2.4% and 32.7°C, respectively. The optimum activities of PL and PGL were found to be 10.73 and 8.73 U mL⁻¹ after optimization which shows a 2.5 and 2.9 fold increase in PL and PGL production, respectively. This is the first time an optimization was done for production of PL and PGL by yeast *Debaryomyces nepalensis*. This could be an alternative to fungal pectolytic enzymes.

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