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Optimization of polygalacturonase production by *Delftia sp.*

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Background and Aims: Polygalacturonases (PG) catalyze the hydrolysis of α-1,4-glycosidic linkages in pectic acid. The pectic polysaccharides contain galacturonic acid link at α-1, 4-glycosidic. Pectinases have been used in several conventional industrial processes such as fruit juice extraction, textile processing, degumming of plant bast fiber, clarification of fruit juices, coffee and tea fermentation and seed-oil extraction. The aim of this study was optimization of the conditions for polygalacturonase production.
Methods: In this study, pH, temperature and nitrogen source were optimized by one factor at the time method followed by response surface methodology in order for optimization of the pectin, nitrogen source and MgSo4 concentration in the culture medium for the optimum enzyme production by Delftia sp.
Results: After 72 hours of incubation, maximum enzyme activity was obtained at 37°C, pH 9 and peptone as nitrogen source. As for response surface methodology, the enhanced level of pectin, peptone and MgSo4 concentration greater than .15% didn't induce further enzyme production.
Conclusions: In this study, Delftia sp. showed high polygalacturonic activity with optimization of growth conditions. Therefore, this bacterium can be considered a good candidate for industrial uses.

Keywords: Bacteria; Optimization; Polygalacturonases