

BIOTECNOLOGÍA Y ALIMENTOS



A Novel Pectin-degrading Enzyme Complex from Aspergillus Sojae ATCC 20235 Mutants

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In the food industry, the use of pectinase preparations with high pectin esterase (PE) activity leads to the release of methanol, which is strictly regulated in food products. Herein, a pectin-degrading enzyme (PDE) complex exhibiting low PE activity of three *Aspergillus sojae* ATCC 20235 mutants (M3, DH56 and Guserbiot 2.230) was investigated. Production of exo-/endo-polygalacturonase (PG), exo-polymethylgalacturonase (PMG) and pectin lyase (PL) by mutant M3 and *A. sojae* using two different carbon sources was evaluated in solid-state fermentation (SSF). Finally, experimental preparations obtained from the mutants and commercial pectinases standardized to the same potency were screened for PDEs. The mutant M3 strain grown on sugar beet was found to be the best producer of exo-PG, endo-PG, exo-PMG and PL, with maximum yields of 1111, 449, 130 and 123 U/g, respectively. On the other hand, all experimental preparations exhibited very low PE activity, at least 21.5 times less than commercial pectinases, and higher endo-PG (40 U/mL). The obtained results show that the mutant M3 strain represents an alternative to produce PDEs under SSF using sugar beet as carbon source. Furthermore, the mutant strains studied here presented a PDE complex featuring high endo-PG and very low PE activities. This novel complex with low de-esterifying activity can be exploited in the food industry to degrade pectin without releasing methanol.

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