LIQUIFIED PETROLEUM GAS AS AN ALTERNATIVE FOR THE TREATMENT OF INULINASES

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The main goal of this work was to assess the influence of the treatment in pressurized liquefied petroleum gas (LPG) on the enzymatic activity of immobilized inulinases. The effects of process variables were evaluated through $2^3$ experimental design. Non commercial inulinase from Klyveromyces marxianus NRRL Y-7571 presented an increase of 163% in the residual activity using LPG at 30 bar during 1 h of exposure using a depressurization rate of 20 bar/min. For Aspergillus niger commercial inulinase, an increment of 129% in the residual activity was observed at 30 bar for 1 h of treatment at the highest depressurization rate (20 bar/min). Enzymatic activities changed significantly depending on the enzyme source and the experimental treatment conditions investigated, such as exposure time, depressurization rate and pressure. Hence, compressed LPG appears to be a promising technique with practical relevance as a preparation step to improve enzyme activity, thus helping the development of new biotransformation processes.

Keywords: inulinase; compressed fluid, LPG.