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"Sumar valor a los alimentos hacia las nuevas necesidades de los consumidores"

"Adding value to traditional and by-product foods to meet new consumer demands"

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THERMAL INACTIVATION KINETICS OF *Aspergillus fumigatus* AT BATCH PASTEURIZATION TEMPERATURE

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Food safety is one of the most important aspects to be assured in food processing, because of both economical and health aspects. Recent data had pointed out the existence of heat resistant molds (HRMs) in several juices, even after pasteurization by conventional heating. Therefore, studies concerning the inactivation dynamics of such microorganisms are needed to improve questions related to the microbial stability of thermal processes. The aim of this work is to study the inactivation of *Aspergillus fumigatus* (which is a HRM usually found in the juice industry) in apple juice at 75°C, comparing conventional (CH) and ohmic heating (OH) processes. The heating curves were matched for both processes, to evaluate only the nonthermal effects of OH. Three different models were adjusted to the experimental data (log-linear, Weibull and shoulder tail) and statistical indices were used to select the most suitable one, with posterior validation with independent data. The Weibull model had demonstrated the best fit (root-mean-square error (RMSE) = 0.115 and 0.100 and residual sum of squares (RSS) = 0.106 and 0.079 for OH and CH, respectively) and its validation demonstrated bias and accuracy factors close to the ideal (1) for both cases. The kinetic parameters of both processes diverged significatively (p-value < 0.05), with ohmic heating demonstrating higher inactivation rates. Usually it is required a reduction of 5 logarithmic cycles to achieve food safety in juice pasteurization processes. Considering this, the process time for each process were 122.7 min for CH and 105.6 min for OH. The obtained results suggest that there is a significant nonthermal effect of OH in HRMs, which is could be related to the cell wall electroporation during the passage of electrical current. These initial studies demonstrate the OH potential for rapid pasteurization processes.