IN SITU LACTIC ACID REMOVAL FROM A CHARACTERISTIC FERMENTATION MEDIUM (YOGHURT) PREPARATION BY ITS RETENTION ONTO HYDROTALCITE-TYPE ANIONIC CLAY-STATISTICAL MODELLING

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Anionic clays are natural or synthetic combinations of hydroxides with lamellar structure, having between layers spaces containing exchangeable anions and water molecules. Because hydrotalcites possess excellent properties, *e.g.*, low or no toxicity, good biocompatibility, the possibility of controlled release, there is a continuous interest in the discovery of new applications.

Batch fermentation of milk inoculated with lactic acid bacteria was conducted in the presence of hydrotalcite-type anionic clay under static and ultrasonic conditions. A statistical analysis of the data based on a 2^3 factorial experiment was performed in order to express experimental and model-regressed process responses depending on fermentation temperature (t=38–43 °C), clay/milk ratio (R=1–7.5 g/L) and ultrasonic field (v=0 and 35 kHz) factors.

A mathematical model was selected to describe the fermentation process kinetics and its parameters were estimated based on experimental data.

A good agreement between the experimental and simulated results was achieved. Consequently, the model can be employed to predict the dynamics of batch lactic acid fermentation with values of process variables in the studied ranges.

Keywords: *anionic clay, yoghurt, fermentation, lactic acid, ultrasound, mass transfer, statistical modelling.*