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Résumé :

The Aim of this study was to develop an optimized method for manufactur-ing process of traditional Algerian Jben cheese, using response surface meth-odology (RSM). In order to develop the objective method of making this tra-ditional cheese, several factors have been studied and a Plackett-Burman statistical design was applied. The effects of the four screened factors (enrichment with milk powder, 10 - 20 g/l; pH of milk, 5.75 - 6.75, enzymatic extract dose, 0.5 - 1.5 ml and coagulation temperature 40 - 60 °C) on the response were investigated, using a Box-Behnken statistical design. Multiple regression analysis was used so that experimental data fits to a second-order polynomial equation. This multiple analysis showed that the model explains about 90.73% of the variation. Based on statistical results, it can be noticed that enrichment with milk powder and pH of milk (<0.0001***) were highly significant factor influincing cheese yield. The optimal production parame-ters that maximized cheese product (20 g/l enrichment with milk powder, 5.75 pH of milk, 1.29 ml enzymatic extract dose and 60°C coagulation tem-perature) and the maximal predicted cheese yield (52.68 %) were found out through response surface methodology. Under these conditions, a verifica-tion experiment was carried out and cheese yield was found to be 49.46 %. The overall percentage of agreement for the experimental results (more than 93 % validity) with the predicted values indicates the validation of the statistical model and the success of the optimization process.