Optimization of ingredient and processing levels for the production of coconut yogurt using response surface methodology

Abstract:

In this study, response surface methodology (RSM) was employed to optimize the ingredient formulation and processing parameters of coconut milk yogurt production such as temperature, time, and amount of starter culture on the sensory evaluation responses. Besides, the physicochemical properties such as pH, titratable acidity, and viscosity of the yogurt were also analysed. The analyses show that the coconut yogurts have a pH from 4. 01 to 5. 79, acidity from 0. 461 to 2. 079 (%), and viscosity from 433 to 21,833 cp during the optimization process. From the analysis of variance, the R2 of all response variables is more than 0. 73 that indicates that a high proportion of variability was explained by the model. Based on the response surface 3D plot of the sensory evaluation, the optimum acceptability of the coconut yogurt processing parameter are at temperature of 37oC, 8 h of the fermentation duration, and 3%(w/w) of the starter culture.