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## RSM STUDY IN THE FOAM FRACTIONATION OF NATIVE WHEY (WASTE)

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The objective of the present study was to optimize the operating conditions in the separation of the total whey proteins from whey by continuous foam fractionation method using response surface methodology (RSM). The effects of the different process variables such as pH ( $X_1$ ) of proteins in feed, gas flow rate, GFR ( $X_2$ ) of initial feed solution, protein: surfactant ratio, PSR ( $X_3$ ) and volumetric flow rate, VFR ( $X_4$ ) were investigated on the performance criteria of fractionation of raw processed whey. Four factors, three levels Box-Behnken design was used for the optimization procedure. Quadratic model regression equations and response surface plots correlate independent variables ( $X_1$ ,  $X_2$ ,  $X_3$  and  $X_4$ ) and dependent variables (response) such as concentration of foamate ( $C_f$ ), enrichment ratio ( $E_f$ ) and percentage recovery ( $\%R_p$ ) of total whey proteins can be achieved easily. All the four factors had significant effects on the response variables. The model predicted that the optimized values of the factors ( $X_1$ ,  $X_2$ ,  $X_3$ ,  $X_4$ ) were 5, 290, 1.5, 14 respectively. The predicted responses were (concentration of foamate, enrichment ratio, and percentage recovery) such as 6647.32, 13.27, and 78.02 respectively. Experiments were performed with the predicted values of factors.

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