Abstract

Defatted custard apple (Annona squamosa) seed flour, after extraction of oil was used as a source of protein to meet the nutritional requirements of most of the people of developing
countries. The poisonous nature and presence of antinutrients in these oil seeds limits their use as food for livestock and man. However, to utilize the seeds for food, either removal of the antinutrients and/or isolate the proteins contents is necessarily required. In the present study, custard apple seed protein isolate (CASPI) was prepared by using alkali method. A three-factor five-level, central composite rotatable design (CCRD) of Response surface methodology (RSM) was adopted to study the effect of three independent variable namely pH (7-11%), NaOH concentration (0.6-2%) and Flour to solvent ratio (20% - 60%) on the dependent variables like protein content (%) and protein yield (%). The numerical optimization technique gives the different optimized conditions for the custard apple seed protein isolate were pH (11), NaOH concentration (0.67M) and flour to solvent ratio (1:60 w/v). The experimental samples under the optimum process conditions resulted protein content 68.07% and protein yield 18.69% which were in close proximity to the predicted values. The closeness of actual values 68.07% and 18.69% and predicted values 66.89% and 18.07% for protein content and protein yield confirms the validation of RSM model.

References

Response Surface Methodology for Optimization of Protein Isolate from Defatted Custard Apple Seed (Annona Squamosa)


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Index Terms

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Defatted Custard Apple Seed Flour  Protein Isolate  Rsm  Numerical Optimization  Ccrd.