OPTIMIZATION OF POTATO FLOUR BASED COMPLEMENTARY FOOD USING D-OPTIMAL DESIGN

Pinki Saini[1], Neelam Yadav[1]✉ , Devinder Kaur[1], Urvashi Sharma[1] and Unaiza Iqbal[1]

[1]Centre of Food Technology, Institute of Professional Studies, University of Allahabad, Allahabad -211002, India

✉ *neelam_aidu@yahoo.com*

Abstract

The huge demand of nutritious, calorie dense, non allergenic and cost effective complementary food is continuously increasing so as to curb the prevalence of malnutrition among children especially in developing countries having limited resources. Therefore, it becomes essential that the synergistic effects of the primary constituents should be exploited to yield maximum optimal functional properties. This study was carried out to develop a weaning mix by using Rice flour (A), Potato Flour (B) and Chickpea Protein Isolates (C) to obtain a formulation having optimal physicochemical properties (Water Absorption capacity, Water Solubility Index, Texture) and sensorial properties by Optimal Mixture Model Design of response Surface Methodology. The lower limit (Rice flour- 50; Potato flour- 20 and Protein isolate-5) and upper limit (Rice flour-70; Potato flour-30 and Chickpea Protein isolate-10) for each mixture component was used. Experimental designs had 16 experimental runs with physicochemical and sensorial properties as their responses. The constraint fixed for optimization of the weaning mix was to maximize the overall acceptability and keeping the physicochemical properties WAC, WSI and texture within range. Within these constraints, d optimal design selected the variation 65A:28.1B:6.9C as the most desirable one. The predicted and observed values of the analyzed responses of the optimized formula were compared (p<0.05) and the results were found to be in good agreement with the predicted values.