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**APPLICATION OF RESPONSE SURFACE METHODOLOGY FOR
OPTIMISATION OF IN VITRO ENZYMATIC DIGESTION OF SOY PROTEIN
ISOLATE USING HIGH HYDROSTATIC PRESSURE PROCESSING**

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ABSTRACT Enzymatic digestion of soy protein isolate (SPI) done with high hydrostatic pressure processing was studied using response surface methodology. The effect of pre-treatment pressure, pepsin-substrate and pancreatin-substrate ratios was studied and analyzed by a central composite experimental design (CCD). The goal of the CCD was to assess the effects of treatment variables and their interactions on the degree of hydrolysis of SPI. A predictive polynomial quadratic model was developed in SAS 8.0 software. Regression equations, response analysis, and mathematical models showed good combinations with the experimental data. The R² value indicated that 96.6% of the variability within the range of values studied could be explained by the model. A pre-treatment pressure of 590MPa, a pepsin-substrate ratio of 1.1 % and a pancreatin-substrate ratio of 3.2% were the optimal conditions achieving the highest degree of hydrolysis.

Keywords: Enzymatic digestion; soy protein isolate; hydrolysis; hydrostatic pressure