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Optimization of Gluten Free Cookie Flour by Using Response Surface Methodology

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Abstract- Soft wheat flour is the most important raw material in the production of cookies. But because of gluten intolerance of celiac patients they should not consume gluten containing cookies made from wheat flour. Therefore in this study it was aimed to form a suitable gluten-free cookie formulation (GFCF) with corn starch, corn flour, rice flour and potato starch. Usage ranges of these ingredients were determined by using response surface methodology. The lower and upper limits of the independent variables to be used in the GFCF were detected before the formulation experimental design was established as 5-20%, 0-50% and 0-30% for corn flour, rice flour and corn starch respectively. In the GFCF the proportions were completed to 100% with potato starch. By using these determined values, the GBUF experimental design was established by the response surface methodology according to Box Behnken method. General acceptability, textural hardness, color differenace (delta e) and spread ratio values were selected as dependent variables. According to the data obtained from this optimization study; by using mixture of 7% corn starch, 8% corn flour, 40% rice flour and 45% potato starch it is possible to produce gluten free cookies with acceptable quality.

Keywords: Box Behnken, celiac, gluten-free cookie, Response Surface Methodology