

OPTIMIZATION OF FORMULATION AND BAKING CONDITIONS OF MICROWAVE BAKED CAKES

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In this study, it was aimed to optimize the formulation and baking conditions of microwave baked chickpea flour cakes by using Response Surface Methodology. A white layer cake batter recipe containing 100% cake flour, 100% sugar, 25% fat, 12% non-fat dry milk, 9% egg white powder, 3% salt, 5% baking powder and 90% water was used in the experiments. Two different ratios of chickpea flour to total flour were used in the experiments (30% and 50%). DATEM was added in different amounts (0.4%, 0.8% and 1.2%) to the formulation. The cake batters with different formulations were baked by using three different microwave oven power as 300 W, 350 W and 400 W for 2.5, 3.0, 3.5 minutes. The optimum point was determined as 400 W for microwave power, 2.74 min for baking time, 30% for chickpea flour concentration and 1.2% for DATEM concentration. In determination of these optimum points, maximum specific volume, maximum color change, maximum dielectric properties, maximum porosity, minimum firmness, and minimum weight loss were considered. When the quality values of control and optimum point were compared, it can be concluded that the color difference, specific volume and porosity values of control samples were higher, while the weight loss, hardness and dielectric values were lower.

Keywords: Microwave, cake, optimization, RSM

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