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Strategies to develop healthier industrial white slice dairy bread through fat, sugar
and flour substitution

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Introduction. Industrial white slice dairy bread (WSDB) is an interesting target for developing a reduced calorie bread as it contains fat and sugar in its formulation. Three commercial substitutes were evaluated in this study in order to improve nutritional profile of bread.

Materials and methods. Toler Fat Less Saladas (TFLS) as fat substitute, Granofiber Sweet (GS) as sugar substitute and Granofiber Sym 200 (GS200) as flour substitute, were assessed by analyzing the dough fermentative properties using Rheofermentometer, and the dough behaviour properties on mixing–heating–cooling using Mixolab. Additionally, loaf specific volume and texture profile were measured as baking quality parameters.

Results and discussion. In case of fat substitution, TFLS caused a similar effect to fat, showing high starch gelatinization. In agreement, fat and TFLS provided WSDB with similar changes in crumb texture, which led to improve the quality of bread preservation at short shelf life of end-product (5 and 10 days). Otherwise, sugar substitution influenced mainly gas production during fermentation stage. However, dough development was similar when sugar or GS was added in WSDB, thereby increasing loaf specific volume. These results may indicate that GS applied in a complex formulation bread as WSDB, provides a suitable effect like sugar. Concerning flour replacement, several rheology changes and a significant decrease of gas production occurred on GS200 added-dough. However, GS200 showed an important contribution in gas retention capacity, influencing in good dough development. Therefore, bread loaf specific volume of WSDB+GS200(3%) and WSDB+GS200(6%) showed satisfactory results, indicating the potential capacity to use GS200 on WSDB recipe to formulate high fiber bread.

Conclusions. We conclude that substitutes evaluated in this work can be used for breadmaking to improve nutritious quality of bread for health benefits.