Physicochemical and Sensory Characteristics of Pretzel with Wheat Bran

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ABSTRACT

It is well supported that a significant intake of dietary fibre reduces the risk of several chronic diseases. The development of staple foods enriched with fibre is an important contribution to a broader supply of food products with health beneficial effect. In this context, partial substitution of wheat flour with wheat bran at levels of 3%, 5% and 10% was carried out to investigate physiochemical (moisture, ash, fiber and acidity) and sensory properties of pretzel. Sensory analyses included evaluation of overall appearance, colour, taste, aroma, consistence (9 point hedonic scale). Present study indicated that 10% added of wheat bran were accepted by consumers and have shown the potential of developing fibre-rich pretzels in order to increase the dietary fibre intake.

Keywords: wheat bran , pretzel quality, sensory evaluation.

INTRODUCTION

Demand for health oriented products such as sugar-free, low calorie and high fibre products is increasing. One such recent trend is to increase the fibre content in food products to overcome health problems such as hypertension, diabetes, and colon cancer, among others. Consumption of high fibre products consisting of indigestible cellulose, hemicellulose, lignin and gums have several health benefits. Apart from these benefits, β-glucan-rich fibres have the benefit of reducing the absorption of glucose (Sudha M.L. et al., 2007). Thus the use of wheat bran in the food and feed industry has increased distinctly and visibly over the last decade (Prückler et al.,2014). Wheat bran, as a low cost and rich source of dietary fibre (about 45-50%), is produced as a by-product in wheat milling factories. It is compatible with bread and other bakery products, in terms of taste and aroma. Apart from fibre, bran contains good quality proteins (albumin and globulins), minerals (Ca, Fe, Zn) and antioxidants (Hoseney, 1994). All these have made bran an attractive component to be used in many foods particularly in bakery products (Majzoobi et al., 2013).

AIMS AND OBJECTIVES

The purpose of this study is the assessment of the quality control of pretzels obtained at three levels of added wheat bran (3%, 5% and 10%) by substituting the same amount of wheat flour (w/w).

MATERIALS AND METHODS

Pretzels with wheat bran were obtained using an original recipe adapted into a micro scale production, resulting three prototypes: pretzels with 3%, 5% and 10% added wheat bran (WBR). The recipe used was: wheat flour and wheat bran (100%), olive oil (10%), margarine (20%), yeast (1.5%), sesame seeds (5%), iodized salt (1.5%) and water (10 - 20%), depending on the capacity of hydration of the flour mixture. All raw materials used in these experiments have been purchased from specialized stores. The technological flow for the obtained pretzels samples is shown in figure 1.

The experimental variants were analyzed for physico-chemical parameters: moisture, ash, fiber and acidity (AACC, 2000). The sensory attributes, were evaluated by a group of un-trained panelists, using a 9-point Hedonic scale.
RESULTS AND DISCUSSION

The addition of wheat bran in pretzels improved its sensory and nutritional qualities. The values of analyzed parameters for pretzels with wheat bran are presented in Table 1.

Substituting wheat flour with 10% wheat bran improved the physicochemical properties of pretzels and not affects crispiness, which is an important textural characteristic of pretzels. These studies have shown the potential of developing fibre-rich pretzels in order to increase the dietary fibre intake.

CONCLUSION

Therefore, wheat bran can be used to partially replace wheat flour in product development to achieve the objectives of reducing the cost of cereal-based stable foods and developing health-enhancing diets for the consumers.

REFERENCES