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Chickpeas as a functional food ingredient for the gluten-free industry

Sanaa Ragaei¹, Loong-Tak Lim¹ and El-Sayed M Abdel-Aal²¹University of Guelph, Canada²Guelph Food Research Centre, Canada

The global gluten-free market is growing rapidly. A major shortcoming in gluten-free products is their short shelf-life and low protein content. The quality of pasta and cookie products depends on the presence of gluten proteins in wheat and their ability to form a network structure. The absence of a strong protein network is a big challenge in the production of gluten-free pasta due to its structural function to prevent dissolution of pasta during cooking. While in cookies a good protein network prevents crumbling of cookies after baking and it extends shelf-life. Protein gelling is an important functional property that could determine the ability of a protein to form an appropriate structure in food products. Proteins association and dissociation during heating depend on pH and salt concentration. Chickpeas are rich in protein (18-25%) with high biological value due to the equilibrated amino acids composition, and relatively reduced content of anti-nutritional factors. The present study investigated the effect of different pH conditions and salt concentrations on the functionality of chickpea flour or its protein when incorporated in different gluten-free formulas. Rheological properties of the different formulas were investigated. In addition, baking quality and shelf-life of the products (pasta and cookies) were evaluated. Results demonstrated that chickpeas hold a promise as a functional food ingredient for the gluten-free industry primarily to enhance nutritional and baking qualities of the final products.

Biography

Sanaa Ragaei is an Adjunct Professor and Cereal Program Manager in Department of Food Science, University of Guelph, Canada and she has extensive research experiences working with the grain industry in Canada such as millers, bakers and food developers. She is highly skilled in the fields of Grain Chemistry and Biochemistry. She has been working in the areas of effects of processing on bioactive components in cereal products, functionality of different prebiotics on the shelf life and quality of frozen dough, ingredient interactions and their functionality in different formulas, gluten-free products and developing high fiber functional wheat products for the functional food industry. All research projects in her laboratory are supported by several food industries in Canada.

sragaei@uoguelph.ca

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