THE USAGE OF HYDROCOLLOIDS IN GLUTEN-FREE BAKERY PRODUCTS

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Introduction. The production of gluten-free bakery products is becoming increasingly popular due to growing public awareness of gluten-related disorders and the increasing demand for such products. The main diseases arising from the consumption of products containing the gluten complex include coeliac disease, wheat allergy and non-coeliac sensitivity. It is precisely to reduce such negative reactions of the body that it is necessary to expand the food market with special products that do not contain gluten. At the same time, scientific research has shown that the production of gluten-free bakery products requires compensation for the functional role of gluten, the absence of which may adversely affect dough structure and the quality of the finished products. As a result, such products may have a lower volume, a denser crumb, and altered textural properties compared with conventional bakery products. In light of this, the development of gluten-free flour-based bakery products that provide dough rheological properties and sensory and textural characteristics comparable to those of conventional bakery products is becoming increasingly important.

Materials and Methods. One possible solution is to incorporate structure-forming components, such as hydrocolloids, into the formulation. Hydrocolloids are, in most cases, high-molecular-weight polymers with long chains which, when interacting with water, form viscous dispersions and/or gels [1]. These properties make hydrocolloids particularly relevant to the development of gluten-free bakery products, and their use has therefore been investigated in numerous studies, including the application of guar gum, pectin, xanthan gum, psyllium, and other structuring agents. Their effects on water absorption capacity, dough viscosity, specific volume, crumb structure and hardness have also been investigated, along with the identification of optimal concentrations for certain gums.

Results and Discussion. On this basis, it was established that the production of high-quality gluten-free products requires a comprehensive approach involving the selection of suitable gluten-free flours, assessment of their interactions with hydrocolloids, determination of appropriate hydrocolloid concentrations, and evaluation of the overall acceptability of the final product.

Conclusions. Thus, the effectiveness of hydrocolloids depends not only on their individual functional properties, but also on the characteristics and proportions of the raw materials and their interactions within the product matrix. These factors should therefore be considered when developing and optimizing gluten-free bakery products.

Keywords: *concentration, flour, gluten, hydrocolloid, protein, structure, quality*

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