

**Gluten-free bakery products**

Anastasia Semenova<sup>1</sup>, Yuliya Prikhodko<sup>1</sup>, Vira Drobot<sup>2</sup>

<sup>1</sup>Food Resources Institute of National Academy of Agricultural Sciences, 4A M. Raskovoy St., Kyiv, Ukraine,  
dir@ipr.net.ua

<sup>2</sup>National University of Food Technologies, 68 Volodymyrska St., Kyiv, Ukraine

Due to the negative environmental influence and growth of genetic and allergic diseases the concept of functional and dietary foods is becoming increasingly important.

Today, scientists and leading experts draw attention to the rising incidence of pathological reactions of allergic or autoimmune genesis, developing in response to the consumption of gluten-specific proteins (the alcohol insoluble fraction of prolamins) of wheat, rye, barley and oat or their crossbred hybrids and derivatives.

Among gluten-related disorders the most studied for today are celiac disease, non-celiac gluten sensitivity and wheat allergy. The only effective measure of gluten-related disorders treatment is a complete and lifelong rejection of products containing gluten.

Of all gluten-free products manufacture of bakery is the most problematic, because wheat protein (gluten) is mostly responsible for fluffy crumbs, spongy structure and volume of bread.

As a common practice scientists use a combination of native and modified starches, gluten-free types of flour and hydrocolloids for imitation of gluten network. Besides they resort to the use of emulsifiers, sourdough, amylase and transglutaminase enzymes for products structure improving and dairy and egg products, protein isolates, prebiotics, etc. for nutrition value increasing.

Therefore, based on the requirements for gluten-free products and researches of chemical composition and technological properties of gluten-free raw materials the mix composition of bread was developed. It ensures the formation of developed crumb of bread, its taste and aroma.

Thus, experimental studies have established the effectiveness of complex mixtures using gluten-free flour and starches in combination with hydrocolloids, transglutaminase and protein of animal origin.

Amongst gluten-free raw materials corn, buckwheat, chickpea, bean, millet flours and corn and potato starches received the highest score of technological properties. High quality of products was obtained using the xanthan gum in combination with hydroxypropylmethylcellulose. It is also proven that application of transglutaminase in association with dry egg albumen or dry whey improves consumer properties of gluten-free products.

**KEY WORDS**

gluten-related disorders, gluten-free bread, transglutaminase, gluten-free flour

**Indicate type of presentation:** ☐ Oral ☐ Poster