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## **OUTLOOK OF THE APPLICATION OF THE WAXY WHEAT FLOUR IN PASTRY TECHNOLOGIES**

One of the priority directions of modern food and confectionery industry development is the research of the possibility of using new types of high-quality food raw materials for the manufacture of products with high nutritive and biological value. Along with the important task of food products' enrichment with scarce nutrients today, no less important is the problem of providing the population with the products, whose nutrients are effectively digested by the human body. That is especially important for the nutrition of children, soldiers and athletes, as well as for those who need a regenerative diet after surviving the operation. For this purpose, waxy wheat flour (WWF) is widely used for the preparation of food products in the world. The feature of the WWF is the almost complete absence of amylose in its starch [1-2]. In Ukraine, the Selection-Genetic Institute of the National Academy of Agricultural Sciences of Ukraine (Odessa) has carried out wide selective breeding program of winter waxy wheat under the leadership of O. I. Rybalka [3]. Scientists of the Plant Production Institute of the National Academy of Agricultural Sciences of Ukraine (Kharkiv) named after V. Ya. Yuryev created unique lines of spring waxy wheat based on Kharkivska 30 wheat variety and waxy wheat lines IR 13640 S, IR 13641 S, IR 13642 S by irradiating grain with gamma rays. Research directed at the study of the possibility of using the flour from new lines of waxy wheat in the different pastry technologies are of scientific and practical interest.

The purpose of the research is to determine the prospects of using waxy wheat flour in the technology of various pastry products based on their quality evaluation based on the results of test baking.

The WWF of the selection of the Plant Production Institute of the National Academy of Agricultural Sciences of Ukraine (Kharkiv) named after V. Ya. Yuryev obtained on the Bühler flourmill with a 70.0% extraction rate is used in the research. We used waxy wheat of 2017 and 2018 crops for this purpose. White flour produced by "Novopokrovsky Group of Enterprises of Cereal Products" (Ukraine) was also used in the research. The possibility of the application of waxy wheat flour in the technologies of sponge cakes, shortbread cookies, fruitcakes and muffins was investigated. Pastry products were made according to the receipts given in [4; 5]. WWF was added to the

recipes at the amount of 25.0; 50,0 and 75,0% of the weight of the wheat flour. Products made without the addition of WWF were used as comparison samples. The quality of pastry products was estimated according to the organoleptic parameters in accordance with DSTU 8001:2015, DSTU 3781:2014, DSTU 4505:2005.

It is found that all samples of the cookies were of regular shape with a smooth surface, the color from light yellow to light brown and the smell typical of pastry products. The largest changes were observed in the structure of cookies: with the increase in WWF dosage, fragility (friableness) of pastries raised. According to the results of the tasting, it was determined that the cookies with the addition of a maximum (75.0%) amount of WWF demonstrated the best quality indicators.

It is found that all samples of sponge cakes had regular shape and smooth surface without any ruptures. On the surface of the samples with the addition of 50.0 and 75.0% WWF there were slightly more micro cracks than on other samples. Crust color of all samples was light brown while the crumb color was light yellow. The smell was typical for pastries and the taste was sweet without off-flavors. The crumb structure was soft; porosity was fine, and smooth. Crumb of the samples with the addition of 50.0% and 75.0% of WWF was moister than the others, which may be of great practical value - when using a sponge cake for the preparation of cakes there is a possibility to reduce the syrup input for impregnation of cakes.

According to the results of tasting fruitcakes and muffins, it was found that all samples had the regular shape without kissing crust. We could see light rippings on the fruitcakes surface, and there were rather large rippings on the muffins surface. With the increase of WWF in the dosage, the size of the ripping both on the surface of fruitcakes and muffins increased. Visually the volume of all samples of fruitcakes was the same. The volume of muffins grew with an increase of WWP dosage. With the increase of WWP dosage, there was also a decrease in the roughness of the muffins surface – probably due to an increase of dough density. Pastries' color ranged from light brown to brown. The porosity of control and experimental samples was fine and smooth. By the taste and smell, the samples under study did not differ.

Thus, due to the conducted research, it was established that pastries made with an addition of waxy wheat flour from 25.0% to 75.0% by weight of white flour were characterized by high organoleptic quality. It means that they can be recommended for consumption. The use of waxy wheat flour in shortbread cookies technology allows to get products with a more fragile consistency and in the technology of sponge cakes - with a less dry crumb that keeps freshness longer.

## References

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## РОЗРОБКА ТЕХНОЛОГІЇ БЕЗАЛКОГОЛЬНИХ НАПОЇВ ІЗ ДИКОРΟΣЛОЇ ТА КУЛЬТИВОВАНОЇ СИРОВИНИ

З кожним роком стан здоров'я населення українців суттєво погіршується. На сьогоднішній день структура харчування характеризується вираженим дефіцитом великої кількості вітамінів та мінералів. Тому зараз надзвичайно важливим завданням є створення нових продуктів високої якості, що забезпечують лікувально-профілактичну дію [1, с.239].

В наш час дуже важливе місце серед продукції, яка забезпечує організм людини життєво необхідними речовинами, займають напої, так як рідини характеризуються високою швидкістю засвоєння.

Безалкогольні напої відіграють важливу роль у обміні речовин людини, так як підтримують водний баланс, компенсують втрату вологи та солей, підтримують терморегуляцію організму. Забезпечити ці процеси лише прісною водою неможливо через втрату певної кількості мінеральних речовин [2,3].

Різноманіття сировини дає змогу збільшення асортименту цього виду продукції. На сьогодні в Україні здебільшого використовуються традиційні для більшості країн Європи плоди та ягоди, а також екзотичні рослини. Але ягоди притаманні для нашого регіону