

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE  
DONETSK NATIONAL UNIVERSITY OF ECONOMICS AND TRADE  
NAMED AFTER MIYKHAILO TUGAN-BARANOVSKY



**INNOVATIVE DEVELOPMENT  
OF HOTEL AND RESTAURANT  
INDUSTRY AND FOOD  
PRODUCTION**

PROCEEDINGS OF  
II INTERNATIONAL  
SCIENTIFIC AND PRACTICAL  
INTERNET CONFERENCE

April 30, 2021

OKTAN PRINT s.r.o  
Prague – 2021

Innovative development of hotel and restaurant industry and food production: proceedings of II International scientific and practical Internet conference. Prague, Oktan Print, 2021, 378 p.

The collection contains proceedings of II International scientific and practical Internet conference “Innovative development of hotel and restaurant industry and food production”, subject area of which contains a wide range of issues related to world achievements and innovative technologies in restaurant business, food production processes and equipment improvement, as well as modern trends and strategies for the development of hotel and restaurant business.

The publication is assigned with a DOI number:

**<https://doi.org/10.46489/IDOHAR-310509>**

The paper version of the publication is the original version. The publication is available in electronic version on the website:

**<https://www.oktanprint.cz/p/innovative-development-of-hotel-and-restaurant-industry-and-food-production-2/>**

Multilanguage edition

Passed for printing 30.04.2021

**ISBN 978-966-385-367-3**

OKTAN PRINT s.r.o.

5. května 1323/9, Praha 4, 140 00

[www.oktanprint.cz](http://www.oktanprint.cz)

tel.: +420 770 626 166

Vydání první

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МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ  
ДОНЕЦЬКИЙ НАЦІОНАЛЬНИЙ УНІВЕРСИТЕТ ЕКОНОМІКИ І ТОРГІВЛІ  
ІМЕНІ МИХАЙЛА ТУГАН-БАРАНОВСЬКОГО

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НАУКОВО-ПРАКТИЧНА  
ІНТЕРНЕТ-КОНФЕРЕНЦІЯ

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**30 квітня 2021 року**

Oktan Print  
м. Прага –2021

УДК 640.4:(330.341.1+001.895+658.589)

I 66

**I-66 Інноваційний розвиток готельно-ресторанного господарства та харчових виробництв : матеріали II Міжнародної наук.-практ. інтернет-конф. – Прага: Oktan Print s.r.o., 2021. - 378 с.**

ISBN 978-966-385-367-3

DOI: 10.46489/IDONAR-310509

У збірнику опубліковано матеріали II Міжнародної науково-практичної інтернет-конференції «Інноваційний розвиток готельно-ресторанного господарства та харчових виробництв», тематика яких містить широке коло питань, пов'язаних із світовими досягненнями та інноваційними технологіями в ресторанному господарстві, удосконаленням процесів та обладнання харчових виробництв, а також сучасними тенденціями та стратегіями розвитку готельно-ресторанного бізнесу.

**Науковий комітет конференції за зміст матеріалів доповідей  
відповідальності не несе**

**УДК 640.4:(330.341.1+001.895+658.589)**

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Михайла Туган-Барановського, 2021

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## **DESIGNING OF BAKING AREA SPECIALIZING ON HIGH NUTRITIONAL VALUE PRODUCTS**

**Riashko H., PhD in Engineering sciences, Associate Professor**  
*Odessa National Academy of Food Technology, Odessa*  
**Sheludko V., PhD in Engineering sciences, Associate Professor**  
*Poltava University of Economics and Trade, Poltava*

Pastries have a huge range in the world expanding every year. Nowadays the most popular flour products in Ukraine are muffins, cupcakes, brownies, blondies, biscotti, cantucci, craffins, Savoyardi and Madeleine biscuits. Usually pastries are high in calorie ingredients and low in macro- and micro-elements, vitamins. Youth are the main consumers of flour confectionery products. At the same time, the young generation is concerned about the composition of the consuming food. Therefore, the production of high nutritional value products with low calorie content is relevant today in Ukraine.

The improvement of flour confectionery technologies realizes by reducing the amount of sugar and fat in the recipe and by addition of raw materials with high nutritional value. Various kinds of flour, vegetable, fruit and berry puree are widely used to reduce the calorie content of pastries. The technological process changes lead to the technological lines modifications that requires a new line of approach to the design of baking area. Therefore, the baking area design specializing in the production of high food value products with low calorie content is a topical issue.

New technology envisages use of various kinds of flour and replacement with legumes, corn, buckwheat, quinoa, triticale, flax flour, wheat germ, low-fat sesame, sunflower seeds and others. Although bulk options may be available for some flours, but most of raw materials have a very high price or short shelf life, therefore own production is important. Some grains and plant materials can be ground into flour in electric grinder in a baking area. Electric grinders with a productivity of 50 to 150 kg per hour are recommended for low-capacity baking areas. The electric motor of the grinder is constructed for long production loads and has a cooling system. The milling area of various kinds of flour must be located on dough station on that reason. Tabletop models of electric mills are suitable for small baking area. Using of them does not require additional work area. For baking area with a capacity of 10 thousand products and more, it is recommended to install floor models of electric grinders and to increase the area of the dough station in results.

Vegetable, fruit and berry puree replaces some of the high-calorie ingredients in the pastry recipe. Puree – is a mass of mashed vegetables, fruits or berries, freed from seeds, stalks, twigs and other inedible parts of fruits. Puree must be homogenized for better pastry quality. Fruit puree is produce from various raw materials of one or more species such as beetroots, pumpkins, carrots, apples, bananas, cherries, tomatoes, spinach, sea buckthorn. To produce purees, good-quality fruit and vegetable products are used, which contains the maximum amount of pectin, organic acids, soluble dry matter.

Traditional production process of puree includes washing, inspection, mealting, rubbing. The main purpose of thermal processing – softening of fruit tissue to facilitate following rubbing operation, inactivation of plant material enzymes. Tissues of the fruit are softening as under the influence of heat and acids containing in the fruit, occurs hydrolysis of protopectin located in the medial layers and cell walls. Strong links between cells are disrupted, some cell walls crumbling, the tissues softens.

Pre-processing of vegetables and fruits takes place in a preparation area if the baking area is located in the restaurant. If the baking area is not a part of restaurant, it is accepted to organize a separate room for preparing raw materials for the technology using vegetable and fruit puree. A freezer and mechanical equipment for preparing fruits and vegetables puree must be installed in the preparation area to produce vegetable and fruit puree.

The mechanical devices for mashing puree are a blender, blixer or cutter. The work principle of these devices is identical, but they are differ in degree of product mashing and the homogeneity of the puree consistency. Blender and cutter do not produce a completely homogeneous structure of the puree depending on the type of raw material. Therefore, a wiper or automatic sieve must be used in addition. Blixer has a different knife shape and an extra scraper, so it can manufacture a totally homogeneous puree. In this case, there is no need to install a device for wiping the puree. Using of a blixer reduces the cost production of vegetable, fruit and berry puree.

Modeling of production processes of a baking area, that realizes products with high nutritional value, allows identifying all the typical processes of the restaurant. In the modeling, the order of technological processes should be constant. It avoids mixing flows of raw materials and products and provides incoming quality control of products on every technological stage.

Baking areas usually have a small capacity – from 1 to 3 thousand products per shift in restaurants. According to regulations in baking area with a capacity of up to 3 thousand products only two rooms – for baking and decorating are provided. It is recommended to install an electric grinder on the baking station and the freezer and Blixer on the decoration station. Instead of a freezer, a freezer table can be used since the volume of fruits and berries is small. The freezer table can replace a conventional table. In results, using of additional equipment in a small-capacity baking area does not increase their area.

In conclusions, the technology of high nutritional value pastries with low calorie content demands the using of extra devices: electric mill, freezer and blender in the baking area. Using of several extra devices allows designing the baking area for production of high nutritional value pastries with low calorie content. This technology can be implemented in existing small-capacity baking area through the purchase of additional equipment without reconstruction of the area.

# ЗМІСТ

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Наукове видання

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Набір та верстка: Сімакова О.О., Омельченко О.В., Ніколайчук О.А.  
Відповідальний за випуск: Никифоров Р.П.

The publication is assigned with a DOI number:  
**<https://doi.org/10.46489/IDOHAR-310509>**

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