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РОЗДІЛ 2

**ХІМІЧНІ, ФІЗИЧНІ ТА МАТЕМАТИЧНІ МЕТОДИ
ДОСЛІДЖЕННЯ ПРОЦЕСІВ ТА АПАРАТІВ**

EFFECT OF STEVIA ON A WHEAT DOUGH MATURATION

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Create food diabetic is actual direction, because the diabetes is progression in a whole world. Research suggests that the number of people suffering from this disease will be about 300 million in 2025. Diabetes mellitus is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both.

In Ukraine this disease has 2,9 % of the total population, 5–10 % of those have Type 1 diabetes, 90–95 % of those – Type 2 diabetes.

The three main methods of creating a product for diabetics are: 1) the replacement of sugar without glucose analogues, 2) the various modifications of the main raw materials of bakery products – flour etc. 3) the introduction of comprehensive food compositions

Stevia has a long history of safe usage with more than 150 safety studies and Government approvals in many countries across the world. For over 30 years, Stevia has been extensively used in countries like Japan, China and Korea as a sugar substitute and also to replace low calorie artificial sweeteners. Stevia has been used in a wide variety of food products including sweets, confectioneries, ice creams, soft drinks etc. However, its use in baking was not investigated.

Stevia has excellent technological characteristics. From the extensive research it was revealed that the sweetening principle in stevia is due to natural sweet active components present in the leaves of *Stevia rebaudiana* that is Stevioside and rebaudiosides A, B, C, D, and E; dulcoside A; and steviolbioside.

Stevioside has a slight bitter aftertaste and provides 250 to 300 times the sweetness of sugar. It is at 200 °C, but it is not fermentable and does not act in browning reactions, like many other natural sweeteners. Stevia does not form precipitates in an acidic solution.

Dry leaves of stevia (TC 551/46.16331590-97) were using in the research. We poured boiling water with the temperature 98...100 °C down the leaves, the ratio was 1:10. Then this extract was putting away on 45 min. The basis was taken buns recipe "Gingerbread Man", in which sugar is replaced with the received extract of 10, 20, 30 % of the mass of water that goes to the dough.

The invected any additive in a stable and well-studied system of the test is largely reflected in its quality. The first studies on the contact test the ripening process were performed, which largely depends on the fermentation. In addition, we should not forget that sugar besides prescription ingredient, which is responsible for the taste of products, also plays an important technological role. And the complete exclusion of its formulations can adversely affect the quality of finished products.

The results showed that increasing the dosage of stevia extract in the dough have been intensifies fermentation process. Its was evaluated by the amount of gas produced in the dough system, and physiological state of the yeast cells and the generative function. Since there was a decline of the adaptation period the yeast cells to conditions of flour semifinished 15% on average, besides increasing the total number of yeast cells after 180 minutes of fermentation dough for 12, 17 and 21 %. The quantity of give off CO₂ dough maturation period increased respectively by 24, 32, 43 %.

Such results are most likely due to the fact that Stevia extract has a positive effect on the physiological properties and performance of the yeast enzyme systems. Physical and chemical quality of the finished product is not inferior to the control.

Scientific Supervisors – PhD, Associated Professor Tatyana Lebedenko

ВПЛИВ ВОЛОГОСТІ НА ФІЗИКО- МЕХАНІЧНІ ВЛАСТИВОСТІ НАСІННЯ ЛЬОНУ Царенко К.С., Гришко С.Ю.	81
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