

Міністерство освіти і науки України

Ministerstwo Nauki i Szkolnictwa Wyższego



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II Міжнародна науково-практична конференція

ПРИРОДНИЧА НАУКА І ОСВІТА: СУЧАСНИЙ СТАН І ПЕРСПЕКТИВИ РОЗВИТКУ

20-21 вересня 2019

ТЕЗИ ДОПОВІДЕЙ

Харків 2019

Eight winter sorts of apples were taken to check the contents of vitamin C: Semerenko, Gold, Snow Calvin, Apple-Pear, Macintosh, Ida Ret, Jana Tan, and Fudges. The results are represented in table 1.

Table 1

Ascorbic acid contents in apple flash of different winter sorts (per 100 g of tissue)

Winter apple sort	Vitamin C contents
Semerenko	11.5±1.2
Gold	7.4±1.1
Snow Calvin	5.6±0.7
Apple-Pear	5.2±0.5
Macintosh	6.2±0.8
Ida Ret	4.4±0.5
Jana Tan	4.4±0.4
Fudges	3.4±0.3

As the results show, Semerenko apple sort has the highest contents of vitamin C, and can be recommended for nutrition purposes, as the most valuable. The whole method can be used at the conditions of school chemical laboratory.

Bondarenko N.V., Kratenko R.I
GLUTEN QUANTITY DETERMINATION IN FLOURS
OF DIFFERENT SORTS

H.S. Skovoroda's Kharkiv National Pedagogical University, Kharkiv

Bondarenko N.V., Kratenko R.I GLUTEN QUANTITY DETERMINATION IN FLOURS OF DIFFERENT SORTS. The present paper illustrates the possibility of gluten quantity determination in nutrition flour sorts at school chemical laboratories. The method of determination is based on washing the flour samples and weighing the gluten residue. As the results show, whole grain flour has the highest quantity of gluten and is the most valuable for nutrition purposes. The whole method can be recommended to perform at the conditions of school chemical laboratory.

Key words: *gluten, weighing, flour.*

Gluten is the protein component of seeds, nuts, cereals etc. Although gluten is quite poor in essential amino acids, it remains to be the main source of protein for the human organism, since the staple of the diet for the human body is, or should be, bread, porridge, cereals. Therefore, the higher amount of gluten is contained in flour, the higher is its value for the baking industry.

The present study objective was to investigate the possibility of determination of gluten quantity in flours of different sorts at the conditions of an ordinary school chemical laboratory without application of high-priced reagents and equipment.

The research used a method of Ukraine State Standard with some modifications. 25.0 g of wheat flour was weighed on the chemical scales, the flour was placed in a porcelain dish, and 13 ml of water was added. The water and flour were mixed with a spatula and rolled into a ball. The cup with the ball was closed with glass and left for 20 minutes at temperature of 16-20 ° C for gluten proteins to get swollen. Then, the ball of

dough was gently washed and rinsed in water 5 times in a container of appropriate volume (while washing, the dough was constantly outturned, broken and crumpled). Wash water temperature was 20 ° C. Turbid water from the tank for washing gluten was drained through a thick silk sieve, so as not to lose pieces of the washed gluten. The pieces of gluten remaining on the sieve were attached to the washed sample. With each act of washing, the sample of gluten became more elastic and cohesive. Gluten washing was performed until the wash water was clear. The washed gluten was squeezed out between the palms several times (the palms were wiped out with a dry cloth each time). After the lump of gluten was beginning to stick to the hands, it was weighed on the scales and the result was recorded. After that, the process of washing, pressing and weighing gluten was repeated. If the result of re-weighing coincided with the first one to within 0.1 g, it meant that the gluten was washed properly. If the results did not match, the washing was repeated again.

The proof of good gluten washing was the test for iodine. 2-3 drops of water were squeezed from the washed gluten and a drop of iodine solution was added to them. The absence of blue color suggested that the gluten was completely washed off from starch. The weight of the gluten, which was weighed (in grams), was multiplied by 4. The obtained result corresponded to the mass fraction of the raw gluten contained in the flour.

Five different sorts of flour were investigated: whole grain flour, 1st sort flour, 2nd sort flour, higher sort flour and grit flour. The results are represented in the table 1.

Table 1

Percentage contents of gluten in flours

Sort of flour	Percentage contents of gluten
Whole grain flour	37.6±2.2
1 st sort flour	28.4±2.9
2 nd sort flour	33.5±3.0
Higher sort flour	26.4±2.7
Grit flour	36.4±3.8

As the results show, whole grain flour has the highest quantity of gluten and is the most valuable for nutrition purposes. The whole method can be recommended to perform at the conditions of school chemical laboratory.

Forsyuk O.R., Kratenko R.I.

DETERMINATION OF BLOOD CATALASE AS AN INDICATORY ENZYME OF OXIDATIVE STRESS

H.S. Skovoroda's Kharkiv National Pedagogical University, Kharkiv

Forsyuk O.R., Kratenko R.I. DETERMINATION OF BLOOD CATALASE AS AN INDICATORY ENZYME OF OXIDATIVE STRESS. Blood catalase belongs to so-called "antioxidative system", i.e. a complex of substances neutralizing free radicals and compounds yielding the latter. The research objective was to determine the activity of blood catalase in students of different groups. The first group was the control one and had non-smoker students at the beginning of their semester. The second group included medium and heavy (0.5 -1 cigarette packet a day) smokers at the