

ОДЕСЬКА НАЦІОНАЛЬНА АКАДЕМІЯ
ХАРЧОВИХ ТЕХНОЛОГІЙ

**ЗБІРНИК
НАУКОВИХ ПРАЦЬ
*МОЛОДИХ УЧЕНИХ,
АСПІРАНТІВ ТА СТУДЕНТІВ***



ОДЕСА
2016

ББК 36.81 + 36.82
УДК 663 / 664

Головний редактор, д-р техн. наук, проф.
Заступник головного редактора, д-р техн. наук, проф.
Заступник головного редактора, канд. техн. наук, доцент.
Відповідальний редактор, д-р техн. наук, проф.

Б.В. Єгоров
Л.В. Капрельянц
Н.М. Поварова
Г.М. Станкевич

Редакційна колегія
доктори наук, професори:

Р.В. Амбарцумянц, А.Т. Безусов, С.В. Бельтюкова,
О.Г. Бурдо, Л.Г. Віннікова, О.І. Гапонюк,
О.К. Гладушняк, К.Г. Іоргачова, Л.В. Капрельянц,
М.Р. Мардар, В.І. Мілованов, В.В. Немченко,
Л.А. Осипова, О.І. Павлов, В.М. Плотніков,
І.І. Савенко, О.Є. Сергєєва, Л.М. Тележенко,
О.С. Тітлов, Н.А. Ткаченко, О.Б. Ткаченко,
Г.М. Хмельнюк, В.А. Хобін, Н.К. Черно
О.О. Коваленко, Г.В. Крусір, Д.О. Жигунов

доктори наук:

Одеська національна академія харчових технологій
Збірник наукових праць молодих учених, аспірантів та студентів
Міністерство освіти і науки України. – Одеса: 2016. – 408 с.

Збірник опубліковано за рішенням вченої ради від 01.07.2016 р., протокол № 12
За достовірність інформації відповідає автор публікації

ISBN 966-571-063-х

© Одеська національна академія харчових технологій, 2016

РОЗДІЛ 1

**АКТУАЛЬНІ ПИТАННЯ ЗБЕРІГАННЯ
ТА ТЕХНОЛОГІЇ ПЕРЕРОБКИ ЗЕРНА,
ОВОЧІВ ТА ФРУКТІВ**

HULLESS BARLEY MULTIFUNCTIONAL FOOD GRAIN

Lunina L., p.h.D. student

Odessa National Academy of Food Technologies, Odessa

Barley has always been not only the raw material for brewing, and also valuable food crop. Barley uses for producing different groats, instant cooking products, flour, composite flour, cereal flakes. Main barley producing countries are EU countries, Canada, Turkey, Russia, Ukraine, Australia, Argentina and the USA. But today, conventional barley, by all indications inferior to hulless barley (*Hordeum vulgare* L. var. *nudum* Hook. f.) which contains more proteins, lipids and vitamin E, less sugar and cellulose. In addition, hulless barley contains β -glucans which contribute significant reduction of cholesterol in human blood plasma and prevention of cancer and prevention against cardiovascular disease, diabetes.

An important indicator of the quality of the brewing malt is an indicator of falling number, which is not included in DSTU 3767-98. For malting barley production seeds should be viable. Pre-sprouted seeds has a reduced ability to germination during the malting process which reduces the quality of beer. Half of this barley is not suitable for the production of beer after storage [1]. A slight germination of seeds cannot be detected by visual inspection, it is can be measured by the amylase activity [1]. To avoid purchase of pre-germinated barley need to conduct a Falling Number test [1]. For the high quality barley indicator of Falling Number should be more than 250. For the German Standards indicator of Falling Number should be not less than 150 [2]. Indicator of Falling Number of hulless barley may be useful to assess its suitability in a bread baking industry.

Barley variety «Achilles» grown in fields of Odessa Plant Breeding and Genetics Institute, ational centre of plant cultivation and kind research UAAN in 2014 year was taken for the purpose of study the properties of hulless barley as the raw material for the food industry. Different particle size samples were taken for determine the quality parameters of barley. Samples were obtained by fractionating using sieves with oblong holes of 2,5×20 mm and 2,2×20 mm. Protein content of fractions was determined according to the method GOST 10846-91. Falling Number of each sample was determined according to the method GOST 27676-88.

It was discovered that fraction obtained by overtail of sieve 2,5×20 mm contain 15,81 %, of protein and fraction obtained by overtail of sieve 2,2×20 mm contain 16,37 %. The Falling Number of obtained by overtail of sieve 2,5×20 mm is 559 and fraction obtained by overtail of sieve 2,2×20 mm – 474. According to the requirements of ukrainian standard DSTU 3767-98 Barley Specifications studied samples of hulless barley for quality is suitable for production of malt.

Therefore barley is a multifunctional crop. If processing hulless barley for food purposes (flour, groats) then even after preparation of the product, remains more proteins compared to traditional products from conventional barley. Hulless barley can be used for malt production and beer mash. Determination of the Falling Number helps to identify the number and activity of amylase

Fractionation of hulless barley during postharvest handling allows improving its quality as a raw material for the food industry.

Scientific Supervisor – DSc, Professor Stankevych G.

Literature

1. Perten Instruments [<http://www.perten.com/ru/3/--/1/-2/>]

2. Хельмут Роглер, Пивоваренный ячмень. Ситуация на мировом рынке и технология возделывания в Германии [Текст] / Хельмут Роглер // Материал для доклада ТрисдорфКонсалт. – 14.06.06. – С. 7.

COMPOSITION OF PRODUCTS INTERACTION SUGAR-JUICE DEFECATION SLUDGE WITH SUBSTANCES OF ACID NATURE

Perepelytsya O.P., Petrenko T.V., Yakymenko L.O.
National University of Food Technologies, Kyiv

An introduction. Of sugar-juice defecation sludge is chemical setting of sugar-refinery, it is using as fertilize for acid grounds [1], application of which is not knowing into other branches. News are published about investigations of this precipitation as adsorption for purification of sludge waters from dye [2] and component of mixtures with NPK-fertilizes [3]. Studing of sugar-juice defecation sludge is not realized in other fields. There for purpose of this research is to study reactions of calcium carbonate precipitation of sugar-juice defecation sludge, chemical composition of which is determined [4, 5].

The experimental part and discussion of results. Acid oxides MoO_3 , WO_3 , phosphate acid H_3PO_4 is had quality “A. R. purity”, sugar-juice defecation sludge was toor from Kapitanivsky sugar plant of the Kirovograd region for experiment. Methods of chemical analysis (trylonometria [6] – for determination quantity of Ca^{2+} and precipitation NH_4MgPO_4 – for determination of quantity PO_4^{3-} ions [7]), pH-measuring (pH-metr type Y-160 MY), termogravimeasure (derivatograph Q-1500-D system P. Paulik – L. Paulik – L. Erdey, corundum tube, rapid of heat rate is 0,1667 grad/s, DTA – 250, DTG – 500, TG – $0,2 \cdot 10^{-3}$ кг) and X-ray (DRON 3M with $\text{Cu } k\alpha$ -ray) are used.

Mixtures of calcium carbonate of sugar-juice defecation sludge and MoO_3 or WO_3 were toor at proportion $[\text{CaCO}_3] : [\text{EO}_3] = 1,0 : 1,0$, E – Mo, W.

Results of termogravimetric analysis of investigated mixtures are representative into table.

Results of termogravimetric analysis of mixtures of calcium carbonate of sugar-juice defecation and MoO_3 or WO_3

Composition of mixtures, mol	Temperature of anhydration, °C	Temperature of termolysis and reduction of EO_3 , °C	Temperature of interaction, °C	Finished substance
$[\text{CaCO}_3] : [\text{MoO}_3] = 1,0 : 1,0$	110–190	250–530	580–827	CaMoO_4
$[\text{CaCO}_3] : [\text{WO}_3] = 1,0 : 1,0$	120–190	240–528	645–863	CaWO_4

Nature of finished products of those reactions are studied by method X-ray and ens-taled of its belong to tetrahedral symmetry with parameters for CaMoO_4 $a = (0,5237 \pm 0,0002)$ nm; $c = (1,147 \pm 0,0005)$ nm; for CaWO_4 $a = (0,5225 \pm 0,0002)$ nm; $c = (1,144 \pm 0,0005)$ nm. Differ of those quantities of parameters of unit cells from literature facts [8] is coused admixtures of MnO , Fe_2O_3 , SiO_2 , TiO_2 and ZrO_2 into prepared products, thus its are modified oxidic materials for metallurgy [9].

СУЧАСНА ПЕРЕРОБКА САДОВО-ГОРОДНЬОЇ СИРОВИНИ У ФРЕШ-БАРАХ СУЧАСНИХ ФУД-КОРТІВ Муртузалієв А. М.	26
ЗМІНА МІКРОФЛОРИ ЗЕРНОВОЇ СИРОВИНИ ПІД ЧАС СУШІННЯ І ЗБЕРІГАННЯ Ольховська Є.О., Підпригора В.В., Полоз Г.О.	28
ПЕРЕВАГИ КОМБІНОВАНОГО КУПАЖУВАННЯ РОСЛИННИХ ОЛІЙ Радіо М.І.	30
ДИКОРОСЛІ ЯГОДИ ЯК АЛЬТЕРНАТИВА СТВОРЕННЯ ХАРЧОВИХ ПРОДУКТІВ У РЕСТОРАННІЙ ІНДУСТРІЇ Скіданова В. С.	32
ВИКОРИСТАННЯ ПРЯНИХ НАЧИНОК У БОРОШНЯНО-КУЛІНАРНИХ ВИРОБАХ Сахно А.М.	34
ПОЛБА – ГОРИЗОНТИ ДАВНО ЗАБУТОЇ КУЛЬТУРИ Стаєнна О.С.	36
АКТУАЛЬНІСТЬ ВПРОВАДЖЕННЯ АКТИВНИХ СУХИХ ДРІЖДЖІВ У ВИРОБНИЦТВО ПИВА Чуб С.А.	38
ВПЛИВ ВІТАМІНІВ НА БРОДИЛЬНУ АКТИВНІСТЬ ПИВНИХ ДРІЖДЖІВ Шпак М.Ю.	40
SEARCHING FOR THE LIMIT YIELD STRESS OF LIQUID SOURDOUGH Dolomakin Y. Y.	43
EVALUATION OF WINTER WHEAT VARIETIES BY FLOUR YEILD WITH GRAIN YIELD Leshchenko I.A.	44
HULLESS BARLEY MULTIFUNCTIONAL FOOD GRAIN Lunina L.	47
COMPOSITION OF PRODUCTS INTERACTION SUGAR-JUICE DEFECATION SLUDGE WITH SUBSTANCES OF ACID NATURE Perepelytsya O.P., Petrenko T.V., Yakymenko L.O.	48
INFLUENCE OF TECHNOLOGICAL REGIMES ON CONTENT OF FERMENTATION BY-PRODUCTS FROM HIGH-GRAVITY BEER WORT Polyuzhyn L.I.	50
BAKING MIXES –THE NEW WAY TO WIDEN THE RANGE OF FINISHED PRODUCTS AT THE FLOUR MILLS Pravedna D.	52
FEATURES OF PRODUCTION OF WAFFLES WITH DIFFERENT STRUCTURE BASED ON NEW TYPES OF WEAT FLOUR Sharko O., Khvostenko K.V.	54
DEVELOPMENT OF TECHNOLOGY FOR PRODUCTION OF BAKERY PRODUCTS A LONG SHELF LIFE FLOUR FROM DIFFERENT TYPES Tkachenko N., Dobrovolsky V.	55

Наукове видання

**Збірник наукових праць
молодих учених, аспірантів
та студентів**

Головний редактор, д-р техн. наук. Б.В.Єгоров
Заст. головного редактора, д-р техн. наук. Л.В.Капрельянц
Заст. головного редактора, канд. техн. наук Н.М. Поварова
Відповідальний редактор, д-р техн. наук. Г.М. Станкевич

Підписано до друку 2016 р. Формат 60×84/8. Папір офсетний.
Ум. друк. арк. 47,4. Тираж 30 прим. Замовлення