

# AGRICULTURAL SCIENCES

## MALT EXTRACTS IN THE RECIPES OF MODERN COFFEE DRINKS

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**Introduction.** Coffee and coffee drinks are the most widely consumed in Ukraine and the vast majority of countries around the world. The demand for these drinks is growing every year, the network of cafes and the range of these products is expanding. In one calendar year, coffee sales in Ukraine exceed \$ 100 million. At the same time, the coffee beverage market is constantly in need of technology improvement and development of new products with different taste and aroma properties.

**Aim.** Based on the analysis of the coffee and coffee beverages market to determine the main areas of use of special types of malt with unique flavoring properties to develop technology for new instant coffee beverages.

**Materials and methods.** The object of research is special types of malt from different types of raw materials and the degree of fermentation. Research methods are analytical, organoleptic, physicochemical and microbiological.

**Results and discussion.** The modern market of coffee drinks in Ukraine mostly looks like a substitute for natural coffee for a certain group of consumers who are contraindicated to consume caffeine. This feature allows you to replace imported raw materials with local ones. Such raw materials include cereal grains, dried fruits, chicory, Jerusalem artichokes, soybeans, acorns, etc. However, today the vast majority of coffee drinks still prefer two ingredients - chicory and barley.

The use of raw materials such as malt of cereals, dried fruits and acorns enriches drinks with sugars, fiber, starch, tannins and nitrogenous substances. The

development of beverage technologies according to different recipes using local raw materials can be divided into the following main areas:

- based on natural coffee (5... 35%);
- based on chicory, but do not contain natural coffee;
- one-component (without natural coffee and chicory);
- multicomponent (without natural coffee and chicory).

In the industry, coffee drinks are produced in two types - dry instant drink with a moisture content of 3.5... 4% and pasty with a content of 70% of extractives.

One of the promising areas of development of modern coffee drinks is the use of malt extracts of cereals. The main raw material for the production of malt extracts is malt prepared from the corresponding cereals. In addition to malt, in the production of some types of extracts as additives using unmalted raw materials. There are some differences in the chemical composition of cereals that go to the production of malt, which determines the characteristics of the extracts obtained.

**Table 1**

**The chemical composition of some cereals is presented (%)**

<b>Indicators</b>	<b>Wheat</b>	<b>Barley</b>	<b>Rye</b>	<b>Oats</b>	<b>Corn</b>
Moisture content	14,0	14,0	14,0	13,5	14,0
Protein	12,5	12,0	9,9	11,0	10,3
Starch	60	55	54	45	70
Hemicelluloses and pectin substances	8	11	9,5	13	7
Fat	1,9	2,0	2,2	5,5	4,6
Minerals	2,2	3,5	1,7	3,8	1,3

From the data in table. 1, wheat grain is rich in protein and minerals, starch. Oats differ from other cereals by their high content of minerals and non-starch polysaccharides. Corn contains a large amount of starch, which is a source of carbohydrates of malt extract. Rye has a low amount of protein in the composition, which has a positive effect on the transparency of beverages. Rye malt is used to produce kvass and gives a pleasant bitter taste. The most common of all cereals for

malt is barley. Barley malt is a basic raw material in the brewing industry and is also widely used in the production of malt extracts.

On the other hand, coffee beverage manufacturers are focusing their efforts to attract as much attention as possible to their own brand. Manufacturers offer exquisite flavors, new pleasant aromas, original packaging design to potential consumers.

Therefore, the development of a new formulation of instant coffee drink based on malt extracts will allow to have better competitiveness when the new company enters such a powerful market as the market of coffee and coffee drinks. The priority is the method of enrichment of instant coffee drinks, before their sublimation, special raw materials with a high content of amino acids and vitamins, as well as mixing raw materials with different degrees of roasting, it is expected to significantly improve the taste and aroma properties of coffee drinks.

Malt from different raw materials and with different degrees of fermentation and roasting allows you to create a unique recipe for a coffee drink. For many years, the famous coffee drink is "barley coffee", a drink made from roasted barley. Modern trends in the food market allow the inclusion of various types of malt in the recipe of coffee drinks. Compared to just roasted beans, malt has more extractives, which will improve the functional performance of the coffee drink, namely to increase the content of amino acids and vitamins. When roasting malt, the process of melanoidin formation and caramelization takes place, which allows the germinated grain to get a coffee taste and aroma, which can be emphasized by adding a small amount of chicory. Barley, rye and oat malt have different organoleptic properties, which allows you to combine them in a coffee drink to obtain unique flavors. Coffee flavoring properties can be emphasized by adding a small amount of chicory. The better extractivity of malt allows to receive the improved functional properties of drink.

**Conclusions.** The development of new coffee drinks is very promising given the market of coffee and functional drinks. The main promising raw materials for the development of coffee beverage technologies are malt extracts of cereals.