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8. GLUTEN-FREE RAW MATERIALS FOR THE PRODUCTION OF FERMENTED BEVERAGES

Introduction. The current state of the environment encourages the consumption of beverages that not only fill the body with valuable nutrients, but also do not harm the body. Fermented drinks are beverages with high nutritional and biological value. In a liquid at room temperature, microorganisms convert the available sugar into acids (e.g. lactic acid and acetic acid), alcohol and carbon dioxide. The acids ensure the destruction of harmful bacteria that could spoil the drink. This, in turn, increases its shelf life. In addition to acids, fermentation also creates unique flavours and beneficial nutrients.

Currently, the production of fermented beverages is a dynamically developing industry in the soft drinks sector. This is possible due not only to the introduction of new technologies, but also to the improvement of existing ones [1, 2].

The aim of the study is to develop the technology of a fermented beverage - kvass based on malted millet wort. The paste was made by the decoction method.

Materials and methods. Millet belongs to the genus of annual herbaceous plants of the cereal family. Like any small-seeded plant, it is characterised by high filminess. Millet is a gluten-free raw material with a low glycaemic index, low fat, high fibre content, a complete amino acid profile, and a number of important vitamins and minerals, as millet retains its hull during processing. In this work, millet malt wort was produced from millet by mashing with water and then saccharification.

Results and discussion. On the basis of the extract obtained, kvass wort was produced using traditional technology. The production of kvass based on malted millet wort includes the following stages: preparation of sugar syrup; preparation of yeast starter cultures; preparation of kvass wort; fermentation of kvass wort; cooling of fermented wort and removal of yeast sediment; blending of fermented wort with sugar syrup and kohl; bottling [3]. To compare the results, a sample of kvass based on the kvass wort concentrate (KWC) was produced as a control sample.

According to the results of the experiment (fig. 1), it was found that the fermentation of kvass wort based on millet malt wort was 6 hours faster than the fermentation based on the KWC, which is economically beneficial. Figure 1 shows the dynamics of dry matter (DM) reduction by 1 % during the fermentation of kvass wort of the control and experimental samples.

The organoleptic characteristics of the obtained kvass samples met the requirements of regulatory documents.

In appearance, the kvass samples were an opaque foamy liquid without impurities. Objectively evaluating the organoleptic characteristics of the kvass samples, we concluded that the control sample tasted sweet, and the experimental sample tasted sour-sweet, with a bread aroma being more pronounced in the control sample.

The experimental sample had a predominant malt aroma, corresponding to the type of raw material used.

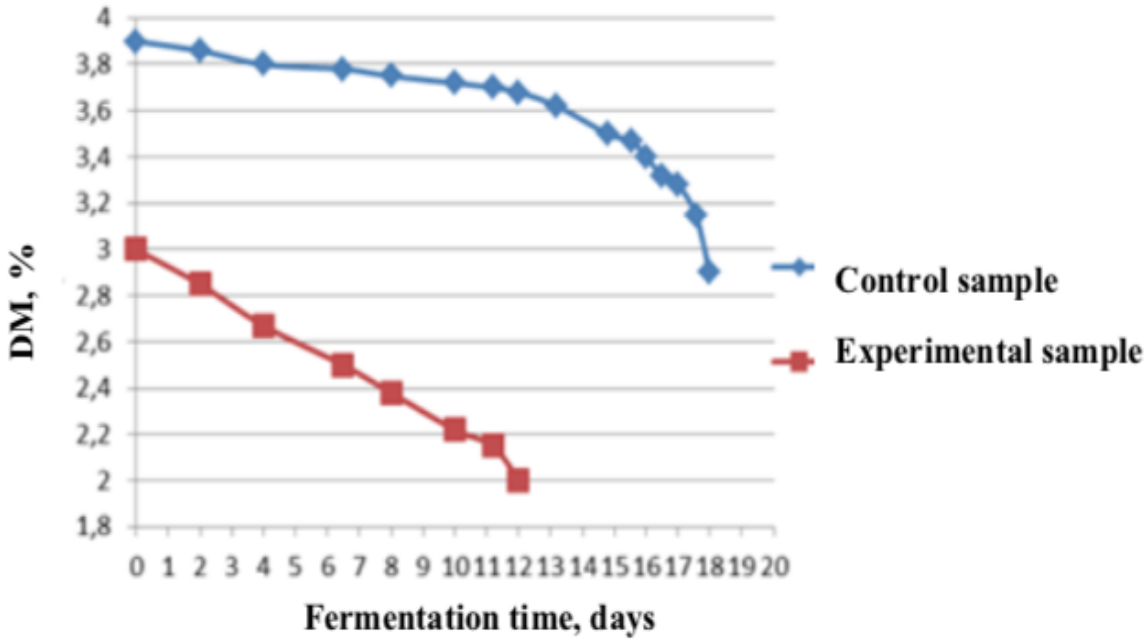

Figure 1. Fermentation dynamics of the experimental sample in comparison with the classic (KWC) wort.

Conclusions. Based on our research, it can be concluded that malted millet wort is a promising raw material for expanding the range of soft, low-alcohol and alcoholic beverages, as well as malt and polymalt extracts.

Moreover, since millet does not contain a fraction of gluten in its protein, beverages and malt extracts made on its basis can be consumed by a group of consumers suffering from gluten intolerance and are called special purpose foods.

References.

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