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Innovative technology of alcohol drinks

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ABSTRACT

The innovative technology of alcohol drinks based on the results of research and pilot tests carried out by the scientific and research. It was taking into account pre-tested quality of the source water, rectified ethyl alcohol, materials for the sorption and filtration, coupage components, bottles and closures. The technology includes the rational blocks of universal flowsheet, which provide the quality and stability of drinks by the controlled parameters. The process parameters of extraction of bioactive substances from plant material, preparing of aromatic spirits from extracts and essential oils, getting juices, concentrates and dyes from plant materials, mixing, heating and cooling, mechanical filtration, adsorption, structuring in the dynamic and cavitation conditions, blending and assimilation of taste, aroma and coloring substances in drinks for the technological and economic criteria were optimized.

The critical control points of the technology: the affinity of water and ethanol, the organoleptic, physico-chemical parameters and temperature of water, ethanol and water-alcohol mixture under preparation and during its treatment by activated carbon and minerals and in a state of physical and chemical equilibrium, stability of drinks in bottles, were determined.

The target balance between adsorption and catalytic activity of the organic adsorbent components for the impurities of water-alcohol mixture giving the minimal level of the aldehyde genesis and proper organoleptic characteristics for this type of drink.

The optimal duration for the contact of water-alcohol mixture with microporous minerals and organic adsorbents modified to provide a drink with soft and fresh taste. The domestic microporous silica-like mineral silicide of working fractions providing minimal hydrodynamic resistance, with a wide microporous structure was investigated. It has a mass fraction of silicon oxide from 97.0% to 99.5% and hardness up to 100% and was proposed for the second stage of water-alcohol mixture processing with an intensity of 0.2 to 0.8 m³·m⁻²·h⁻¹.

KEY WORDS innovation, alcohol drinks, technology

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