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Abstract: *Food safety is one of the most important factors in protecting human health and ensuring the production of high-quality products. Microbiology is the main science in assessing the safety of food products. This article examines microorganisms found in food products, their impact on human health, and modern methods of microbiological control. The role of microbiology in food safety is highlighted based on the technical regulations of Uzbekistan and international standards.*

Keywords: *food safety, microbiology, sanitary indicators, technical regulations, GOST, microorganisms.*

Annotatsiya: *Oziq-ovqat xavfsizligi bugungi kunda inson salomatligini saqlash va sifatli mahsulot ishlab chiqarishni ta'minlashning eng muhim omillaridan biridir. Mikrobiologiya esa oziq-ovqat mahsulotlarining xavfsizligini baholashda asosiy fan sifatida maydonga chiqadi. Ushbu maqolada oziq-ovqat mahsulotlarida uchraydigan mikroorganizmlar, ularning inson salomatligiga ta'siri hamda mikrobiologik nazoratning zamonaviy usullari ko'rib chiqildi. O'zbekiston texnik reglamentlari va xalqaro standartlarga asoslangan holda mikrobiologiyaning oziq-ovqat xavfsizligidagi o'rni yoritildi.*

Kalit so'zlar: *oziq-ovqat xavfsizligi, mikrobiologiya, sanitariya ko'rsatkichlari, texnik reglament, GOST, mikroorganizmlar.*

INTRODUCTION

Food safety plays an important role in ensuring human health and longevity. According to the World Health Organization (WHO), every year millions of people suffer from various diseases as a result of consuming food products contaminated with microorganisms. Therefore, microbiological control of food products is an integral part of production.

Microbiology is a leading scientific direction in determining sanitary and hygienic indicators of food safety, identifying pathogenic microorganisms, and ensuring product quality.

Main part

1. Food safety and microorganisms. Food products are a favorable environment for various microorganisms, among which there are both beneficial and harmful species. Beneficial microorganisms: lactobacilli used in fermentation, yeasts. Harmful microorganisms: Salmonella spp., Escherichia coli (BGKP), Staphylococcus aureus, Listeria monocytogenes. Harmful microorganisms pose a danger to the consumer, therefore they are controlled based on strict standards.

2. Microbiological indicators

The following main indicators are used to assess the microbiological safety of food products:

The number of mesophilic aerobic and facultative anaerobic microorganisms (KMAFAnM)

Coliform bacteria (BGKP)

Salmonella

Listeria monocytogenes

Molds and yeasts

3. Standards and technical regulations. Food safety in Uzbekistan is controlled on the basis of the technical regulation "On the safety of food products".

4. Modern microbiological methods Along with traditional methods (sowing in food media), modern rapid methods are also widely used:

Polymerase chain reaction (PCR)

Immunoenzyme assay (IFA)

Bioluminescent methods

These technologies allow obtaining accurate results in a short time.

5. Analysis result. Research location: Republican State Center for Animal Disease Diagnosis and Food Products, Microbiology Laboratory. Object: Chicken meat sample (with internal organs). Research objective: Detection of coliform bacteria (BGKP - bacteria group coli-form) in meat products. Methodology: The analysis was carried out in accordance with GOST 31747-2012 "Food products. Microbiological analysis". Kessler, Endo and Ploskirev media were used to determine BGKP. 1 g of the sample was diluted in sterile physiological solution and sown in a nutrient medium. Incubation: 24–48 hours at 37 °C. Colonies were identified based on color, morphology, and biochemical reactions. Results: BGKP was found in chicken meat samples. According to the regulations, in accordance with GOST 31747-2012 and TR TS 034/2013 ("Safety of meat and meat products"), BGKP should not be detected in 100 g of the product. Thus, non-compliance with sanitary and hygienic requirements was noted in the studied sample.

Conclusion: The results obtained showed that the presence of BGKP in meat products indicates that the product is unsafe. This indicates that hygiene requirements were not observed during production or storage.

Conclusion

The role of microbiology in ensuring food safety is invaluable. Microbiological control is important in ensuring product quality, early detection of pathogenic microorganisms, and maintaining public health. Microbiology remains the main tool in ensuring food safety, based on technical regulations of Uzbekistan and international standards.

LIST OF USED LITERATURE:

1. TR UZ 001-2014. Technical regulations on food safety.
2. GOST 32901-2014. Milk and dairy products. Microbiological analysis methods.
3. GOST 31747-2012. Meat and meat products. Microbiological analysis methods.



4. ISO 4833-1:2013. Microbiology of the food chain — Enumeration of microorganisms.
5. WHO (World Health Organization). Food safety fact sheets.