

MICROBIOLOGICAL ASSESSMENT OF THE PROCESS IN THE PRODUCTION STAGES OF İZMİR MEATBALLS PRODUCED IN A CATERING BUSINESS

Başak SÜNGÜÇ ÇINAR

ORCID 000-0002-7071-9040

BURSA ULUDAĞ UNIVERSITY

GRADUATE SCHOOL OF HEALTH SCIENCES

FOOD HYGIENE AND TECHNOLOGY DEPARTMENT

PHD PROGRAM

GRADUATION DATE: 11.07.2023

SUPERVISOR

Prof. Dr. Gül Ece SOYUTEMİZ

ORCID 000-0003-0128-5653

BURSA ULUDAĞ UNIVERSITY

GRADUATE SCHOOL OF HEALTH SCIENCES

FOOD HYGIENE AND TECHNOLOGY DEPARTMENT

BURSA – TÜRKİYE



THESIS ABSTRACT

In this study, it was carried out to determine the microbiological risks that may affect consumer health and the stages where these risks occur in the İzmir meatball production process. For this purpose, a catering establishment operating in Bursa has been visited six times. 54 samples were taken from piece of meat, minced meat, prepared meatballs (raw), cooked meatballs, İzmir meatball meal before shipment, İzmir meatball meal in a water bath at the consumption point, meat grinder, the counter where the meat was collected and the hands of the staff making meatballs. All samples were analysed for coliforms, *Escherichia coli*, aerobic colony, staphylococcus-micrococcus, coagulase positive staphylococcus only food samples were analysed for *Bacillus cereus*, *Salmonella* spp., *Clostridium perfringens*, *Listeria monocytogenes*, *Escherichia coli* O157 and staphylococcal enterotoxin. The average number of aerobic colony in samples taken from İzmir meatball production stages 4.89 log₁₀ cfu/g in piece of meat, 5.37 log₁₀ cfu/g in minced meat, 5.73 log₁₀ cfu/g in prepared meatball (raw), 2.67 log₁₀ cfu/g in cooked meatball, 6.82 log₁₀ cfu/cm² in meat grinder, 3.77 log₁₀ cfu/cm² in the counter where the meat was collected, 4.51 log₁₀ cfu/cm² in the hands of the staff making meatballs. As a result of our study, it was seen that the heat treatment applied to the foods was quite effective. The average number of aerobic colony 0.86 log₁₀ cfu/g in İzmir meatball meal before shipment, 1.11 log₁₀ cfu/g in İzmir meatball meal in a water bath at the consumption point. Pathogenic microorganisms were not found in any of the food samples taken. Only in the 3rd visit, *B. cereus* agent was detected in the piece of meat and it has been observed the the number of these is below the legal limits.

It is important to pay attention to the quality of raw materials, to cook the food for a sufficient time and temperature to prevent cross contamination and the conditions in which the food is kept until distribution and consumption for prevention of foodborne diseases in catering establishments.

APPLICATION AREAS OF THE THESIS RESULTS

It may be used in the determination of critical control points in the production process of meat dishes and in the assessment of microbiologically risky stages and microbiological agents that may arise in these stages in catering business.

ACADEMIC ACTIVITIES

- KUAP(V)-2014/44 Bursa U.U. Scientific Research Project Unit

- Soyutemiz, G. E., Çetinkaya, F., Süngüç Çınar, B., Elal Muş, T., Yıbar, A., Doğan, M. (2022). Food safety inspection of tas kebeb and salad processing line in a catering company. Czech Journal of Food Sciences, 40(2), 147-153. doi 10.17221/142/2021-CJFS



KEY WORDS

- ✓ İzmir Meatball Production
- ✓ Microbial Contamination
- ✓ Catering Business
- ✓ Catering Industry

CONTACT

E-MAIL:

sungucbasak@hotmail.com

THESIS SUPERVISOR

TELEPHONE:

224-294-1333

E-MAIL:

soyutemiz@uludag.edu.tr