Inactivation of *Escherichia coli* O157:H7 in 'çiğ köfte' (raw meatball) by Gamma Irradiation

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'Çiğ köfte' (raw meatball), is a traditional Turkish food containing raw ground beef. It has a short shelf life and is eaten uncooked. Thus, consumption of 'Çiğ köfte' may cause foodborne diseases. The aim of this study was to investigate effect of gamma rays on quality and safety of 'Çiğ Köfte'.

'Çiğ Köfte' samples were prepared in lab, inoculated with 2.10^5 cfu/gr of E.coli O157:H7. Uninoculated samples were used in sensory evaluations. Samples were irradiated at doses of 0,5, 1, 1,5 and 2 kGy at 9±2°C with a CO^{60} source. Microbiological and sensory analyses were made during storage at 3-5 °C for 14 days.

E.coli counts decreased from 2.10^5 to undetectable level at 2 kGy after 1 day. D_{10}-value was 0,29 kGy. No *E. coli* was detected on samples irradiated at 1,5 and 2 kGy on 7^{th} and 14^{th} day. Total microbial counts decreased from 10^7 to 3.10^3 CFU/g at 2 kGy on the first day and D_{10} value was 0,83.

No differences between the samples were detected in sensory analysis after one day storage. Irradiation prevented formation of off odor detected in unirradiated samples after 7-day storage. However, there was detectable color loss on samples irradiated at 2 kGy. Overall, irradiated samples were preferred over unirradiated ones.

Irradiation has a great potential for extending the shelf life of 'çiğ köfte' and assuring product safety by inactivating *E.coli* O157:H7 and other microorganisms. Further studies with combination of irradiation and packaging are needed to develop an optimum process for the product.