USE OF CONVENTIONAL MEDIA AND REPLICA PLATE TECHNIQUE FOR RECOVERY OF *Escherichia coli* FROM GAMMA-IRRADIATED MINCED MEAT WITH READY-TO-USE MEATBALL MIX

Pelin K. Yucel, A. Kadir Halkman. Department of Food Engineering, Ankara University, Ankara, Turkey

Minced meat with ready-to-use meatball mix was inoculated with *Escherichia coli* and gamma-irradiated at 0.5 kGy. Samples were kept at 4°C and -12°C and microbial analysis was conducted on days 0, 2, 4, 6, 8, 10 and 0, 5, 10, 15, 25, 35, 50 days, respectively. Violet red bile lactose agar (VRBA) and tryptic soy agar (TSA) were used to compare the recovery of bacteria stressed under combination treatment. Influence of storage time, ready-to-use meatball mix and gamma irradiation on survival of cells was evaluated. Irradiation and meatball mix caused a reduction of 1.68 log units in TSA and 1.30 log units in VRBA for samples stored at 4°C. At 12°C, *Escherichia coli* inactivation was 2.51 log units in TSA and 2.24 log units in VRBA. Sublethally injured cells were detected by Replica Plate (RP) technique. The master Plate containing the non-selective medium was compared with the secondary Plate containing the selective medium, with respect to the colonies at the same location. RP technique had better recovery capacity than VRBA and was as effective as TSA in recovery of sublethally damaged cells. Following incubation of RP Plates, sublethally damaged *Escherichia coli* cells were repaired and formed colonies on VRBA. This study showed that RP technique is a viable method of recovering and differentiating sublethally injured microorganisms.