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Improvement of Hygienic Quality and Shelf Stability of Rice Rolled in Dried Laver by Gamma Irradiation

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Determination of microbial contamination in the process of rice rolled in dried laver (*Kimbab*) and effects of gamma irradiation on the improvement of hygienic quality and shelf stability were investigated. Microbial contamination levels in freshly made *Kimbab* in the market were about 10^5 cfu/g of total aerobic bacteria and 10^4 cfu/g of coliform bacteria. And the microbial contamination of *Kimbab* is mainly originated from environmental uptake during the cooking process (hand, air, kitchen utensils etc.). The representative media for putrefying bacteria were laver and steamed rice. Coliform bacteria were mainly increased in ham and fried egg during storage. The bacteria in dried laver were radio-resistant and survived at 3 kGy of gamma irradiation. Coliform and enteric bacteria on EMB agar plate were eliminated by 2 kGy. The sensory acceptability was stable within a dose of 2 kGy and *Kimbab* can be preserved for 24 hour at 15°C. Therefore, it was considered that optimal irradiation dose for radication of *Kimbab* was 2 kGy.

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Radio-resistance of Salt-tolerant and Fermentative Microorganisms with Different Growth and Radiation Condition

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The effect of salinity on radio-sensitivity of three dominant fermentative microorganisms inhabiting salted and fermented foods was investigated. *Pichia subpelliculosa* and *Pediococcus halophilus* were more salt-tolerant than *Leuconostoc mesenteroides*. The higher salinity as (from 0 to 10% NaCl), the more radio-resistant became. Particularly *L. mesenteroides* grew in environment above 5% NaCl containing broth. After grew in soytone broth with different salinity, each culture was transferred to distilled water and 10% saline, and then irradiated. Generally, D values of each microorganism were increased in the 10% saline and were decreased in distilled water. In spite of these shift effect, the tendency of radio-sensitivities obtained from initial culture condition with different salinity was still remained. In conclusion, the salinity of salted and fermented food affects the radio-sensitivity of fermentative microorganisms in the product. However, environment such as salinity before irradiation may be more important than that during irradiation process.