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Effect of Gamma Irradiation on Glycolysis, ATP-Disappearance and Proteins on Beef

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The biochemical effects and changes of muscle proteins were studied on the pre-rigor and post-rigor bovine M.*Sternomandibularis* by -irradiation, respectively. Muscle was irradiated with 0 (control), 1, 3, 5 and 10 kGy doses, during post-irradiation storage at 4℃ and sampled at 0, 3, 6, 9, 12 and 24 hr, respectively. The rapid glycolysis and disappearance of adenosine triphosphate (ATP) was observed. The breakdown products (inosine monophosphate, IMP and hyphoxanthine, Hx) of adenosine phosphates also generated more in the irradiated samples than in the control. Isolated myosin and bovine serum albumin (BSA) solutions, and the post-rigor muscle were irradiated with the same doses. The conformational changes of isolated myosin and BSA were observed with spectrometric methods. And, electrophoretic patterns showed that myosin heavy chain (220,000 dalton) disappeared and new bands were generated at higher molecular weight ranges and that BSA broke down thoroughly by irradiation. However, there were no significant differences in the changes of proteins in the MPS and SPS with low dose irradiation of less than 10 kGy.