

The Effect of Gamma-Irradiation on the Ultrastructural Properties of  
Bovine Muscle

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To study the changes of morphological properties and shortening of rigor mortis of  $\gamma$ -irradiated pre-rigor bovine *M.Sternomandibularis* during post mortem, this experiment was performed with the observation of ultrastructure and the test of shear force on raw muscle. The shortening of length of Z-line and maintenance of sarcomere length by  $\gamma$ -irradiation were observed. The breakdown of perimysium of muscle bundles was observed in the irradiated samples more than in non-irradiated samples (control). During the storage period, the destruction of the bundle was observed in  $\gamma$ -irradiated muscle faster than in the control, dependent upon the irradiated dose. The elapsed time until maximum shear force values were reached was shortened by  $\gamma$ -irradiation, dependent upon the dose. The release of rigor mortis started earlier in the  $\gamma$ -irradiated samples than in the control. In conclusion, it is considered that  $\gamma$ -irradiation on pre-rigor beef enhances meat quality and improves storage periods and distribution of meat.