Title	Electron beam treatment extends the shelf-life of fresh salmon
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Abstract

Unlike the conventional radiation process, such as gamma radiation or x-ray, electron beam (e-beam) is well accepted as a consumer friendly process. Electron beam has been successfully applied in raw red meat to control *E. coli* and other microorganisms. However, studies on the application of e-beam on seafood are very limited. Our objective was to study the microbiological and physicochemical properties of raw salmon as affected by electron beam during refrigerated storage. Raw salmon were filleted. One part was then subjected to e-beam at 3 kGy, the other part was used as the control sample. Samples were stored in a vacuum package at 4 °C and then tested at 3, 7 and 9 d, respectively. Total plate count (TPC) and coliforms were measured using 3 M petrifilm according to the AOAC method. Physicochemical changes measured during 9 days of refrigerated storage included: texture, pH, lipid oxidation, protein degradation, moisture content, color. Sensory properties were also measured. Coliform and *E. coli* were completely absent in e-beam treated salmon. TPC was also very low (6 dfu/g at d 9). Shear force reduced linearly as storage time extended for both e-beam and the control samples. The ph (6.4 at d 9) remained steady in e-beam samples compared to the control. TBA values were also different: malondialdehyde content was 0.9 mg/kg for e-beam samples vs 0.4 mg/kg for the control. Protein degradation and moisture content were similar for both samples. Unlike the control sample, a* and b* values of the e-beam sample increased during storage. Our panelists showed a preference for the color, odor, taste, and texture of e-beam samples compared to the control, especially at d 9. E-beam treatment eliminated coliforms/ *E. coli* and reduced TPC. Nine-day shelf-life of salmon can be achieved by e-beam, maintaining fresh appearance and good sensory characteristics.