

Effects of Electrical stimulation on the salt permeation and processing meat
quality of beef

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Summary

Electrical stimulation was applied to Holstein cow at a low voltage (40V, 13.8Hz) for 60 sec. after slaughter.

The selected *Biceps femoris* muscle were prepared and cured in pickle brain at 2°C. After removal from the pickle brain the *Biceps femoris* muscle were examined during the curing process to 0-21 days. During this period, known as maturation, the sodium chloride, the nitrate and the nitrite become more evenly distributed throughout the musculature and the typical colour and flavour of meat lump develop.

The changes of content of sodium chloride, crude protein, SDS-PAGE patterns, Viscosity, Gel yields, Shear stress and Compressive stress were investigated at the same time.

The results obtained were as followed.

1. Contents of sodium chloride in electrical stimulated meat lumps increased than non stimulate, relatively in the pickle brain contents decreased during the curing process.
2. Crude protein contents in the pickle brain increased during the curing process.
3. The SDS-PAGE patterns showed that the bands of α -actinin, troponin T and tropomyosin decreased in the electrical stimulated meat lumps.
4. The value of pH about 5.5-5.6 through the processing.
5. Apparent viscosity were significantly high in the electrical stimulated meat slurry.
6. Gel yield of the electrical stimulated meat increased drastically at 3 days, but reached its equilibrium state during the curing process after 7 days.
7. Both Shear stress and Compressive stress were no large difference from 14 days to 21 days in curing process.