Title Electrostatic powder coating of sodium erythorbate and GDL to improve color and decrease microbial counts on meat

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Abstract

Powdered sodium erythorbate (SE) and a 3:1 mixture of glucono-delta-lactone and sodium erythorbate (GDL:SE) were coated electrostatically onto the surface of meats to extend the shelf life. The total number of microorganisms after refrigerated storage was reduced an average of 2 logs, with little difference by type of powder. Coliforms, mesophiles and psychrotrophs showed equivalent reductions. The color, as measured by the *a* value, was better for the treated samples than the control. GDL:SE samples were redder than SE. Electrostatic coating produced better results than nonelectrostatic coating due to the increased transfer efficiency of the process. Electrostatic coating also reduced the dust that is produced when powder is coated nonelectrostatically.

Industrial relevance

Sodium erythorbate and glucano-delta-lacton have been shown to extend the shelf life of meat products. This paper offers an interesting processing variable via electrostatic surface application of the powder. Electrostatic coating proved effective likely due to increased transfer efficiency and evenness of the process.