

# Bacteriology of moisture-enhanced pork from Canadian retail markets

K.R. Glaeser<sup>1</sup>, F.M. Nattress<sup>2</sup>, G.G. Greer<sup>2</sup>, L.P. Baker<sup>2</sup> and J.L. Aalhus<sup>2</sup>

<sup>1</sup>Present address: Rowett Research Institute, Bucksburn, Aberdeen, Scotland AB21 9SB

<sup>2</sup>Agriculture & Agri-Food Canada Research Centre, 6000 C & E Trail, Lacombe, AB T4L 1W1;  
*Email:* nattressf@agr.gc.ca

Injecting meat with brine solutions is widely used in pork processing to improve eating quality. The injection process carries the risk of introducing bacteria into the interior tissue due to disruption of meat surface by injection needles. Previous studies have shown that spoilage organisms and potential pathogenic bacteria can be increased in moisture-enhanced (ME) meat.

ME and conventional pork products (loin chops) were collected from three retailers in Central Canada. One ME product was centrally packaged while all other products were in-store packaged. Raw meat was analysed for spoilage organisms. Potential pathogenic bacteria were determined in raw and cooked meat. Lactic acid bacteria dominated bacterial flora, which is typical for previously vacuum packaged meat. *Brochothrix thermosphacta* and Pseudomonads were the dominant organisms in aerobic spoilage flora. The centrally packaged ME product was lower in bacterial load than in-store packaged products (conventional and enhanced pork). Primarily lactic acid bacteria, *Brochothrix thermosphacta*, *Enterobacteriaceae*, and Coliforms were decreased (difference  $>1 \log \text{CFU}\cdot\text{g}^{-1}$ ) in the centrally packaged product. There were no significant differences in spoilage organisms between in-store packaged conventional and ME pork. Some samples displayed *Listeria* spp. and the incidence of *Listeria* spp. was slightly higher in ME than in conventional pork. *Listeria monocytogenes* and enterohaemorrhagic *E. coli* were not detected. In one ME sample *Salmonella* spp. was detected. However, no pathogenic bacteria were detected following cooking to 71°C.

## Implication:

There were no significant differences found in spoilage flora of in-store packaged conventional and ME pork. Central packaging showed the potential to significantly decrease bacterial load in ME pork. Hence, implementation of HACCP procedures for ME products, particularly for handling of these products in retail stores, would seem to be an immediate industry need.