



Mississippi State
UNIVERSITY

Poultry Science Department
Box 9665
Mississippi State, Mississippi 39762
Phone: (662) 325-3416
Fax: (662) 325-8292

The Use of Chlorine in Poultry Chiller Water
Yvonne Vizzier Thaxton, PhD
Professor, Poultry Science – Food Safety

The use of chlorine in poultry chiller water is allowed in the United States because it is effective in keeping the level of bacteria low in the water so that carcasses receive a washing- effected reduction in bacterial load. Research has confirmed that this use of chlorine does not pose any human health concerns. This is due, in part, to the organic content of the chiller. This organic content results in there being very little residual chlorine even when added at very high levels.

There has been concern over the potential for formation of trihalomethanes in the muscle as a result of exposure to chlorine. We recently completed a study designed to examine this potential under circumstances more extreme than any used in poultry processing.

This study was conducted in two parts. The first experiment was done to establish a method for detecting the presence of THM in tissue using an AOAC and an EPA method of detection. The second experiment was to determine if chloroform or other volatile compounds could be formed when exposed to different concentrations of chlorine during the chilling process.

The levels of chlorine used ranged from no added chlorine to 100 milligrams per liter or 100 parts per million. For each treatment, the poultry was sealed in the treated water to prevent volatilization of the chlorine and held within a temperature range of 3°C to 4°C for 2 hours.

Upon completion of the chilling process, the water from each treatment was tested again to assure that the concentration of chlorine was still within the desired range. The parts were removed from the chilled water and approximately 2g of skin, meat, and fat tissue were collected and divided into equal parts for analysis. Each sample was placed into the volatile vials with sodium thiosulfate producing a total of 60 tissue samples per treatment.

The results indicated that none of the 65 trihalomethanes used in the test were detected by either detection method used for any sample at or above the detection limits for the method used.

Therefore, it is my opinion that the result of chlorine action is the critical factor, as rather than creating a potential human health threat, the chlorine actually reduces the human health threat from the finished product.

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A handwritten signature in cursive script that reads "Yvonne Vizzier Thaxton".

662-325-9087 voice mail
yvizzier@poultry.msstate.edu