

EFFECT OF ANTIMICROBIAL AGENTS ON PHYSICAL, CHEMICAL AND MICROBIOLOGICAL CHARACTERISTICS OF READY-TO-EAT BOLOGNA

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ABSTRACT

Quality and safety of ready-to-eat meat products can be altered by antimicrobial agents such as lactates and diacetates. This project evaluated the effect of Ional (1.5%, 2.5%, 3.5%), Ional LC (1.5%, 2.5%, 3.5%) and Optiform SD4 (2.5%) compared to a control on selected physical, chemical and microbiological characteristics of ready-to-eat vacuum-packaged bologna slices stored less at than 4⁰C for up to 112 days of retail display. Water activity (a_w), expressible moisture (WHC), pH, fat and moisture content, cooking yield, texture profile analysis, puncture test, Hunter color values, total aerobic plate count (PCA), yeast and mold count (YM), and lactobacilli count (MRS) were evaluated. WHC, pH and texture profile parameters were significantly different ($P < 0.05$) between treatments. Bologna formulated with Optiform SD4 (2.5%) had the highest springiness and hardness values after control and it had highest puncture value. Water activity was not significantly different ($P > 0.05$) between treatments. Furthermore, day of display had no significant affect on a_w . L value was significantly different for treatments, but Hunter a and b values were not.

Product with Optiform SD4 (2.5%) had the highest cooking yield. MRS, PCA and YM values were not significantly affected by treatments ($P>0.05$); however, length of storage had a significant affect on the log increase. Ional (2.5%) had the lowest increase for MRS counts, while PCA count was lowest for treatments with Ional (3.5%). Presence of antimicrobial agents had no significant affect on decreasing yeast and mold growth. Overall, treatments with Ional (2.5%) and Optiform SD4 (2.5%) were most effective for preserving the quality of the bolognas. Also, the highest levels of antimicrobial agents had a detrimental affect on the quality of ready-to-eat bolognas.