

Sodium lactate and chitosan effects on shelf life of low-fat comminuted sausages stored at 15°C

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Low-fat meat products have been reported that they had variation in firmness, decrease juiciness and yields, and increase amount of vacuum purge, due to high amounts of moisture(%) in the products. However, only few studies on extending shelf-life of this type of products have been performed. Thus, the objective of this study was to determine the addition of sodium lactate(SL, 60% solution) and varied molecular weights(MW) of chitosan on shelf-life effect in low-fat comminuted sausages(LFCSs). The products formulated with 3.3% SL and 0.3% chitosan (Low-2kDa, Medium-30~50kDa; High-200kDa), inoculated with three pathogens, *Listeria monocytogenes* (LM), *E. coli* 0157:H7(EC) and *Salmonella typhimurium*(ST) at each 10^3 CFU/g level, vacuum packaged, and stored at 15°C for 18 days. The sensitivity of microbial suppression was followed; LM> EC> ST. The higher MW of chitosan had better antimicrobial effect and the LFCSs containing both SL and chitosan have delayed the lag phase about three days, when compared to those with SL alone. The control had microbial counts of LM at the level of 10^{7-8} CFU/g after 6 days of storage at 15°C, whereas, LFCSs containing both SL and chitosan have taken 12 days of storage to reach 10^7 CFU/g. Approximately 1 log cycle of EC was reduced, but no differences in the microbial counts of ST were observed during storage time, when added both SL and chitosan into the sausage formulation. These results indicated that the microbial suppression with the addition of both SL and chitosan was observed, depending on the type of pathogens and LFCSs containing both SL and chitosan delayed the lag phase at least 6 days during storage at 15°C for 18 days, as compared to the control.