

**Sodium Lactate and Various Molecular Weights of Chitosan on
Physico-chemical and Microbial Properties of Low-fat Comminuted Sausages
stored at 10°C**

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The objective of this study was to determine the addition of sodium lactate (SL, 60% solution) and various molecular weights (MW) of chitosan on physico-chemical properties and shelf-life effect of low-fat comminuted sausages (LFCSS). The products formulated with 3.3% SL alone and in combined with 0.3% chitosan (Low: 2kDa, Medium: 30~50kDa; High: 200kDa), inoculated with two pathogens, *Listeria monocytogenes*(LM) and *E. coli* 0157:H7(EC) at each 10^3 CFU/g level, vacuum packaged, and stored at 10°C for 18 days. The controls included with or without sodium nitrite (150 ppm) and compared to the treatments. During storage at 10°C for 18 days, pH, chemical composition, water activity (AW), cooking yield (CY, %), vacuum purge (VP, %), expressible moisture (EM, %), hunter color values (L, a, b), texture profile analysis and microbial counts were determined. Low-fat sausages had a moisture content of 73-75%, <2% fat, and approximately 16-18% protein in the final products. pH and water activity values of low-fat sausages were 6.20-6.40 and 0.955-0.965, respectively. However, no differences ($P>0.05$) were observed in those parameters. The addition of SL and various MWs of chitosan did not affect the hunter color values and cooking loss(%). However LFCSS containing medium MW of chitosan had higher expressible moisture(%) and texture profile analysis values than those with others, resulting in unacceptable texture. LFCSS containing SL alone had better antimicrobial effect to retard these pathogens than those with the combination of SL and various MWs of chitosan. EC was more sensitive to those natural ingredients than LM during storage time. The higher MWs of chitosan was delayed the lag phase of EC more than those with lower MW of chitosan. These results indicated that SL alone had better antimicrobial effect than those with the combination of SL and various chitosan, and increased antimicrobial effect were observed with increased MW of chitosan, among the various MWs of chitosan.