

**Evaluation of Sodium Lactate and a Fat Replacer on
Physico-chemical, Textural and Microbial Changes of
Low-Fat Sausage Inoculated with *Listeria monocytogenes*
during Refrigerated Storage**

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The development of low-fat meat products have been increased because of consumer demands for "healthier foods". However, these products can cause shorter shelf-life than regular-fat (< 30% fat) counterparts due to high moisture content(%). Fat replacers could aid to hold more water and emulate the functional and sensory properties of fat, resulting in similar characteristics to those of regular-fat sausage. In addition, sodium lactate (60%, SL) has known for its antimicrobial effect by the control of pH and water activity values, acidification, and feedback mechanism. Thus, The objective of this study was to evaluate the effects of a fat replacer and SL addition(0, 1.7, 3.3, 5.0%) on physico-chemical and textural properties, and shelf-life effect of low-fat sausage(LFS) during storage at 4°C for 8 weeks. After cooked and chilled, LFSs were inoculated with 10³CFU/g of *Listeria monocytogenes* (LM), and determined pH, chemical composition, water activity(AW), cooking yield (CY, %), vacuum purge(VP, %), expressible moisture(EM, %), color values(L*, a*, b*), texture profile analysis and microbial counts during storage. Regular-fat sausages had a moisture content of 60%, 20% fat, and approximately 12% protein and low-fat products had 72~76% moisture, 1~2% fat, and 14~16% protein in the final products. Increased level of SL addition caused to slightly increase pH and yellowness (b*) values (P<0.05), but decrease Aw, brightness(a*) and microbial counts for both LM and total bacteria. LFSs containing a fat replacer reduced (P<0.05) CY, VP and EM values. pH and EM values, and microbial counts were increased, whereas Aw and redness(a*) tended to decrease during storage. Treatments containing a fat replacer and SL delayed the lag phase of inoculated LM growth at least 2~4 weeks, resulting in the extending shelf-life, as compared to low-fat control. These results indicated that a fat replacer improved functional properties by prevention of moisture loss and SL(>3.3%) prolonged shelf-life of LFS by 2~4 weeks during refrigerated storage.