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Effect of Sodium Chloride on the Pressure Resistance of *Staphylococcus aureus*

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Summary

Staphylococcus aureus has tolerance to various stress conditions because of its resistance to pressure and salt. In this study, we investigated whether the addition of sodium chloride (NaCl) during high-pressure processing (HPP) can effectively inhibit the growth of *S. aureus*. First, we examined the effect of the combination of HPP and NaCl addition on *S. aureus*. Before incubation, there was no difference in the bacterial counts when NaCl was added either before or after HPP. However, after 24 h of incubation at 37°C, the addition of NaCl after HPP was more effective on the inhibition of *S. aureus* than before HPP under the presence of 15% NaCl. Next, we examined the inhibition of *S. aureus* by the combination of HPP and NaCl addition in cooked rice. In 1.5% and 3% NaCl added-cooked rice, *S. aureus* did not grow up to 4 h of incubation. However, *S. aureus* grew regardless with or without HPP and the concentration of NaCl after 24 h of incubation. After 4 h of incubation, the addition of NaCl after HPP slightly inhibited *S. aureus* more than the addition before HPP in the cooked rice. In addition, *S. aureus* was inoculated into cooked rice to which 1.5% salt and commercial seasonings such as rice vinegar, balsamic vinegar, mustard paste, and rosehip tea were added, and bacterial counts were examined after HPP and 48 h of incubation at 37°C. In cooked rice added 1.5% salt and all commercial seasonings, the bacteria was not detected after HPP and even after 48 h. The combination of HPP and salt had little effect on the inhibition of *S. aureus*, however, the combination of HPP and addition of salt and commercial seasonings was effective on inhibition of *S. aureus*.