ABSTRACT

Soy sauce is a traditional fermented condiment widely consumed in Asian countries and undergoes a two-step fermentation process called koji (solid-state fermentation) and moromi (brine fermentation). High salt concentration ranging up to 22% can be found generally in the production of soy sauce. However, despite the role of salt in developing the sensorial and microbial properties, this excessive sodium intake is also contributed to several diseases, such as cardiovascular and hypertension. This study aimed to compare and investigate the effect of survival of two potential food pathogens, namely *Staphylococcus aureus* and *Escherichia coli* O157:H7 (EHEC), towards various salt concentration, incubation temperature, pH, and inoculum size in the two major studies: the survival study, utilizing low-salt soy sauce model using Tryptic Soy Broth supplemented with 12% glucose and 6% NaCl, and the validation study, using real low-salt moromi. The survival of gram-positive (*S. aureus*) in both studies was higher than gram-negative (EHEC). In the survival study, *S. aureus* was inhibited with pH 4.5 treatment, while EHEC was undetectable in every treatment from week 1 onwards. However, in the validation study, *S. aureus* was seen thriving despite the treatment given, which makes the potential of *S. aureus* contaminating in low-salt soy sauce is higher. Since EHEC is susceptible to salt, EHEC was not included in the validation study.

Keywords: *Staphylococcus aureus, Escherichia coli O157:H7, low-salt soy sauce, moromi fermentation*