

Abstract

Staphylococcus aureus is an important foodborne pathogen for the food industry and is a member of the most common foodborne bacteria. This study aimed to evaluate the antibacterial activity of alcoholic extract of hibiscus (*Hibiscus sabdariffa*) in inhibiting *S. aureus* (*Staphylococcus aureus*) alone and in combination with nisin in minced meat vannamei shrimp. Extraction of plants was performed using vacuum evaporation. The effect of different concentrations of alcoholic extracts of hibiscus (0, 1, 5/2, 5/3, 5%) and solution of nisin (0, 5/0, 5/2 µg/g) and combining varying amounts of solution nisin (µg/g) and extracts (%): (0/25+3/5), (0/25+5), (0/5+1), (0/5+2/5), (2/5+1), (2/5+2/5) on the growing behavior of *Staphylococcus aureus* at 4°C temperature over 21 days was investigated. The results showed that bacterial growth at extracts of hibiscus (3/5, 5) and solution of nisin (0/5, 2/5) after six days has stopped. Low concentrations of extracts of hibiscus (1 and 2/5%) did not have significant differences to inhibit bacterial growth. Combined treatments were effective after six days to stop the growth of *Staphylococcus aureus*. According to the findings of this research, hibiscus extract and solution of nisin alone have inhibitory properties and those have natural preservative effects for food instead of industrial chemical additives. This research approved the synergistic effect of nisin and alcoholic extract on the inhibition of bacterial growth.

Key words: *Litopenaeus vannamei*, *Staphylococcus aureus*, *Hibiscus sabdariffa*, Nisin, alcoholic Extract



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**Effect of nisin and alcoholic extract of hibiscus sabdariffa on
inoculated populations of *staphylococcus aureus* ATCC 1113 in
litopenaeus vannamei minced fillet at 4°C.**

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