The effect of Cuminum Cyminum essence in preventing the growth of Listeria monocytogenes in the minced meat of Schizothorax Zarudnyi

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Abstract

Background & Aim: Listeria monocytogenes is one of the main food-borne bacterial pathogens and its control is currently considered as the most important challenges in food industry. This study was aimed to investigate the effect of Cuminum cyminum essence and Nisin in preventing the growth of Listeria monocytogenes in the minced meat of Schizothorax zarudnyi.

Methods: The analysis of the main components of Cuminum cyminum essence was achieved using Gas chromatography–mass spectrometry (GC-MS). Further, 10^3 CFU/g of Listeria monocytogenes was inoculated in minced meat of Schizothorax zarudnyi. Then the essence of Cuminum cyminum and nisin were added to the samples separately or in combination. Listeria monocytogenes was counted on days 0, 1, 3, 5, 7, 9, 11.

Results: The results showed that a concentration of 3% of Cuminum cyminum essence had growth preventing effect on Listeria monocytogenes. Fourtry micrograms of Nisin alone, and the combination of Cuminum cyminum essence (1%) and nisin (10 micrograms) had growth preventing effects on Listeria monocytogenes.

Conclusion: The results demonstrated that Cuminum cyminum essence may be suitable as a natural preservative for controlling the growth of Listeria monocytogenes.

Keywords: Cuminum cyminum essence, Listeria monocytogenes, Schizothorax zarudnyi