Abstract

Quail is a type of poultry that, with increasing demand for it, it has become more important to pay attention to its quality and contamination. Due to its high protein content, water and pH, it is a very good environment for the growth of a variety of pathogenic microorganisms., So the development of methods to inhibit the growth of microorganisms in quail is of particular importance. In this research, we tried to keep the fillet of quail meat in the presence of *limonum* oil, onion and nisin solution, separately and simultaneously, changing the population of E.coli during days 0, 1, 3, 6, 9, 12, 15, 18 and 21 at 8 °C. For this purpose, live quails were purchased from Zabol market and after slaughter and transfer to laboratory, different treatments were prepared and stored for 21 days at 8±1 °C and each 3 days were evaluated for microbial colony count for examination. The reduction of bacterial population and chemical test of Thiobarbituric Acid (TBA), total volatile nitrogen (TVBN), peroxide index (PV), pH and acidity were measured. Polymerase chain reaction molecular test was performed on the desired treatments. Based on statistical results, the *limonum* oil with a concentration of 30 µl/gr, from day one to end of the maintenance period, prevented the growth of the *Escherichia coli* bacteria and reduced the number of bacteria in the meat sample to zero, and the onion and nisin extracts, although little inhibitory effect on the bacteria *Escherichia coli*, but their use has increased their inhibitory effect on *Escherichia coli* bacteria. According to the results, onion extract in combination with nisin and *limonum* oil can be used as a natural anti-bacterial agent in poultry products.

Keywords: essential oil, quail, antibacterial, shelf life, nisin, polymerase chain reaction

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The effect of Citrus limonum essential oil, onion (Allium cepa) extract and nisin solution on quail meat storage at 8 °C

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