

## **Abstract**

Chemical preservatives are currently used in various foods to enhance shelf life and maintain quality. In this research, the maintenance of fillet of veal beef in the presence of nisin at two levels of zero and five micrograms per gram of calf meat, garlic extract at two levels of zero, two and a half percent and dill at two levels of zero and two microliters per The warm calf meat was isolated separately and mixed, *Bacillus cereus* population was evaluated during days 0,3, 6, 9, 12, 15, 18 and 21 at 8 °C

On meat samples, chemical tests such as pH, TVB N, TBA, PV and acidity, microbial tests included surface cultivation of *Bacillus cereus* ATCC 11788 in BHI agar medium and BHI broth (for counting existing colonies) And performing a PCR reaction to investigate the reduction of bacterial populations in three replicates. This study shows that low concentrations of essential oil, garlic extract and nisin solution alone and in combination can not completely inhibit *Bacillus cereus* bacteria but concentrate 0.06% of essential oil, concentration of 75 / 3% garlic and concentration of 5 µg / g nisin alone and combined with inhibitory effects on *Bacillus cereus* growth

Therefore, according to the results, it can be said that the use of essential oil, garlic extract and nisin solution together have a synergistic effect and can serve as a preservative for controlling the growth of *Bacillus cereus* bacteria in cooked meat from calves during storage in a refrigerator (8 degrees Celsius). In general, it can be reported that *Bacillus cereus* bacteria had a significant decrease ( $P < .05$ ) in the treatments containing garlic, dill and nisin compared to control treatment.

**Key words:** \_Asance, Antibacterial, Extract, Polymerase Chain Reaction



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**Subject**

Assessment of Nisin solution, Garlic (*Allium sativum*) extract and Dill (*Anethum graveolens*) essential oil effect on shelf life of veal meat

**First supervisor:**

**Dr.majid alipur eskandani**

**Second supervisor:**

**Dr.mohammad rahnama**

**First advisor:**

**Dr.mahmood tavakoli**

**Second advisor:**

**Dr.saeid salari**

**By:**

**Zahra Nabavi**