

عنوان مقاله:

Modelling of Staphylococcus Aureus under the Effect of Carum Copticum Essential Oil, pH, Temperature, and Inoculum Level

محل انتشار:

فصلنامه تغذیه، روزه داری و سلامت، دوره 10، شماره 2 (سال: 1401)

تعداد صفحات اصل مقاله: 9

نویسندگان:

.Sara Mohamadi - Department of Food Hygiene and Aquaculture, Faculty of Veterinary Medicine, Ferdowsi University of Mashhad, Mashhad, Iran

.Saeid Khanzadi - Department of Food Hygiene and Aquaculture, Faculty of Veterinary Medicine, Ferdowsi University of Mashhad, Mashhad, Iran

.Abdollah Jamshidi - Department of Food Hygiene and Aquaculture, Faculty of Veterinary Medicine, Ferdowsi University of Mashhad, Mashhad, Iran

.Mohammad Azizzadeh - Department of Clinical Sciences, Faculty of Veterinary Medicine, Ferdowsi University of Mashhad, Mashhad, Iran

خلاصه مقاله:

Staphylococcus aureus is among the major causes of foodborne outbreaks globally. To limit its potential risks and predict its growth behaviors, it is crucial to define the growth boundaries of Staphylococcus aureus. So, this experiment was designed to estimate the growth behavior of Staphylococcus aureus in brain heart infusion (BHI) broth while affected by various concentrations of Carum copticum EO (0, 0.015, 0.030, 0.045%), pH (5, 6, 7), temperature (25, 35 °C), and inoculum levels (10³, 10⁵ CFU ml⁻¹). The assay was performed with 48 treatment conditions in triplicate. Visible turbidity represents growth onset was checked daily during 30 days of trial. According to the accelerated failure time (AFT) approach, a parametric survival model was chosen to predict the impact of selected variables on Staphylococcus aureus growth. GC-MS assay had quantified sixteen (16) compounds constituting 98.88% of pure oil. Based on our findings, the major components of essential oil were identified as thymol (57.18%), p-cymene (22.55%), γ-terpinene (13.07%), and trans-anethole (1.7%). The MIC value of the EO was 0.625 μl ml⁻¹. The median time to detection of bacterial growth was six days. All the predictor variables showed a significant effect on time to initiate the bacterial growth (p < 0.05). The ultimate model could precisely estimate the growth responses of Staphylococcus aureus.

کلمات کلیدی:

Carum copticum essential oil, Predictive modeling, Staphylococcus aureus

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1536665>

