عنوان مقاله:

Evaluation of the antibacterial effects of Ag-Tio۲ nanoparticles and optimization of its migration to sturgeon caviar ((Beluga

محل انتشار:

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تعداد صفحات اصل مقاله: 14

نویسندگان:

A Anvar - *Assistant Professor , Department of Food Science and Technology, Tehran Science and Research Branch, .Islamic Azad University, Tehran, Iran*

Sh Haghighat Kajavi - *Assistant Professor , Department of Food Science and Technology, Tehran Science and .Research Branch, Islamic Azad University, Tehran, Iran*

H Ahari - *Assistant Professor , Department of Food Science and Technology, Tehran Science and Research Branch, .Islamic Azad University, Tehran, Iran*

A Sharifan - *Assistant Professor , Department of Food Science and Technology, Tehran Science and Research .Branch, Islamic Azad University, Tehran, Iran*

A Motallebi - *Professor , Department of Food Science and Technology, Tehran Science and Research Branch, .Islamic Azad University, Tehran, Iran*

Sh Kakoolaki - *Assistant Professor , Department of Food Science and Technology, Tehran Science and Research .Branch, Islamic Azad University, Tehran, Iran*

S Paidari - *Department of Food Science and Technology, Science and Research Branch, Islamic Azad University, .Tehran, Iran*

خلاصه مقاله:

Effect of nano composite films to prolong the shelf life of Iranian beluga caviar was investigated at different concentrations of silver nanoparticles. In this study ۳۸ caviar packs each containing ۵ g of caviar were divided into ۶ treatments with ۳ replicates. The concentrations of ۱۰۰۰, ۲۰۰۰, ۳۰۰۰, ۴۰۰۰, ۵۰۰۰ and ۶۰۰۰ ppm of nanoparticles as well as a nano free pack as control were used. The size of nanoparticles was less than ۵۰ nm in treatments number one to four and was less than ۱۰ nm in treatment number five. Packed samples were inoculated with bacteria and fungi and microbiological tests were performed for each sample after ۲۴ hours. Results of gram test and detecting the gram positive bacteria showed the considerable decreases in Staphylococcus aureus, Escherichia coli, Aspergillus flavus and Penicillium strains. Moreover, there was a considerable decrease in fungi and bacterial growth in ۵۰۰۰ and ۶۰۰۰ ppm nano-silver packages ($p<۰.۰۵$). The amount of silver nanoparticle released into the caviar samples were also measured by titration method and application of titrazol with concentrated sulphuric acid. There was no silver residual in different concentrations of silver nanoparticle packages. These results suggest using silver nanoparticles in accurate concentrations could be considered as one of the main solutions to further inhibit spoilage caused by

.pathogenic microorganisms, and to extend the shelf life of the valuable food products

کلمات کلیدی:
Sturgeon, Beluga caviar, Silver, Nano composite, Titanium dioxide, Titration