عنوان مقاله:

The antibacterial activities of magnesium oxide nanoparticles in combination with nisin and heat in milk

محل انتشار:

کنفرانس بین المللی علوم و مهندسی (سال: 1394)

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خلاصه مقاله:

The antibacterial activities of magnesium oxide nanoparticles (MgO NP) alone or in combination with other antimicrobials (nisin and heat) against Escherichia coli and Staphylococcus aureus were investigated. The results show that MgO NP have strong bactericidal activity against the pathogens. A synergistic effect of MgO in combination with nisin and heat was observed as well. Scanning electron microscopy was used to characterize the morphological changes of S. aureus before and after antimicrobial treatments. It was revealed that MgO NP treatments in combination with nisin distort and damage the cell membrane, resulting in a leakage of intracellular contents and eventually the death of bacterial cells. These results suggest that MgO NP alone or in combination with nisin could potentially be used as an effective antibacterial agent to enhance food safety.

کلمات کلیدی:

Magnesium oxide, Nanoparticles, Foodborne pathogens, Antibacterial activity