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عنوان مقاله:

اثرات ضدمیکروبی فیلم های زیست فعال نشاسته حاوی نانومولسیون اسانس دانه زیره سیاه غنی شده با سینامآلدئید

محل انتشار:

مجله انسان، محیط زیست و ارتقاء سلامت, دوره 8, شماره 4 (سال: 1401)

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خلاصه مقاله:

Background: The present study aimed to evaluate antimicrobial properties of corn starch edible films prepared with Bunium persicum essential-oil nanoemulsions (BPEOne) and BPEOne fortified with cinnamaldehyde (Fortified BPEOne with CIN) against some common food-borne pathogens. Methods: Treatments (films containing BPEO, CIN, BPEOne, BPEO+CIN, BPEOne+CIN, Fortified BPEOne with CIN in ۰.۵, ۱, ۲, and ۴ % concentrations) were prepared using starch solutions. In vitro antimicrobial activity of BPEOne films was evaluated using agar disk diffusion and plate count assay methods against Salmonella enteritidis, Escherichia coli, Listeria monocytogenes, and Staphylococcus aureus. Results: The inhibitory effect of each treatment against some food-borne pathogen bacteria increased significantly with the enhancement of concentrations (P<۰.۰۵). The highest bacterial inhibitory effect was achieved in higher concentrations (۲%, ۴%). The antimicrobial activity of BPEO nanoemulsion was higher than pure BPEO-containing films. S. aureus and S. enteritidis were more susceptible and resistant bacteria to BPEO, BPEO nanoemulsion-containing films, respectively. Conclusion: The films containing a combination of the BPEO (or its nanoemulsion) with CIN have better antimicrobial activity, however the fortification of nanoemulsions with other antimicrobial agents may not show the same results.

کلمات کلیدی:

Agar disc diffusion assay, Black cumin, Food-borne pathogens, Nanoemulsion, Plate count assay, Disk diffusion agar, Plate count assay, زیره سیاه, پاتوژن های منتقله از غذا, نانومولسیون

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