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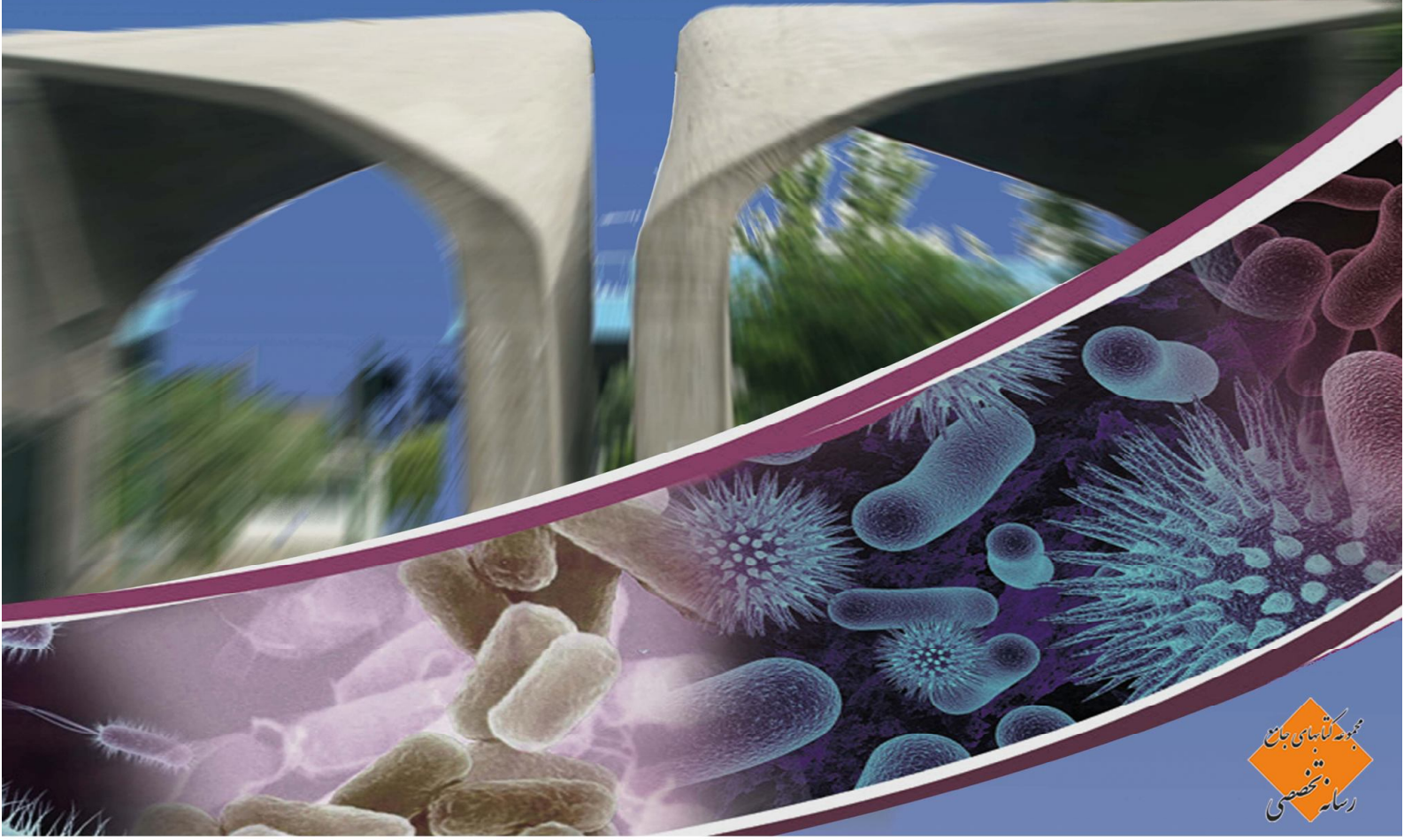

مجموعه کتابهای جامع رسانه تخصصی

P408: Anti-listerial activity of microencapsulated nisin in different biopolymers microparticles

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Background and Aim: Nisin is an effective bacteriocin against Gram positive bacteria produced by strains of *Lactococus lactis* and has been extensively studied because of its potential applications as natural preservatives in the food industry. However, the reduced antimicrobial efficacy of nisin when applied in foods has been frequently reported, due to its binding with food components and inactivation by enzymatic degradation. Encapsulation of nisin is an efficient approach to overcome the problems related to its direct application. The aim of this study was to evaluate the anti-listerial activity of nisin microencapsulated in three polymeric systems including alginate, alginate-resistant starch and alginate-high methoxy pectin.

Methods: Nisin loaded microparticles were prepared by a w/o-emulsion external cross-linking procedure with initial nisin concentration of 600 ppm. Antilisterial activity of nisin encapsulated in alginate, alginate-resistant starch and alginate-high methoxy pectin microparticles was detected by agar diffusion assay.*Listeria monocytogenes* ATCC 19117 was used as a test microorganism. Three wells of 6 mm diameter were punched into the agar on each plate (that seeded by 100µl of an overnight broth culture containing 107-108 CFU/ml of the test organisms) and lyophilised microparticles were loaded into wells. Plates were incubated at 37 ºC for 24 h. The diameter of inhibition zone (mm) was then measured and reported as anti-listerial activity of microparticles containing nisin.

Results: Nisin loaded in alginate, alginate-resistant starch and alginate-high methoxy pectin exhibited anti-listerial activity with inhibition zone of 11, 17 and 13 mm, respectively. As our results showed, the nisin loaded in alginate-resistant starch microparticles demonestrated maximum inhibition zone and thus anti-listerial activity. The results showed that the addition of resistant starch in alginate matrix significantly increased the anti-listerial activity of microparticles. Higher anti-listerial activity with the mixture of alginate and resistant starch was interpreted to be due to the effect that starch had in the stabilization of the alginate matrix and thus higher amount of nisin can be encapsulated in micrpoparticles.

Conclusion: These results indicate that alginate microparticles reinforced with resistant starch with improved alginate networks are a promising means to protect anti-listerial activity of nisin into food products.

Keywords: Nisin, Microemcapsulation, Listeria monocytogenes

P409: Multiplex PCR for the detection of *Listeria monocytogenes, Escherichia coli*O157:H7, and *Salmonella spp.* in fresh-cut and ready-to-eat vegetables.

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Background and Aim: Foodborne pathogens are a major public health problem. Despite the increase in food safety and management, and consumer interest in food safety, the number of food poisoning incidents has been increasing continuously (Beuchat 1996;Kim et al.2008). According to the FDA, the number of foodborne diseases in 2008 increased 3.8-fold compared to that in 2003. The most common outbreaks of food poisoning have been caused by pathogens namely, *Escherichia coli*O157:H7,*Listeria monocytogenes, Salmonella spp.* and *Staphylococcus aureus* (Beuchat 1996;Fangetal.1999; Kim et al. 2008).

Methods: We developed a multiplex PCR(mPCR) assay for the simultaneous detectionof Three food borne pathogens in ready to eat vegetables ,using species-specific primers . (rfB for *E. coli* O157:H7 ,invA for *Salmonella spp.,* and prfA for *L. monocytogenes*)

Results: Amplification with these primers produced products of 1.0kb, 284, and 700 bp,for *E.coli* O157:H7,*Salmonella spp*. and *listeria monocytogenes*, respectively. All PCR products were easily detected by agarose gel electrophoresis. The results correlated exactly with sequences derived for amplicons obtained during preliminry tests with known organisms. The sensitivity of the assay was determined for the purified pathogen DNAs from three strains

Conclusion: Thus, this mPCR assay may allow for the rapid, reliable and cost-effective identification of three potentially pathogens present in the mixed bacterial communities of fresh-cut and ready-to-eat vegetables.

Keywords: Multiplex PCR. Specific primers.Bacterial pathogens.

P410: Effect of ginger juice on the viability of probiotic bacteria in probiotic yogurt

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Background and Aim: Probiotics play an important role in helping the body protect itself from infection, especially along the colonized mucosal surfaces of the gastrointestinal tract. Probiotic products are available in many different forms worldwide, including pills, powders, foods, and infant formula. On the other hand, ginger has 114 volatile components from; it smells good and has many functional effects which can improve human health.

Methods: In this study, the effect of ginger juice addition on probiotic yogurts during a 20-day storage period of was studied. That ginger juice was added to the milk by the rate of 0/5 to 2 grams per liter. Afterward, the milk was fermented by probiotic bacteria. PH and the viability of probiotic bacteria in yogurt were measured at periods of 7, 14 and 20 days.

Results: Results revealed that the effect of the extract has no effect on probiotic bacteria and there is no significant difference in the rate of pH and titratable acidity between our sample and the control sample, which contains no ginger juice.