Effect of emulsification on the antimicrobial activity of carvacrol

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Resumen

This work focuses on the emulsification of carvacrol for its incorporation into juices with the aim of retaining antimicrobial activity while enhancing the stability of the oil in aqueous systems. Carvacrol was emulsified (CA-E) using capsul((R)) (1:2 emulsion) and its antimicrobial activity was determined on Escherichia coli and Lactobacillus plantarum. The combined effect of CA-E and pH reduction to 4.5 was assessed on different juices. The sensitivity of L. plantarum to carvacrol was not affected by emulsification, whereas E. coli presented higher minimal inhibitory concentrations. Combined treatments improved the effect: 0.5 mu L/mL CA-E increased from 0.2 to 2.1 log reductions of E. coli. Carvacrol emulsion (1.0 mu L/mL) successfully inactivated E. coli in apple and orange juices, attaining undetectable levels (< 1 log CFU/mL). The efficacy of carvacrol emulsion was improved by acidification; therefore, its incorporation at low doses in acidic foods may be a useful alternative for multiple applications.

Palabras clave

Palabras clave de autor:carrot juice; Lactobacillus plantarum; natural antimicrobials; emulsion; Escherichia coli
KeyWords Plus:ESSENTIAL OILS; ESCHERICHIA-COLI; INACTIVATION; FOODS; SURVIVAL; ORANGE; JUICES

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