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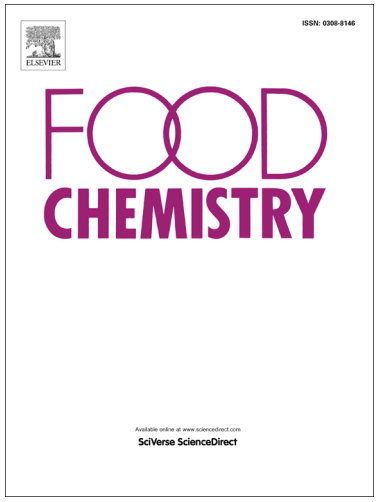

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Antimicrobial and antioxidant activity of unencapsulated and encapsulated clove (*Syzygium aromaticum, L.*) essential oil

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Abstract

Clove (*Syzygium aromaticum*, L.) essential oil is known for its antimicrobial activity against several pathogenic bacteria. Encapsulation of clove oil was proposed as a mean to disguise its strong odor that limits its uses in food industry. Thus, the aim of this study was extraction, encapsulation and assessment of the antimicrobial and antioxidant potential of clove essential oil. The essential oil showed high DPPH scavenging capacity and low hydroxyl radical inhibition. Clove essential oil showed *in vitro* inhibitory and bactericidal effect against *S. aureus*, *E. coli*, *L. monocytogenes* and *S.* Typhimurium. In addition, *in situ* antimicrobial activity of clove oil against *S. aureus* was superior to nitrite. The essential oil particles encapsulated with sodium alginate and emulsifiers, showed high encapsulation efficiency, low antioxidant activity and