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## **Activity of *Origanum vulgare* L. and *Rosmarinus officinalis* L. Essential Oils and Their Constituents Against *Staphylococcus aureus* in Mixed Culture**

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### **Resumo**

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*Staphylococcus aureus* is a pathogen commonly associated with outbreaks of food poisoning representing a public health problem worldwide. The development of strategies to control growth of this bacterium in foods or environment of processing foods is of great interest for the food industry. The increased demand for safe and natural foods has motivated research of the antimicrobial efficacy of natural compounds such as essential oils and their constituents. However, a little knowledge is available about the activity of these substances against mixed culture although it is known that different bacterial strains of the same specie could have a distinct behavior in same environment. The aim of this study was to evaluate the activity of *Origanum vulgare* L. and *Rosmarinus officinalis* L. essential oils (OVEO and ROEO) and their major constituents carvacrol (CAR) and 1,8-cineole (CIN) against *Staphylococcus aureus* isolates from food-contact surfaces, in single and mixed culture. The minimal inhibitory concentration (MIC) of the substances against isolates alone (n=5) or in mixed culture were determined by the macrodilution in broth method, using Brain Heart Infusion broth (0.12 to 16µL/mL). The systems were statically incubated at 37°C for 24 hours and MIC was defined as the lowest concentration required to prevent visible bacterial growth. Controls without antimicrobials compounds were tested similarly. MIC values of OVEO and

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### **Referência:**

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CAR ranged from 0.5 to 0.25 $\mu$ L/mL and of ROEO and CIN from 16 to 8 $\mu$ L/mL when strains were tested alone. When tested with mixed culture MIC values of the antimicrobials corresponding to the highest concentration observed in single culture. The results show the efficiency of OVEO and ROEO and their major constituents in inhibiting *S. aureus*, in single or mixed culture, suggesting strong potential for use of these alternative antimicrobials in the food industry.

**Palavras-Chave:** *Staphylococcus aureus*, essential oils, minimal inhibitory concentration

**Agência de Fomento:**