Antimicrobial Activity of the Origanum vulgare L.
Essential Oil Against Pathogenic and Starter Bacteria
Species Related To Brazilian Semi-Hard Cheese
(Coalho)

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Resumo

Coalho cheese is a semi-hard cheese with medium to high moisture that is
obtained by a simple manufacture process usually using commercial
coagulating agent and starter of the mesophilic lactic cultures Lactococcus
lactis subsp. cremoris and L. lactis subsp. lactis. However, the
physicochemical characteristics of this dairy product may favor the survival
and growth of the pathogenic bacteria frequently associated to foodborne
diseases. The current trend of a negative consumer perception of chemical
preservatives increases the interest in use of essential oils, particularly
which obtained from Origanum vulgare L. (OVEO), as antimicrobial
compounds for food preservation. However there is a lack of information
regarding the effects of this oil against starter cultures. This study assessed
the activity of OVEO against the mesophilic lactic cultures (L. lactis subsp.
cremoris and L. lactis subsp. lactis - Chr. Hansen Brazil®) used as starter in
manufacture of coalho cheese and against Staphylococcus aureus ATCC
6538 and Listeria monocytogenes ATCC 7644 strains. The minimum
inhibitory concentration (MIC) was performed by microdilution in broth
assays using OVEO (Ferquima® Ltda) concentrations from 0.3 to 40
µL/mL, according procedures preconized by Clinical and Laboratory

Referências:
Geany Targino de Souza, Rayssa Julliane de Carvalho, Neyrijane Targino de Souza, Jessica Bezerra dos Santos
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Standards Institute. All bacterial suspensions were standardized ($10^8$) and tested in single and mixed cultures (1:1) for S. aureus or L. monocytogenes and in a mixed culture (1:1) for lactic starter strains. MIC values of OVEO for S. aureus and L. monocytogenes were 2.5 $\mu$L/mL in single culture, while for mixed culture lower MIC value was observed (1.25 $\mu$L/mL). In assays with the mixed culture of L. lactis subsp. cremoris and L. lactis subsp. lactis. OVEO showed MIC value of 0.60 $\mu$L/mL. The results suggest the OVEO as an interesting approach to inhibit pathogens frequently associated to coalho cheese, however the inhibitory effects against starter lactic culture need be considered for the application of OVEO in this product.

**Palavras-Chave:** Coalho cheese, Essential oil, Lactic cultures, Mixed cultures, Oregano

**Agência de Fomento:**