

**TITLE:** ANTIBACTERIAL ACTIVITY OF ESSENTIAL OIL OF *Lippia sidoides* Cham. FRONT OF EXTRACTED STRAWS OF CHEESE

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**ABSTRACT:**

The rennet cheese is a typical product of the Northeast region of Brazil, being considered a food component of great cultural and socioeconomic relevance. However, it is very susceptible to microbial contamination, due to factors such as production with unpasteurized milk, use of poorly sanitized utensils, improper storage, and may present pathogenic microorganisms such as *Escherichia coli*. The *Lippia sidoides* Cham. belongs to the family Verbenaceae, an aromatic plant typical of the semi-arid Northeastern region, popularly known as Alecrim-pimenta. The present study aimed to evaluate the antibacterial activity of *L. sidoides* essential oil against strains extracted from rennet cheese. The antibacterial activity was determined by the Minimum Inhibitory Concentration (MIC) by broth microdilution method. Ten *E. coli* strains from rennet cheese were used. The inoculum was prepared with the bacterial strains, diluted in 0.9% saline at a concentration of approximately  $10^8$  UFC/m. 96-well microdilution plates were used in which 100  $\mu$ L of BHI broth (Brain Heart Infusion) and 100  $\mu$ L of the essential oil diluted in mineral oil were added and successive dilutions were performed, followed by insertion of 100  $\mu$ L of the inoculum. Polymyxin was used as the control. The plates were incubated in an oven at 36 ° C for 24h. MIC was determined as the lowest concentration of essential oil capable of inhibiting the total growth of the microorganism. The results showed MIC de 2,5 mg/mL<sup>-1</sup> for all strains studied, showing that the essential oil of *L. sidoides* has antibacterial potential. Chemical studies point to Thymol as the main constituent of the essential oil of this plant, so its antibacterial potential can be attributed to the presence of this constituent. Previous studies have shown that the essential oil of *L. sidoides* also has activity against strains of *Streptococcus mutans*, *Staphylococcus aureus* and *Staphylococcus epidermidis*. It can be concluded that the essential oil of *L. sidoides* is effective against strains of *E. coli* from cheese, showing that it has potential to be used in the conservation of this product, in order to reduce contamination by microorganisms. However other studies must be performed to ascertain the mechanism of action of these compounds present in the oil and the concentration capable of killing the microorganisms are not toxic to humans.

Key words: *Escherichia coli*, conservation, pathogens e alecrim-pimenta