

TITLE: ANTIMICROBIAL ACTIVITY OF ESSENTIAL OILS OF MANJERONA, BLACK PEPPER, ALECRIM AND OREGANO FRONT A *Salmonella enterica* DE ORIGEM AVICOLA

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ABSTRACT:

Salmonella enterica predominates as a pathogen causing outbreaks of foodborne diseases worldwide and domestic poultry are considered as its main reservoir. The high frequency of *Salmonella* with conventional drug resistance and consumer concern for foods free of synthetic additives has encouraged studies on essential oils with antimicrobial activity that can be applied to foods. The objective of this study was to evaluate the antimicrobial activity of four essential oils against 40 *Salmonella enterica* samples from the Albany (n = 9), Schwarzengrund (n = 14), Panama (n = 2), Orion N = 1), Heidelberg (n = 2), *S. Enterica* subsp *enterica* O: 6.8 (n = 1), *S. Enterica* subsp.*Enterica* (n = 1), Enteritidis (n = 3), Worthing (n = 1), Derby (n = 1), Muenchen (n = 1), Typhimurium (N = 1) and Agona (n = 1) isolates from the productive chain of broilers. The essential oils of oregano (*Origanum vulgare*), black pepper (*Piper nigrum*), rosemary (*Rosmarinus officinalis*) and marjoram (*Majorana Hortensis* Moench), obtained commercially were used. The in vitro antimicrobial susceptibility test was evaluated initially by the disk agar diffusion technique, adapted for natural products. The minimum inhibitory concentration (MIC) was determined as 6400µg / mL using the same diffusion technique, but with agar wells, evaluating the dilutions of 100%, 50%, 25% and 12.5%. 6.25%, 3.12%, 1.56%, 0.78% and 0% (control) applying 50µg / mL. The results showed that the essential oils of black pepper and rosemary did not inhibit the microbial growth of *S. enterica* isolates evaluated. Only the oregano and marjoram oils presented antimicrobial activity against the *Salmonella* isolates, but with varied effectiveness. Oregano oil showed higher antibacterial activity compared to the isolates in relation to marjoram oil. The serovars of *S. enterica* presented variation in the susceptibility to oils, with serovar Albany being more susceptible to oregano and marjoram oils, while the serovar Schwarzengrund was less susceptible. According to the study, the essential oils of oregano and marjoram are effective against *Salmonella enterica*, which may be an alternative for use in foods, but variations in susceptibility among serovars of this bacterial species should also be considered.

Keywords: *Salmonella*, antimicrobials, oregano, marjoram, birds

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