Effects of intramammary infusion of sage (Salvia officinalis) essential oil on milk somatic cell count, milk composition parameters and selected hematology and serum biochemical parameters in Awassi sheep with subclinical mastitis

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Abstract (300 word limit)

Aim: The aims of this study were to evaluate the effects of intramammary infusion of sage (Salvia officinalis) essential oil (EO) on milk somatic cell count (SCC), milk composition parameters and selected hematology and serum biochemical parameters in 20 Awassi ewes affected with subclinical mastitis.

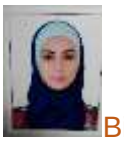
Materials and Methods: The dried leaves of sage were used to extract the EO by hydrodistillation. The minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) of sage EO against Staphylococcus aureus were determined by the broth dilution method. Ewes were divided randomly into three main groups and received one of the following treatments; Group 1 (n=5): Dimethyl sulfoxide (DMSO) alone (5 ml; 0.2 ml of DMSO in 4.8 ml of saline), Group 2 (n=5): Amoxicillin alone (3 ml), and Group 3 (n=10): Sage EO (5 ml of sage EO solution [0.2 ml DMSO+1 ml EO+3.8 ml sterile saline]). All treatments were administered by intramammary infusion into each teat twice per day for 3 consecutive days. Milk samples for SCC and milk components determination and whole blood samples for hematology and serum biochemical analyses were collected before treatment (T0) and at 24 (T24) and 48 (T48) h after the last treatment.

Results: The MIC and MBC of sage EO against S. aureus were 12.5% and 6.1%, respectively. SCC was decreased significantly ($p<0.05$) at T24 and T48 h in sage EO and amoxicillin treated groups. Milk fat and lactose were increased significantly ($p<0.05$) in sage EO an amoxicillin treated ewes while no significant changes were observed in the percentages of solidsnot- fat, protein and total solids. No significant effects of sage EO treatment on any of the hematology or serum biochemical parameters were observed. There were no local or systemic side effects observed in any of the treated ewes. However, further clinical trials are warranted to determine safety and possible withdrawal times in milk before its recommendation for use in organic operations.

Conclusion: In this study, the intramammary infusion of sage EO to ewes affected with subclinical mastitis resulted in a significant decrease in SCC 24 h and 48 h posttreatment. In addition, milk fat and lactose were increased in animals that received the EO as well as in those treated with the antibiotic.

Recent Publications (minimum 5)

1. Alekish, M. O., Ismail, Z. B., Awawdeh, M. S., & Shatnawi, S. (2017). Effects of intramammary infusion of sage (Salvia officinalis) essential oil on milk somatic cell count, milk composition parameters and selected hematology and serum biochemical parameters in Awassi sheep with subclinical mastitis. Veterinary world, 10(8), 895.Heilig M, Egli M (2006) Pharmacological treatment of alcohol dependence: Target symptoms and target mechanisms. Pharmacology and therapeutics 111:855-876.



Biography (150 word limit)

Creative, Smart Self-motivated and a hard Worker person, with quick learning ability. Seeking a position in place that offers opportunities for advancement and performs quality research environment. I love my work and I dream to do many researchs to improve the health status in my country.

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