Dottorato di ricerca in Scienze Veterinarie XXXVI CICLO - Anno di corso: 3°
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Efficacy of South African plants on multi-resistant Staphylococci isolated from clinical cases of bovine mastitis

Objective This study investigated the bactericidal, anti-biofilm and quorum sensing inhibition activities of selected South African medicinal plants against biofilm-formative strains of *Staphylococcus aureus.*
Materials and Methods The minimum inhibitory concentration (MIC) of organic and aqueous leaf extracts of *Terminalia sericea, Tecoma stans, Dolichandra unguis-cati, Ziziphus mucronata, Vachellia karroo* and *Portulacaria afra* were tested against multi-resistant *Staphylococcus aureus* isolated from clinical cases of bovine mastitis, using a 2-fold serial microdilution method. Activity of extracts against biofilms of the pathogens was done using a modified crystal violet staining in vitro assay.
Results Organic extracts of *T. sericea, Z. mucronate* and *Vachellia karroo* had the best antibacterial activity against the bacteria. Significant inhibition of biofilm development against *S. aureus* mastitis isolates was observed. *Vachellia karroo* extracts had the best anti-quorum sensing activity (MQSIC) against *Chromobacterium violaceum*.
Conclusions This study shows that some of the plant species are potential candidates as an alternative for the development of a preventative treatment against bovine mastitis.

Vachellia karroo

MQSIC

Future Proposal: **Efficacy of essential oils against mastitis causing bacteria in dairy cattle.** The aim is to investigate the antibacterial, antibiofilm and anti-quorum sensing activities of essential oils as a treatment against bovine mastitis. Partnership with Prof.ssa Paola Mattarelli, Department of Agricultural and Food Science

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