ANTIBACTERIAL ACTIVITY OF PLANTS THAT ARE USED IN THE TREATMENT OF HEARTWATER IN LIVESTOCK AND THE ISOLATION AND IDENTIFICATION OF BIOACTIVE COMPOUNDS FROM *PETALIDIUM OBLONGIFOLIUM* AND *IPOMOEA ADENIOIDES*

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ABSTRACT

The general antibacterial activity of *Drimia delagoansis, Petalidium oblongifolium* and *Ipomoea* adenioides was determined using selected Gram-positive and Gram-negative bacteria. Only extracts or compounds with high antibacterial activity were then tested against the causative agent of heartwater, *Ehlrichia ruminantium*, since the latter requires specialised culturing conditions. The crude aqueous extract of *D. delagoansis* had low antibacterial activity with its highest MIC against Gram-negative bacteria being 20.0 mg ml^{-1} while the crude methanolic extracts of *P. oblongifolium* and *I.* adenioides had their highest antibacterial activity against Gram-negative bacteria at MIC's of 5.0 and 10.0 mg ml^{-1} respectively. Two compounds were isolated and identified from *I. adenioides* and an unidentified one was isolated from *P. oblongifolium*. The two compounds from *I. adenioides* proved to be caffeic acid with MIC's of 0.8 and 1.0 mg ml^{-1} against Gram-positive and Gram-negative bacteria respectively; and ethyl caffeate with MIC's of 0.4 and 1.0 mg ml^{-1} against Gram-positive and Gram-negative bacteria respectively. Synergism between the two compounds increased the respective MIC's to 0.4 and 0.2 μg ml^{-1} against Gram-positive and Gram-negative bacteria. The unidentified compound isolated from *P. oblongifolium* had a very low MIC of 2.5 μg ml^{-1} against *E. ruminantium*.

Dedicated to:

My wife and the children for their un-ending support

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