

Title: Screening of some selected medicinal plants extracts for antibacterial effects on some bacteria strain

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Abstract

Microbial infection has become life-threatening because they develop resistance to most of the existing antimicrobial agents (antibiotics). Antibiotic resistance is evoking concerns even in animal production, where sub-therapeutic levels of antibiotics use in animal feeds make major contribution. Hence, there is a crucial need to discover natural sources of antimicrobial agent. Ethanolic extract of 22 plant materials were investigated for their ability to inhibit the growth of two gram positive (*Staphylococcus aureus* and *Streptococcus faecalis*) and two gram negative (*Escherichia coli* and *Salmonella typhimurium*) bacteria using the disc diffusion and microdilution methods. 17 plant extracts displayed antibacterial activity against one or more of the bacterial strains. Zones of inhibitions ranged from 10.00±0.00 to 21.33±1.50 mm for the diffusion assay. The minimum inhibitory concentration (MIC) ranged from 0.391- 3.125 mg ml⁻¹. *Escherichia coli* was the least affected bacterial strains tested. Results of both assays revealed that plant extracts showed more antibacterial activity in the micro dilution relative to the agar disc diffusion assay. This suggests that disc diffusion method should be used along with the microdilution assay when testing bacterial susceptibility to plant extracts. Most of the selected plants have pronounced antibacterial effects on gram positive bacteria. Thus, further studies are required to determine how to employ these antibacterial activities to manipulate rumen microbes towards efficient rumen fermentation.

Keywords: Bacteria, plant extract, antimicrobial agent, rumen microbes, disc diffusion, microdilution.