Antimicrobial Activity of Ethnobotanically Selected Medicinal Plants Used in the Treatment of Sexually Transmitted Diseases

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Abstract : Ten medicinal plants used traditionally in the treatment of sexually transmitted diseases (STDs) and urinary tract infections (UTIs) were selected from an ethnobotanical database developed in Mpumalanga. The plants were investigated for their antimicrobial activity against five bacterial strains (Escherichia coli, Klebsiella oxytoca, Klebsiella pneumoniae, Neisseria gonorrhoeae and Staphylococcus aureus) and one fungal strain (Candida albicans). Eight of the plants inhibited the growth of all microorganisms at a concentration range of 0.4 mg/ml to 12.5 mg/ml. Acacia karroo showed the most promising antimicrobial activity, with a minimum inhibitory concentration (MIC) of 0.4 mg/ml on Staphylococcus aureus and 0.8 mg/ml on Neisseria gonorrhoeae. All ten plants were further investigated for their antioxidant activities using the DPPH scavenging method. Acacia karroo and Rhoicissus tridentata subsp. cuneifolia showed good antioxidant activity with IC50 values of 0.83 mg/ml and 0.06 mg/ml, respectively. The toxicity of plants was determined using the XTT reduction method against Vero cells. None of the ten plants showed toxicity on the cells. The obtained results confirmed that Acacia karroo and possibly Rhoicissus tridentata subsp. cuneifolia have the potential of being used as antimicrobial agents in the treatment of STDs and UTIs. These results support and validate traditional use of medicinal plants studied.