Antimicrobial Properties of Medicinal Plants used among the Kipsigis Community in Kenya

Richard Kipserem Korir Chenuos

A thesis submitted in partial fulfillment for the Degree of Master of Science in Medical Microbiology in the Jomo Kenyatta University of Agriculture and Technology

2012

ABSTRACT

The use of plants for medicinal purposes is an important part of the culture and tradition in Africa and the world at large. Up to 80% of the world's population depends directly on traditional medicine for health care. The main aim of this study was to determine antimicrobial properties of selected medicinal plants used among the Kipsigis community in Kenya. The plant materials were collected and taken to the KEMRI for processing. Four medicinal plants extracts were screened against selected bacteria and fungi. Inhibition zones diameters, minimum inhibitory concentrations, phytochemical profile and toxicity of the plants extracts determined. The most active plant extract against bacteria isolates was *C. polycephala* hexane extracts which had an MIC of 3.125 $x10^2$ μg/ml against methicillin resistant *Staphylococcus aureus*. Water extracts of *C. polycephala* was toxic with CV of 23.75% and 31.56% at 1000mg/ml and 5000mg/ml, respectively. Dichloromethane extracts of *S. didymobotrya* killed 80% of mice at a dose of 5000 mg/kg and 40% at 1000 mg/kg. The extracts had different chemical compounds that are responsible for the activities against the microbes. Significant variability within groups of plants solvents and organisms at 95% confidence interval (>p 0.05) were found to be significant. In both the cell and acute toxicity, it was observed that extracts at high concentration and at a high dose are toxic. The antimicrobial activity of the plants under investigation demonstrated support for the claimed antimicrobial uses of the plants in the traditional medicine and provides scientific proof for their medicinal uses.