

Investigation on conservation need and bio activity of medicinal plants used in the management OF HIV/AIDS opportunistic infections in bukoba rural district, Tanzania

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The aim of this thesis was to evaluate the conservation need and efficacy of plants used in traditional medicine to manage Human Immunodeficiency Virus and Acquired Immunodeficiency Syndrome (HIV/AIDS) opportunistic infections in Bukoba rural district, Tanzania. Ethnobotanical surveys revealed that 75 plant species belonging to 66 genera and 41 families were used to treat one or more HIV/AIDS related infections in the district. Seven plant species were considered of highest priority for conservation in the district, followed by 10 species of secondary priority. In vitro antimicrobial assay of some crude extracts, semi-purified fractions and pure compounds revealed significant activity against laboratory bacteria and fungi of medical importance. A cytotoxicity test using brine shrimp lethality assay revealed that *Pseudospondias microcarpa* was the most toxic plant with LC50 (Lethal concentration of a substance that kills 50% of the test organisms) of 1.9 µg/ml (95% Confidence interval, 1.3-2.5 µg/ml), while *Zehneria scabra* was the least toxic plant with LC50 of 179.4 µg/ml (95% Confidence interval, 156.1-213.9 µg/ml). Chemical analysis of potential plant extracts and semi-purified fractions revealed different chemical compositions. Anticandida efficacy test of plant extracts using in vivo mice infection model portrayed a substantial dose dependency in all treatments made. At a dose of 400 mg/kg, *Capparis erythrocarpos* was the most effective with mice survival of 60% and organ burden clearance ranging from 64.0%- 99.9% ($P < 0.0001$). The study established the potential of traditionally used plants as a source of new drugs for the management of HIV/AIDS opportunistic infections. It also underscores the need to utilize bioactivity data in medicinal plant conservation efforts.