

Characterization and Evaluation of Antifungal and Phytochemical Activities of *Senna Didymobotrya* Leave Extracts

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Abstract

Conventional antifungal agents are expensive with numerous side effects. *Senna didymobotrya* plants are known to possess antifungal potential as extensively used by the people of central Kenya in the treatment of ringworm (*Tinea capitis*). The main aim of this study was to analyze the most expound bioactive compounds present in this plant's leaves crude extracts and determine its antifungal potency. Solvent extraction was done using water, methanol, chloroform, ethyl acetate and n-hexane solvents. The extracts were characterized for physical-chemical parameters, bio- metals, functional groups, phytochemicals and antifungal properties. Both water and methanol extracts were neutral while the rest of the extracts were slightly acidic. The extracts showed appreciable conductivities with methanol ($123.05 \pm 2.88 \text{mS}$), water ($73.43 \pm 34.85 \text{mS}$) and more solubility values at 25°C . The infrared spectra of the compounds indicated presence of carbonyl groups, alcohols, organometallic compounds and halides. All the *S. didymobotrya* leaves extracts contained essential bio-metals in considerable concentrations. Flavonoids, phenolic compounds and alkaloids were the most pronounced phytochemicals present, especially in methanol and water extracts. The chloroform and ethyl acetate extracts had the highest of mycelial growth inhibitions in the leaves extracts, (16mm and 15mm respectively). In conclusion, water, methanol and chloroform extracts were found to be more suitable for medicinal applications.

Key words: Antifungal agents; *Senna didymobotrya*; Leaves extracts; *Tinea capitis*