

## Comparative phytochemical screening and antioxidant activity of *Cardiospermum corindum* from Botswana

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The aim of this study was to compare the phytochemical composition and antioxidant activity of roots and shoots of *Cardiospermum corindum* collected from two geographically distant regions of Botswana (Tswapong Hills and Kgale Hills). Qualitative phytochemical analysis revealed the presence of alkaloids, reducing sugars, saponins, phytosterols, phenols, flavonoids, and terpenoids. Analysis by thin layer chromatography revealed that both shoots and roots of plant collected from the two respective regions showed no differences in phytochemical constituents. Total phenol and flavonoid contents were quantitatively estimated. Total phenolic content measured by Folin-Ciocalteu method varied from  $164.4 \pm 2.2$  to  $364.2 \pm 3.1$  mg/L (GAE) Gallic Acid Equivalents. The order of total phenol contents was  $[364.2 \pm 3.1]$  (Roots from Tswapong Hills) >  $[356.0 \pm 4.5]$  (Roots from Kgale Hills) >  $[169.1 \pm 2.6]$  (Shoots from Tswapong Hills) >  $[164.4 \pm 2.2]$  mg/L (GAE) (Shoots from Kgale Hills). The total flavonoid contents as measured by aluminum chloride method varied from  $56.7 \pm 1.1$  to  $124.1 \pm 1.5$  mg/L (QE) Quercetin Equivalents. The order of the total flavonoid contents were  $[124.1 \pm 1.5]$  (Shoots from Kgale Hills) >  $[118.8 \pm 2.6]$  (Shoots from Tswapong Hills) >  $[63.3 \pm 1.6]$  (Roots from Tswapong Hills) >  $[56.7 \pm 1.1]$  mg/L (QE) (Roots from Kgale Hills). The antioxidant activity as determined by the DPPH radical scavenging assay revealed that, at all tested concentrations, root extracts exhibited greater ( $\geq 86\%$ ) scavenging potency than shoot extracts ( $\leq 83\%$ ). A direct correlation between total phenolic content and free radical scavenging activity was revealed. This work has validated the use of this

plant as a health-improving tool. However, structural identification of the bioactive constituents should be carried out.

### Biography:

Professor Daniel Motlhanka has completed his PhD in Pharmacognosy from King's College, the University of London in the United Kingdom in 2005. He is currently the only Professor of Pharmacognosy in Botswana. A leading expert in ethnopharmacological and phytochemical studies including isolation and identification of compounds from indigenous useful plants of Botswana. He is Head of Department of Basic Sciences at the Botswana University of Agriculture and Natural Resources. He has published tremendously on Bioactivity profiles of medicinal and food plants of Botswana. Professor Motlhanka who is also a herbalist is an expert in plant-based extracts used to treat many ailments. He has made presentations in international conferences in Atlanta, South Carolina, North Carolina, Alabama, Florida, Manchester, London, Harrogate, Kent, Malaysia, India, Italy, Germany, Finland, Netherlands, Switzerland, Mauritius, Kenya, Pretoria, Durban, Capetown, Zambia and many seminars in Waterloo, London Bridge, St Thomas, Kew Gardens as well as a chain of local presentations in Botswana. Professor Motlhanka is a member of associations of Society of Economic Botany. Professor Motlhanka and his team in Botswana has formed an autonomous company "HERBS 4 YOU" that formulates and distributes herbal based products for hypertension, chronic fatigue, chronic joint pains, depression, diabetes and fertility improving formulations.