



ORIGINAL RESEARCH

A comparison of antioxidant and Fourier Transform Infrared Spectroscopy (FTIR) analysis on extracts of *Syzygium guineenses* (Myrtaceae)

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ABSTRACT

Background: *Syzygium guineenses*, (the most common and abundant *specie* in Nigeria) is a medicinal plant used by traditional practitioners in northern Nigeria for a variety of healing purposes.

Objective: The main objective of this project was to carry out a comparison of antioxidant activities and Fourier Transform Infrared Spectrophotometric (FTIR) analysis on both methanol and hexane leaf extracts of *S. guineenses*.

Methods: Phytochemical screening, Semi-quantitative DPPH (1,1-diphenyl-2-picrylhydrazyl)- dot blot assay and FTIR analysis were performed on both extracts to determine antioxidant activity and identify the functional groups present.

Results: Phytochemicals tested for, were observed to be more prominent in the methanol extract than hexane. The *in vitro* antioxidant assay also revealed a more intense yellow colour of inhibition in methanol extract than the hexane extract. The FTIR spectra revealed different characteristic peak values with various functional compounds in both extracts. The methanol extract displayed major peaks of absorption at 3341 cm⁻¹ (-OH) for alcohol, 1736 cm⁻¹ (C=O) carbonyl group, 1161.83 cm⁻¹, 1036.49 cm⁻¹ (C-O) of esters. Other absorption bands like 1452.25 cm⁻¹ and 1612.20 cm⁻¹ for alkenes were present in both extracts.

Conclusion: This result shows that the methanol extract of *S. guineenses* has a higher potential of phytochemicals, antioxidants and functional groups than the hexane extract.

Keywords: FTIR, *S. guineenses*, DPPH-Dot-blot assay, phytochemicals