

ANTIOXIDANT AND ANTIMICROBIAL ACTIVITIES OF *CYMBOPOGON SCHOENANTHUS* AND *GEIGERIA ALATA* EXTRACTS

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Background

Cymbopogon schoenanthus and *Geigeria alata* locally known as camel grass and Gud-gad are well known for their medicinal uses in Sudan. *C. schoenanthus* is used for urinary tract infections, as diuretic, antirheumatismal, antigastralgic, febrifuge, poultices for camel wounds, it cures intestinal troubles, acts against food poisoning and helps in digestion. It widely used as antispasmodic, sedative, antipyretic, anti-malarial, anti-helminthic, anti-parasitic, antifungal and anti-inflammatory agent. *Geigeria alata* is used by local healers in Sudan to treat diabetes, cough, antispasmodic in intestinal The present study was designed to assess the antioxidant and antimicrobial activities of *C. schoenanthus* and *G. alata*.

Methodology

The antibacterial activity of *C. schoenanthus* and *G. alata* extracts against gram negative (*Escherichia coli*) and gram positive (*Staphylococcus aureus*) bacteria was evaluated by using disc diffusion method. The antioxidant activity of the two plants extracts was determined using DPPH free-radical scavenging techniques.

Findings

The antibacterial activity of the crude ethanolic extracts of *C.schoenanthus* and *G. alata* aganist *E. coli* and *S. aureus* was found to be (10, 17 mm) and (23, 10 mm) respectively. The inhibition zones of *E. coli*, and *S. aureus* with the petroleum ether, chloroform ethyl acetate and methanolic fractions of *G. alata* were found to be (0, 12mm), (7,10 mm), (10, 20 mm) and (12, 27 mm) respectively compared to the activity of Ciprofloxacin standard drug with inhibition zone of (13, 27 mm) regarding the *E. coli* and *S. aureus* bacteria.

The antioxidant activity of the crude ethanolic extracts of *C.schoenanthus* and *G. alata* was found to be 75.10 ± 0.008 and 85.10 ± 0.005 respectively. Petroleum ether, chloroform ethyl acetate and methanolic fractions of *G. alata* represented the antioxidant activity of 24.06 ± 0.037, 53.94 ± 0.046, 84.20 ± 0.061, 82.57 ± 0.075 respectively. Where as the standard antioxidant activity (Gallic acid) revealed the activity of 80.80 ± 0.007.

Phytochemical screening of both *C.schoenanthus* and *G. alata* revealed the presence of tannins, sterols and terpenoids which are well known for their anti-microbial and antioxidant activities. Addition to the amount of these compounds are found to be higher in *G. alata* than in *C. schoenanthus* with the presence of saponins solely in *G. alata*, so the activity is higher in *G. alata*.

Conclusion

The study conclude the antioxidant and antimicrobial activities was found to be compatible with the traditional use of these two plants.

Biography

Ahmed Saadeldin is a pharmacist, graduated from the University of Medical Sciences and Technology in 2019, having a graduation project in the department of Pharmacognosy.

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