Phytochemicals, antioxidant and antimicrobial properties of *Senna alata* and *Senna tora* leaf extracts against bacterial strains causing skin infections

ABSTRACT

A study was carried out to screen for phytochemical constituents and assess the antioxidant and antimicrobial activities of *Senna alata* and *Senna tora* leaf extracts. The leaves were first dried at room temperature and 50°C in an oven prior to solvent extraction using ethanol and methanol. The *in-vitro* qualitative assays showed that both *S. alata* and *S. tora* leaf extracts contained bioactive and secondary metabolites components such as tannins, steroids, saponin, terpenoids, glycosides, flavonoids and phenols. The antioxidant activity and capacity test were carried out by conducting free radical of 2,2-diphenyl-1-picrylhydrazyl (DPPH) scavenging activity and Ferric reduction antioxidant plasma (FRAP) assays. Both assays showed *S. tora* leaf extract has higher antioxidant capacity than *S. alata* leaf extract. The efficacy of these leaf extracts were tested against skin pathogens through agar well diffusion method. *S. alata* extract showed an inhibition zone (1.15 –1.59 mm) against *Pseudomonas aeruginosa* while *S. tora* extracts exhibited a strong antimicrobial activity against *S. epidermidis* (inhibition zone of 12 –16.94 mm) followed by *P. aeruginosa* (inhibition zone of 1 –1.59 mm). Nonetheless, no inhibition zone was observed for *S. aureus* by both leaf extracts. The phytochemicals and antioxidant constituents as well as inhibitory potential on skin pathogens possessed by *S. alata* and *S. tora* leave highlighted their potential utilization in the development of natural drugs or cosmetics to treat skin related diseases or infections.

Keyword: *Senna alata*; *Senna tora*; Skin infections; Antioxidant; Phytochemical; Antimicrobial