

Methanolic extracts of *Aloe secundiflora* Engl. inhibits in vitro growth of tuberculosis and diarrhea-causing bacteria

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ABSTRACT

Background The emergence of resistance to antimicrobials by pathogens has reached crisis levels, calling for identification of alternative means to combat diseases. **Objective** To determine antimicrobial activity of crude methanolic extract of *Aloe secundiflora* Engl. from Lake Victoria region of Kenya. **Materials and Methods** Extract was tested against four strains of mycobacteria (*Mycobacterium tuberculosis*, *M. kansasii*, *M. fortuitum* and *M. smegmatis*), *Salmonella typhi*, *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Escherichia coli*, *Klebsiella pneumoniae* and a fungus *Candida albicans*. activity of the extract was determined using BACTECTM MGITTM 960 system. General antibacterial and antifungal activity was determined using standard procedures: zones of inhibition, Minimum Inhibitory Concentrations (MICs) and Minimum Bactericidal/Fungicidal Concentrations (MBCs/MFCs). **Results** The extract was potent against *M. fortuitum*, *M. smegmatis* and *M. kansasii* where it completely inhibited growth (Zero growth units (GUs)) in all the extract concentrations used. It gave strong antimycobacterial activity (157 GUs) against *M. tuberculosis*. It showed strong antimicrobial activity ($P \leq 0.05$), giving inhibition zones ≥ 9.00 mm against most microorganisms, such as *P. aeruginosa* (MIC 9.375 mg mL⁻¹ and MBC of 18.75 mg mL⁻¹), *E. coli* (both MIC and MBC of 18.75 mg mL⁻¹), *S. aureus* and *S. typhi* (both with MIC and MBC of 37.5 mg mL⁻¹). Preliminary phytochemistry revealed presence of terpenoids, flavonoids and tannins. **Conclusion** The data suggests that *Aloe secundiflora* could be a rich source of antimicrobial agents. The result gives scientific backing to its use by the local people of Lake Victoria region of Kenya, in the management of conditions associated with the tested microorganisms.

KEYWORDS

Aloe secundiflora Engl . BACTEC MGIT 960 . growth units . Lake Victoria region . tuberculosis

REFERENCES