Evaluation of leaf extracts of several tree species for activity against *Salmonella*


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**Introduction**

Handling and consumption of contaminated foods (meat, milk and eggs) are considered a major source of infection in humans. Gastroenteritis that is not self-limiting is mostly treated with a wide range of antibiotics. Indiscriminate use of these antibiotics has resulted in an upsurge of resistant and multi-resistant strains of bacteria. This complicates treatment, especially in patients with Human Immunodeficiency Virus (HIV), necessitating the search for novel, cheaper, safer and efficacious antibacterial products. Recent in vitro studies have revealed that many indigenous South African plants possess antimicrobial properties against gastrointestinal disorders and diarrhoea-causing organisms.

**Aim/objectives**

The aim of the study was to identify South African plant species with good antibacterial activity against *Salmonella* serovars and other intestinal pathogens.

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**Materials and Methods**

**PLANT SPECIES:** Protorhus longifolia, Seerum aepidocephala, Cissosma marmoricans, C. bracteatum, Kirkia wilmsii, Lastylospora alata, Nolteah africana, Bilhnia angustata, Brachychiton acerifolium and Brachychiton bidwillii

**EXTRACTANTS:** Methanol, 100% Ethanol, 30% Ethanol, Acreone, Hot water, Cold water

**Minimum Inhibitory Concentration (MIC):** Two-fold serial dilution method; *Staphylococcus aureus* (ATCC 29213), *Enterococcus faecalis* (ATCC 29242), *Bacillus cereus* (ATCC 27266), *Escherichia coli* (ATCC 25922), *Salmonella Typhimurium* (ATCC 32183) and *Pseudomonas aeruginosa* (ATCC 27853).

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**Results and Discussion**

- The average MIC values of the plant extracts against the different bacteria ranged from 0.2 mg/ml to 1.4 mg/ml.
- The Gram-positive bacteria (*S. aureus, B. cereus and E. faecalis*) were more susceptible to the plant extracts (Fig. 1) than the Gram-negative bacteria (*E. coli, S. Typhimurium and P. aeruginosa*): Fig. 2).
- *P. longifolia* and *L. alata* extracts were the most active with high total antimicrobial activity against nearly all the bacteria tested with MIC values as low as 0.02 mg/ml. *L. alata* was selected for further work to isolate compounds active against *Salmonella* species.

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**Conclusion**

These findings validate the traditional use of these selected plants and could be sources of alternatives for new treatment regimes in treating GIT disorders. Further investigation of potential safety and antibacterial compound isolation is in progress on *L. alata* which had promising activity.

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**References**


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![Protorhus longifolia](image-url)