

## **ABSTRACT**

Fifteen traditional medicinal plants, indigenous to southern Africa, that are used to treat various respiratory ailments were screened for their antimicrobial activity and their chemical profiles were documented. Acetone:methanol (1:1) extracts were prepared from the leaves, stems, roots, barks and thorns of the investigated plant species.

The antimicrobial activity was determined against pathogens associated with respiratory conditions *i.e.* *Moraxella catarrhalis*, *Bacillus cereus*, *Enterococcus faecalis*, *Klebsiella pneumoniae*, *Staphylococcus aureus*, *Candida albicans* and *Cryptococcus neoformans*. The MIC values ranged from 0.08 mg/ml to 12 mg/ml. The two pathogens against which the most number of extracts obtained MIC values that were  $\leq 1$  mg/ml were *Moraxella catarrhalis* (68% of the extracts) and *Bacillus cereus* (56% of the extracts). The plant extracts that obtained the five lowest average MIC values against the respiratory pathogens were the root extracts of *Terminalia sericea* (0.69 mg/ml), leaf and stem extract of *Chenopodium ambrosioides* (1.04 mg/ml), leaf, stem and flower extract of *Leucas martinicensis* (1.10 mg/ml), leaf extract of *Zanthoxylum davyi* (1.29 mg/ml) and the leaf and stem extracts of *Lantana rugosa* (1.32 mg/ml).

For the bioautographic assays, clear zones of inhibition were recorded for *Lantana rugosa* (leaves and stems) and *Vitex rehmannii* (leaves) against *Staphylococcus aureus* and *Moraxella catarrhalis*. The root extract of *Ziziphus mucronata* had a clear zone of inhibition against *Staphylococcus aureus*. The leaf and stem extracts of *Chenopodium ambrosioides* had a clear zone of inhibition against *Moraxella catarrhalis*.

The chemical profiles that were recorded for the plant extracts comprised of HPLC and TLC chromatograms. The HPLC and TLC profiles resulted in the separation of the chemical constituents thus providing a chemical fingerprint for the plant extracts. Flavonoids were tentatively identified for *Acacia sieberiana* (leaves), *Alepidea amatymbica* (roots), *Clematis oweniae* (leaves), *Clerodendrum glabrum* (leaves), *Heteromorpha arborescens* (bark), *Peucedanum caffrum* (roots B), *Vitex rehmannii* (leaves) and *Ziziphus mucronata* (leaves). The TLC chromatograms qualitatively displayed good separation of the compounds present in the plant extracts.

The antimicrobial activity recorded for the plant extracts validates their traditional uses to treat various respiratory infections and the chemical profiles provide a reference of the chemical profiles of the plant extracts that can be used in future investigations.