In - vitro antimicrobial activity of *Panchavalkala*, an ayurvedic herbal formula

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Introduction and Objectives: '*Panchavalkala*' is a combination of water extracts of five barks of medicinal plants which are widely used for the treatment of wounds in ayurvedic medicine. Three different combinations are commonly used as *Panchavalkala* in Sri Lanka. The current study was to evaluate the *in vitro* antimicrobial activity (AMA) of three different combinations of *Panchavalkala* against some selected common wound pathogens.

Methods: Three different combinations of *Panchavalkala* water extracts were prepared using pure raw material (8 parts concentrated to 1) by boiling and named as A (*Ficus benghalensis*, *Ficus racemosa*, *Ficus religiosa*, *Ficus arnottiana*, *Garcinia quaesita*), B (*F. benghalensis, F. racemosa*, *F. religiosa*, *Thespesia populnea*, *Abutilon indicum*), and C (*F. benghalensis, F. racemosa*, *F. religiosa*, *Chrysophyllum cainito*, *G. quaesita*). Screening for AMA was carried out using the agar well diffusion assay on standard isolates of *Escherichia coli*, *Pseudomonas aeruginosa*, both methicillin-sensitive *Staphylococcus aureus* (MSSA) and methicillin-resistant *Staphylococcus aureus* (MRSA), *Candida albicans* and clinical isolates of MSSA and MRSA.

Results: The results are summarized in the table below
Table: Summary of results

	Microorganism and ZOI in (mm) against standard isolates		Microorganism and ZOI in (mm) against clinical isolates	
Sample	MSSA	MRSA	MSSA	MRSA
A	4.81 ± 0.26	4.69 ± 0.26	2.85 ± 0.36	2.82 ± 0.51
B	4.25 ± 0.27	3.88 ± 0.23	2.55 ± 0.30	2.42 ± 0.50
C	5.12 ± 0.23	4.50 ± 0.38	2.92 ± 0.41	2.80 ± 0.52
Amoxicillin	4.50 ± 0.42		5.95 ± 1.14	
Vancomycin		4.00 ± 0.38		4.20 ± 0.33

There was a significant AMA by sample C (P=0.005) compared to amoxicillin as the positive control on standard isolate *S. aureus*. Sample A (P=0.001) and C (P=0.02) showed significant AMA against standard isolate MRSA compared to vancomycin. None of the combinations of *Panchavalkala* had AMA against *E. coli*, *P. aeruginosa* and *C. albicans*.

Conclusions: All three combinations of *Panchavalkala* showed *in vitro* AMA against *S. aureus* including MRSA. The activity was better against standard isolates compared to clinical isolates. *Panchavalkala* had no inhibition against *E. coli*, *P. aeruginosa* and *C. albicans*.

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