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MEETING ABSTRACT

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Antimicrobial properties of Indian traditional medicinal polyherbal formulation

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Background: Herbal medicine has existed worldwide since ancient times. Pharmacologically active constituents of many single Ayurvedic herbs show antibacterial, anti-inflammatory and antiaging properties, but there is an obvious need to do a systematic research on existing formulations. Ayurvedic herbal formulations contain many phytochemical constituents, which work synergistically with each other in producing pharmacological action [1]. It is necessary to prove the antibacterial efficacy of complex formulations, which is especially important for drug resistant bacteria treatment.

Objectives: A polyherbal formulation, Jathyadi Thailam, based on 13 herbs infusion in sesame oil, is used in traditional Indian medicine for chronic wounds and burns healing. The aim of this study was to perform an antibacterial testing *in vitro*, with methods modification for Arya Vaidya Pharmacy (AVP). The patented formulation should be tested in order to find the most effective antibacterial component combination, extracted by different methods.

Methods: Polar and nonpolar fractions were extracted using the Sohlet extraction procedure. The antibacterial efficacy of the crude herbal extract was tested by the agar dilution method and by the microdilution method for most common isolates from diabetic wounds. Both reference strains and clinical isolates were tested. Clinical isolates were collected from diabetic foot ulcers from the Latvian Riga East University Hospital.

Results: Equal inhibitory effect was shown by crude herbal extract fractions for susceptible *Staphylococcus aureus* 2848, *S. epidermidis* (BF+) and *Enterococcus faecalis* reference strains for both agar dilution and broth dilution methods (Table 1).

Table 1: Minimal bactericidal concentratons (mg/ml) of AVP polar and nonpolar extract (broth microdilution method).

Reference strains:	MBC (AVP polar crude extract)	(AVP nonpolar crude extract)
S. aureus ATCC 2848	7.78	7.78
MRSA ATCC 38592	15.56	31.12
S. epidermidis (BF+)	1.95	1.95
E. faecalis 29212	15.56	15.56
E. coli ATCC 25 922	125.00	No inhibition
P. aeruginosa ATCC 2843	No inhibition	No inhibition
P. aeruginosa MDR	–	62.25
P. mirabilis ATCC 432 351	No inhibition	No inhibition
K. pneumonia ATCC 2558	No inhibition	125.00

Conclusions: AVP formulation is more effective for Gram-positive bacteria than for Gram-negative bacteria. Further research is necessary to isolate fractions with higher antimicrobial activity of the formulation for Gram-negative bacteria.

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