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Formulation of a *Garcinia zeylanica* herbal aqueous cream as a potential antiseptic and determination of the antimicrobial activity *in vitro*

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Objectives: To formulate and evaluate an herbal aqueous cream using the aqueous extract of dried pericarp of *Garcinia zeylanica* and determine the antimicrobial activity *in-vitro*.

Methods: Dried pericarps of *Garcinia zeylanica* (60g) were boiled down from 1440 ml to 240 ml to obtain neat concentration following Ayurveda practice. Qualitative phytochemical analysis was done using standard methods. Three herbal aqueous creams were formulated containing 30%, 40% and 50% emulsifying ointment base respectively, according to British Pharmacopoeia 2013. The final extract concentration in all formulations corresponded to neat concentration. The color, odor, phase separation, pH and stability, bacterial loads and antimicrobial activity were determined at 0, 1 and 2 months at room temperature. Antimicrobial activity was tested against *Staphylococcus aureus* (ATCC 25923), *Escherichia coli* (ATCC 25922), *Pseudomonas aeruginosa* (ATCC 27853), clinical isolates; *Klebsiella pneumoniae* and *Acinetobacter baumannii* using the well diffusion method. Zones of inhibition (ZOI) of triplicate experiments were recorded and average ZOI calculated.

Results: The qualitative phytochemical analysis of aqueous extract confirmed the presence of phytochemicals including flavanoids, carbohydrates, tannins and saponins. The formulation containing 40% ointment base had appropriate physical properties and was selected for further study. The physical and microbiological evaluation indicated good stability and antimicrobial activity of the formulation. Average ZOI obtained were *Staphylococcus aureus* (11.67mm), *Escherichia coli* (12mm), *Klebsiella pneumoniae* (10.33mm), *Acinetobacter baumannii* (11.67mm) and *Pseudomonas aeruginosa* (11.33mm) after two months at room temperature. No bacterial contamination of the formulated ointment was detected.

Conclusions: *Garcinia zeylanica* aqueous cream shows good stability and antimicrobial activity against tested pathogens during the time period tested and should be evaluated further.

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Optimization of a real time PCR for quantification of *Leptospira* bacterial loads in patients using SYBR green based real time PCR

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Objective: This study aimed to optimize a quantitative SYBR green based *Sec Y* real time PCR assay for *Leptospira* and establishment of a standard curve for detection of leptospiral genome copy numbers in patient samples.

Methods: To generate the standard curve, DNA was extracted from cultures of *Leptospira interrogans* serovar Manilae using QIAamp DNA blood mini kit (QIAGEN, Germany) and quantified by NanoDrop. *Leptospira* copy number was calculated based on published genomic size to construct a standard curve with tenfold serial dilutions of genomic DNA of *Leptospira interrogans*. Optimization of real time SYBR green *Sec Y* PCR was