

A STUDY OF ANTIMICROBIAL PROPERTIES
OF SOAP CONTAINING
Coscinium fenestratum (Wenival)

by

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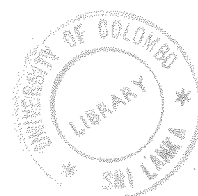
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ABSTRACT

A study was undertaken to assess antimicrobial properties of soap containing stem bark of *Coscinium fenestratum* (Menispermaceae) in order to establish the possibility of using in cosmetic formulations as antiseptic substance. The methanolic extract of *C. fenestratum* and the major alkaloid isolated as berberine hydrochloride were tested for antimicrobial activities against *Staphylococcus aureus*, *Clostridium sporogenes*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Candida albicans*, *Trichophyton rubrum*, *Trichophyton mentagrophytes* and *Microsporum gypseum* *in vitro* by the agar diffusion method. MICs were determined for the bacterial and fungi species using agar dilution method. Three soap formulas were prepared incorporating 10%, 5% and 2% powdered stem of *C. fenestratum* and investigated antimicrobial properties against bacterial and fungi species.

The methanol extract of *C. fenestratum* and its alkaloid berberine (hydrochloride) revealed selective inhibitory action on aerobic bacteria. The anaerobic bacteria of *Clostridium sporogenes* showed strong inhibitory effect with MICs of 0.10 mg/ml and 0.22 mg/ml for the methanol extract and berberine hydrochloride respectively and these values were significantly lower than that obtained for the other aerobic organisms tested. The MIC of berberine hydrochloride was 0.21 mg/ml for the gram positive aerobic bacterium of *Staphylococcus aureus*. However gram negative bacteria of *Escherichia coli* had a MIC of 1.5mg/ml while *Pseudomonas aeruginosa* was resistant even at 5mg/ml concentration. Further in the activity study of yeast and mould, a noteworthy activity was shown against dermatophytes



species for berberine hydrochloride. But the activity against *Candida albicans* was less comparatively having MIC of 4.5mg/ml.

Toilet soap formulation containing 10% *C. fenestratum* was active only for *Clostridium sporogenes* where as soap formulations containing 5% and 2% plant materials were not effective on bacterial strains tested. However, growth inhibitory effect of *C. albicans* was not related to the concentration of *C. fenestratum* incorporated to the soap base.

The study on in use concentrations did not reveal any inhibitory action on bacterial strains tested. As the soap samples and the control samples revealed similar activity against dermatophytic fungi and *C. albicans*, the real effectiveness of the *C. fenestratum* in the soap formulations was not conclusive.