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Efficacy of medicinal plant extracts as potential antimicrobial agents and its application in the production of health care textiles

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In health-related professions, protection from pathogens is a growing concern and textiles with antimicrobial properties are desirable. General oxidants and some membrane disrupters offer the greatest potential as antimicrobial agents in textiles. Heavy metals and protein denaturants are effective but toxicity problems are a concern. The present investigation has been focused to reveal the efficacy of selected medicinal plant extracts in optimization and production of antimicrobial textiles involving standard tests viz., micro encapsulation techniques, agar diffusion method and modified Hohenstein. Antimicrobial finishing process was enhanced by addition of polymers and viscosity increasing agents to the fabric. Minimum inhibitory concentration (MIC) values represent the minimum amount of extracts of biomaterials for surface application on fabric is ranging from 20 to 55 µg/ml. The antimicrobial activity of these samples have been analysed and compared with the activity of the cotton fabric treated with chitosan (control). From the results, it is clear that *Costus speciosus* has the highest effect followed by *Azadirachta indica* < *Curcuma longa* < *Nymphaea nelumbo* against the pathogenic microbes from hospital zone. Hence, the present investigation confirms the viability of medicinal plant extracts as potential antimicrobial agents for antimicrobial finishing.

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