

# Antibacterial finishing of cotton fabric with clove oil microcapsules

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■ **ABSTRACT** : The present study was conducted to develop a microencapsulated antibacterial finish using clove essential oil for cotton fabric. Microcapsules of clove essential oil (*Syzygium fragranceticum*) were developed with phase separation - complex coacervation technique using five concentrations of essential oil for application on cotton fabric. The finished cotton fabric was tested for SEM analysis and anti-bacterial finish using standard test methods. Findings of SEM analysis revealed that small spherical shape microcapsules in the treated samples were located at interstices between the fibres and on the fibre surface. The zone of inhibition was found maximum at concentration 5 of MCCL treated cotton fabric before wash with  $12.5 \text{ mm} \pm 1.5$  and  $12.33 \text{ mm} \pm 0.57$  (Mean and SD) against *S. aureus* and *E. coli*. MCCL oil treated cotton fabric showed the good wash durability against *S. aureus* as compared to *E.coli*. The antimicrobial property decreased with increasing number of wash cycles.

■ **KEY WORDS**: Antimicrobial, Finishing, Cotton, Clove, Oil, Microcapsule

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