

# Utilization of plant material for antimicrobial finish on cotton fabric

■ Kirti Saxena, Nargis Fatima and Ekta Sharma

Received: 19.11.2017; Revised: 04.04.2018; Accepted: 22.04.2018

■ **ABSTRACT** : Textile researchers and industrialists face many challenges because of increasing global competition in textiles. Consumers also give the great appreciate for the high value added apparel fabrics with novel finishes. As all over the world, consumer demands for the products which have the functionality. Some of the examples of functionality are product attributes such as wrinkle resistance, soil release, water repellency, flame retardancy and resistance to microbial invasion. Among these, antimicrobial finish is considered as the important parameter for the functional textiles which find a variety of application such as health and hygiene products, specially the garments worn close to skin and several medical applications, such as infection control. The present study was undertaken with the objectives to apply the antimicrobial finish on cotton fabric, to prepare utility articles from the developed antimicrobial finished cotton fabric and calculate their cost. Extract of *Tulsi* leaves and Onion skin were used as antimicrobial agent. To apply the antimicrobial finish two methods *i.e.* direct and microencapsulation were used. After the application of finish, treated fabrics were tested under standard test method to check the percentage of quantitative bacterial reduction and qualitative assessment of antimicrobial activity. Both the methods showed good antimicrobial properties. Wash fastness results showed that microencapsulated fabric showed good antimicrobial property even after ten washes so it was found that microencapsulated fabric was more durable than the fabric treated with direct application method. Physical properties such as crease recovery, drapability, stiffness property and thickness of the fabric were also assessed. The cost of utility articles which were prepared by the treated fabric were kitchen apron was Rs. 727.5/- per piece, kitchen gloves was Rs. 1350/- per pair, napkin set was Rs. 707.5/- per piece and mask was Rs. 1331.5/- per piece.

■ **KEY WORDS**: Antimicrobial finish, Cotton fabric, *Tulsi*, Onion skin, Direct method, Microencapsulation method

■ **HOW TO CITE THIS PAPER** : Saxena, Kirti, Fatima, Nargis and Sharma, Ekta (2018). Utilization of plant material for antimicrobial finish on cotton fabric. *Asian J. Home Sci.*, **13** (1) : 207-213, DOI: 10.15740/HAS/AJHS/13.1/207-213. Copyright@ 2018: Hind Agri-Horticultural Society.

See end of the paper for authors' affiliations →

**Nargis Fatima**

Department of Textiles and  
Apparel Designing, Ethelind  
School of Home Science, Sam  
Higginbottom Institute of  
Agriculture, Technology and  
Sciences, Allahabad (U.P.) India  
Email : fatima\_nargis@  
rediffmail.com