

# Deodorizing and Antibacterial Performance of Cotton, Silk, Wool Fabrics Dyed with Pomegranate (*Punica granatum L.*) Extracts

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## Abstract

To improve the deodorizing and antibacterial performance of various fabrics (cotton, silk and wool) dyed with pomegranate (*Punica granatum L.*) extract without mordants, natural colorant solutions, which were extracted from pomegranate using water as an extractant at 90°C for 90 min with a various liquor ratio (solid natural colorant material/solvent water, weight ratio) from 1:100 to 1:5 were used. To achieve the highest K/S and the deodorizing and antibacterial performance, the best liquor ratio, dyeing bath ratio, dyeing temperature and dyeing time were found to be 1:10, 1:50, 80°C and 60 min, respectively. The deodorizing performance of dyed cotton, silk and wool fabrics against acetic acid vapor were found to be 95, 70, 90%, respectively. However, all the dyed fabrics displayed outstanding deodorizing performance (99%) against ammonia gas and antibacterial performance (bacteriostatic reduction rate: 99.9%) against *Staphylococcus aureus* and *Klebsiella pneumoniae* (bacteriostatic reduction rate: 99.9%). It is worth noting that pomegranate (*Punica granatum L.*) colorants notably enhanced the deodorizing and antibacterial performance of cotton, silk and wool fabrics.

## References

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