

## Strategy to reduce the characteristic yellowing of antibacterial fabrics treated with silver nanoparticles

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The competitive market of textile materials has driven industries to look for solutions that add values to their products. A strategy adopted by these industries to reach this goal is the use of additives to functionalize the fabrics. Different classes of additives are available in the market, but the antibacterial are of special interest. Fabrics treated with this sort of additive can avoid bacterial growths which may be responsible for cross contaminations, infections and the onset of bad odors. Among the antibacterial additives used for this purpose, silver nanoparticles have gained increasing attention due to the powerful and long-term bactericidal action that the treated fabrics can exhibit even when extremely small amounts of this product is used. Although the proved efficiency of silver nanoparticles against a wide variety of bacteria, the characteristic color changes of some clear dyed fabrics and mainly the yellowing of white fabrics appears as a barrier for the increase in the consumption of this sort of antibacterial additive by industries. The present work presents a strategy to reduce the yellowing effect in white fabrics through the adding of optical brighteners in the silver colloids. Colorimetric results showed that the use of these chemical compounds significantly reduced the yellowness of treated fabrics composed by synthetic and a mix of cotton and synthetic fibers. The proposed strategy can be successfully applied in industrial textile processes once the stability and antibacterial properties of the colloidal silver were not compromised by the adding of the optical brightener.

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