Title: Multifunctional cotton fabric loaded with Ce doped ZnO nanorods

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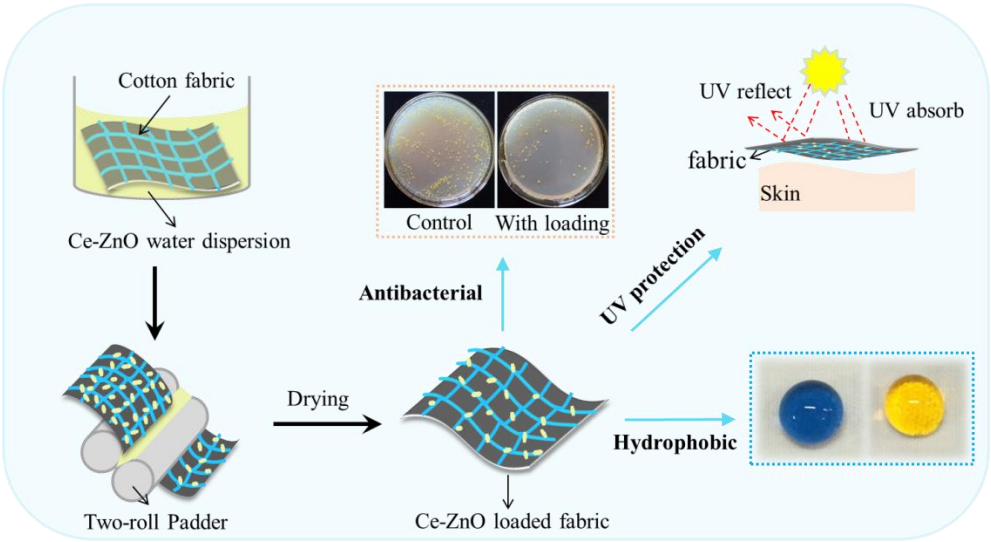

Ce doped ZnO (Ce-ZnO) nano materials with different Ce molar content (0%, 1.0%, 1.5%, 2.0%, 2.5% and 3.0%) were prepared via simple chemical precipitation method. The morphologies of ZnO and Ce-ZnO were rod like and the size of nanorods was decreased with the increase of doping amount. All the simples were treated on the cotton fabric. Ce-ZnO nano powders can endow the fabric with excellent hydrophobicity, UV resistance and broad spectrum antibacterial activity against Gram positive, negative bacteria and fungus. Fabric treated with Ce-ZnO has a better performance than ZnO in the hydrophobic and UV resistance, and a more effective antibacterial activity against to S. aureus and C. albicans, but a lower activity against to E.coli.