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ANTIMICROBIAL EFFICACY OF NANO ZINC OXIDE COATED CROSS LINKED CELLULOSE

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This study is concerned with assessing the antimicrobial efficacy of zinc oxide (ZnO) nanoparticle attached cotton fabric.

The upper layer of the cellulose cotton fabric was carboxymethylated in two successive steps, in sodium hydroxide and in monochloroacetic acid. The highly active carboxylic group was introduced to the terminal end of the carboxymethylated cellulose by treating with 1% HCl solution. The nano ZnO was linked to the extreme end of the surface-active cellulose surface via the carboxylic linkage. The antibacterial activity of the nano ZnO coated and uncoated cotton fabric was investigated using the agar diffusion method. Gram positive (*Staphylococcus aureus*) and gram negative (*Escherichia coli*) bacteria were used as test organisms in the antibacterial activity assessment. The washing durability was examined up to 50 washing cycles

An excellent bacterial inhibitory efficacy was exhibited by the finished fabric against *Staphylococcus aureus* and *Escherichia coli* as opposed to uncoated cotton fabric. A significant durability was observed up to 50 washing cycles.