

Antibacterial and antibiofilm properties of ZnO nanoparticles synthesis using gum arabic as a potential new generation antibacterial agent

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ABSTRACT

This study aimed to investigate the antibacterial properties of gum arabic-ZnO nanoparticles. The antibacterial and antibiofilm activities of gum arabic-ZnO nanoparticles were evaluated against *Staphylococcus aureus* and *Escherichia coli*. The minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) value of gum arabic-ZnO nanoparticles for *S. aureus* and *E. coli* was 31.25 lg/mL, 62.5 lg/mL and 62.5 lg /mL, 125 mg/mL respectively. At higher concentrations above 500 lg/mL, the percentage of toxicity to biofilm was observed more than 50% for both *S. aureus* and *E. coli*. Therefore gum arabic-ZnO nanoparticles are suggested as a natural new generation antibacterial agent.

KEYWORDS: Gum arabic-ZnO nanoparticle; Gum arabic; Antibacterial; Antibiofilm; *Staphylococcus aureus*; *Escherichia coli*

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