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# Synthesis and Characterization of Casein/ Carboxymethyl Cellulose Nanocomposite for Enhanced Antibacterial Activity

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**Abstract:** *In the present work, CMC (Carboxymethyl cellulose) and CAN(Casein) blend nanocomposite hybrid film containing green synthesized Gold nanoparticles were Synthesised. The aqueous bark extract of SyziguimCumini (Java Plum) was used in this study as a stabilizing and reducing agent for synthesizing Au nanoparticles. The efficient incorporation of Au nanoparticles in the polymer matrix has been confirmed by IR and UV–Visible spectroscopy. The morphology of the sample has been studied using Scanning Electron Microscopy. The biological studies of the above nanocomposite were evaluated in vitro by using surface inoculation method. The result indicate that antibacterial activity of CAN/CMC blend has been enhanced by the incorporation of nanoparticles in the polymer matrix and it can be used for the application of food packaging..*

**Keywords:** Casein, Carboxymethyl Cellulose, Gold nanoparticles, Antibacterial study

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