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SYNTHESIS OF SILVER NANOPARTICLES USING AGAR GEL WASTE FROM LABORATORY FOR CLINICAL APPLICATION: AN APPROACH FOR LAB WASTE TO CLINICAL WEALTH

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Use of agar gel is one of the primary tool for visualising DNA and other biomolecules in current day laboratories. However, its regular usage compiles it as a waste since it is not reusable due to presence of small amount of ethidium bromide (EtBr). Intensive production of these wastes has raised concern for their toxicity management and recycling. With this study, we intended to use these wastes for the synthesis of silver nanoparticles for biomedical applications. Silver nanoparticles were synthesized using waste agar gel and UV exposure. The synthesized nanoparticles were characterised for their physiochemical properties and checked experimentally for their biomedical properties like antibacterial application and biocompatibility. Moreover, due to integration of gel and silver nanoparticles, the gel has been tested for their application in wound healing and skin burns. Successful synthesis of stable AgNP was achieved with size of 40-50 nm. Effective antibacterial activity was found against E.coli and an effective wound healing activity was observed against skin cell lines. This study is directed towards formulation of a wound healing antibacterial gel using lab wastes.

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