

Formulation and Evaluation of Silver Nanoparticles as Drug Carrier for Cancer Therapy

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Abstract : Silver nanoparticles (AgNPs) have been used in cancer therapy, and the area of nanomedicine has made unheard-of strides in recent years. A thorough summary of the development and assessment of AgNPs for their possible use in the fight against cancer is the goal of this review. Targeted delivery methods have been designed to optimise therapeutic efficacy by using AgNPs' distinct physicochemical features, such as their size, shape, and surface chemistry. Firstly, the study provides an overview of the several synthesis routes—both chemical and green—that are used to create AgNPs. Natural extracts and biomolecules are used in green synthesis techniques, which are becoming more and more popular since they are biocompatible and environmentally benign. It is next described how synthesis factors affect the physicochemical properties of AgNPs, emphasising how crucial it is to modify these parameters for particular therapeutic uses. An extensive analysis is conducted on the anticancer potential of AgNPs, emphasising their capacity to trigger apoptosis, impede angiogenesis, and alter cellular signalling pathways. The analysis also investigates the potential benefits of combining AgNPs with currently used cancer treatment techniques, including radiation and chemotherapy. AgNPs' safety profile for use in clinical settings is clarified by a comprehensive evaluation of their cytotoxicity and biocompatibility.

Keywords : silver nanoparticles, cancer, nanocarrier system, targeted delivery

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