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(57) Abstract :

The present invention relates to a low cost novel method for the synthesis of Green tea extract -rich in Catechins and Vitamin E that entrapped in natural biodegradable Chitosan based Nanogel and exhibit higher cytotoxic therapeutic effect. Most specifically, this invention relates to Chitosan based nanogel that exhibits biodegradable property and biocompatible character and possess negligible toxicity. This biodegradable nanogel formulation when used topically (passive targeting) reaches into the targeted cell (skin cancer cell) via hair follicle pathway or stratum corneum pathway exhibits controlled release pH triggered mechanism of natural Catechins. The above nanogel system reveals the utmost novelty of synthesizing the bio friendly topical formulation for skin cancer. Currently no natural compound loaded topical system has been introduced for the management of skin cancer (only 5 fluorouracil loaded gel has come for the treatment of squamous cell carcinoma SCC which shows high toxicity and frequent dosing at high dose). This innovation bears great advantage of site specific local delivery of natural compound, since green tea consist Catechins which shows potent anticancer and antioxidant activity along with Vitamin E as a natural apoptosis inducer by free radicals scavenging mechanism. We have developed & explore the gel system using natural Green Tea extract rich Catechins and Chitosan against skin cancer. Therefore, developing and synthesizing this Chitosan Green Tea extract- Vitamin E bio friendly nanogel is the foundation step in the skin cancer treatment by topical delivery of nanogel which is natural, biodegradable, non- toxic and possesses patient compliance features compared to the Oral or conventional dosage form.

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