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Phyto-formulations for matrix metalloproteinases (MMPs): Novel targets in UV radiation induced skin carcinoma

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The continuous exposure of skin to ultraviolet radiations generates reactive oxygen species leading to photoaging that causes degradation of dermal collagen and degeneration of elastic fibers. These fibres provide mechanical strength to the skin. In order to maintain the appearance of the skin, a complete understanding of the mechanism behind skin cellular degradation is desired, so that a better cosmetic formulation can be formulated. The studies has been shown that macrophages are crucially involved in skin Carcinoma and express significantly higher levels of M1 (CD40, CD127) and M2 (arginase I) markers as well as higher levels of MMP-9, a pivotal enzyme in cancerous matrix remodeling and cancerous invasion, than macrophages from the basal cell carcinomas. These macrophages represents different receptors like folic acid receptors which was exploited to know the extent of efficacy for delivery of phyto-formulations

containing nanoparticles, transferosomes, liposomes etc. to cure carcinoma. The flavanoidal rich natural bioactives have been extensively incorporated in a suitable base and have proven their potential as a topical photoprotectants but their activity remained restricted due to poor solubility profile. Now researchers are working to design the Novel Targeted formulations to deliver these natural flavanoidal drugs to improve its efficacy and ultimately skin properties. In current years, The focus area of work is on some traditionally used bioactive moieties as natural matrix metalloproteinases inhibitors (MMPIs) and emphasized on more extensive and specific studies, so that a good combination of natural as well as synthetic MMPIs with the conventional drugs can be used for treating UV radiations induced ailments.

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