Melatonin vitamin C-based nanovesicles for treatment of androgenic alopecia: Design, characterization and clinical appraisal

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Abstract

The present study aimed to develop vitamin C based nanovesicles (aspasomes) loaded with the antioxidant melatonin, as a novel cosmeceutical to be used for clinical treatment of androgenic alopecia (AGA). Aspasomes were assessed regarding their particle size, charge, drug entrapment, anti-oxidant potential, physical stability, in vitro release, surface morphology, and ex-vivo skin deposition. Clinically, melatonin aspasomes were tested on AGA patients, and assessed by evaluating the degree of improvement through conduction of hair pull test, histometric analysis and dermoscopic evaluation. Results revealed that melatonin aspasomes showed favorable pharmaceutical properties in addition to clinically promising results compared to melatonin solution, manifested by increased hair thickness, density and decreased hair loss, with photographic improvement in most patients. Therefore, melatonin vitamin C-based aspasomes were clinically auspicious in the treatment of AGA, hence, paving the way for their further exploration in other oxidative-dependent dermatological diseases.

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