

NANO-VESICLES APPROACHES IN THE DELIVERY OF 5- α REDUCTASE ENZYME INHIBITOR FOR IN-VIVO HAIR GROWTH ACTIVITY

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Androgenetic alopecia (AGA) is one of the most common reason for dermatological consultation. AGA affects both genders in a characteristic pattern of hair loss from the scalp (Male pattern hair loss for male and female pattern hair loss or female). So far the most promising approaches in the treatment of baldness in men are drug therapies, such as topically used minoxidil and systemic administration of finasteride. Changes of circulating androgens (testosterone) to the more potent androgen (5 α -dihydrotestosterone) by the metabolism process are one of the causes of the AGA. Dermoscopy/trichoscopy has emerged as a useful diagnostic tool for AGA. In the process of AGA, follicles on the scalp undergo anagen (transformation from long growth) and telogen (short rest) cycles, to long rest and short growth cycles. This process causes the progressive miniaturisation of follicles. These changes are dependents on androgen, and require some inheritance genes. Only one of these genes, which encode the androgen receptor (AR), has been identified. Hair density was the main factor of growth considered, followed by general hair growth appearance of the rat. Each group contained four rats in experiments carried out to obtain optimized results. Hair density was evaluated at the beginning of the study and 21 days after the last dosing of testosterone injection as well as formulations. Experimental results showed that the topically formulated DMSO nano-vesicle formulation was more effective than the other formulation and it is achieving an increased rate of hair growth and increased hair density. There was significant difference in hair density and thickness change between all the groups. In conclusion, drug on the category of 5-alpha reductase enzyme inhibitor 5 mg daily administration was effective in rats with androgenic alopecia.