



Anti-Aging Creams: An Evidence Based Skin Care Production

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DESCRIPTION

Skin ageing is the result of cellular DNA and protein damage, which leads to a continuous degradation process. Sequential skin ageing and photo-ageing are two distinct categories under which the ageing process is divided. Both categories have unique historical and clinical characteristics. Sequential skin ageing is a universal and predictable process that is characterized by a change in how the skin functions physiologically. As we age, keratinocytes lose their capacity to create a functional stratum corneum and their rate of neutral lipid production slows down, leaving behind dry, wrinkled skin. In contrast, excessive exposure to sunlight's UV radiation results in photo ageing. Dry, pale, superficial skin that exhibits fine wrinkles and deep furrows due to the disorder of the epidermal and dermal components brought on by elastosis and heliodermatitis are its defining characteristics. Plants and herbs have previously shown promise as a supplemental medical tool.

Antioxidant N-acetylcysteine, which has thiol/sulfhydryl groups, is currently being researched as a potential anti-aging cream ingredient. The objective of the study was to examine N-stability acetylcysteine's and antioxidant efficacy in anti-aging creams created with and without a transfersome carrier system. Accelerated, centrifugal, and cyclic stability tests were used to evaluate stability. Additionally, *in vitro* penetration was assessed using Franz diffusion cells, and antioxidant activity was assessed using the DiPhenylPicrylHydrazyl technique. High-performance liquid chromatography with ultraviolet-visible detection at a wavelength of 214 nm, a flow rate of 1.0 mL/min, an injection volume of 5 L, and a mobile phase of phosphate buffer pH 3.0 was used to analyse N-acetylcysteine.

Phase separation or colour change during the N-acetylcysteine transfersome and non-transfersome cream preparation did not change color or show phase separation during the cycling and centrifugal tests. N-acetylcysteine demonstrated significant antioxidant activity in both the transfersome and non-transfersome

cream preparations, with half-maximal inhibitory doses of 26.90 g/mL and 38.63 g/mL, respectively. The cumulative amount of N-acetylcysteine that was penetrated was 7355.13 g/cm² (flux of 845.67 g/cm²h) in the transfersome cream and 4677.61 g/cm² (flux of 533.33 g/cm²h) in the non-transfersome cream, according to an *in vitro* penetration test employing Franz diffusion cells. The findings of the *in vitro* penetration test demonstrated that, in comparison to creams without transfersome formulations, the cumulative amount and flux of N-acetylcysteine that was penetrated by the former increased.

The objective of this study was to manufacture and assess the anti-aging benefits of a topical cream containing milk thistle (*Silybum marianum*) extract against its vehicle (Base), which served as the control. By entrapping in the inner aqueous phase of w/o emulsion, a base containing no extract and a formulation containing 4% concentrated extract of *Silybum marianum* were created.

To forecast their stability, the base and formulation were each kept at four different temperatures for eight weeks: 8°C, 0.1°C (in the refrigerator), 25°C, 0.1°C, and 40°C, 0.1°C, and 40°C with 75% RH (in the incubator). Color, smell, emulsion type, electrical conductivity, liquefaction, and pH were the evaluation criteria. After an 8-week *in-vitro* trial period, creams were shown to be stable in their organoleptic properties. Effects on skin moisture and Trans Epidermal Water Loss (TEWL) from the formulation and base were assessed. While the formulation had a substantial impact on skin moisture and TEWL, the base had a modest (p0.05) effect. Additionally assessed were the Surface Evaluation of Live Skin (SELS) indices SE_r, SE_{sc}, SE_{sm}, and SE_w, which all demonstrated a significant drop, indicating that the product may have antiaging properties.

The main pigments in pomegranate arils are antioxidant chemicals called anthocyanins. As an important factor in the ageing process and skin degeneration, anthocyanins may be able to protect the aged skin brought on by oxidant exposure.

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