Clinically Visible Improvements of Photodamaged Skin with Topical Micro-Encapsulated Retinol

ULTRACEUTICALS

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Poster ID : 338

Introduction:

INTRINSIC AGEING	EXTRINSIC AGEING
GENETICS	UV RAYS
(-) CELL TURNOVER	POLLUTION
(-) FIBER PRODUCTION	FREE RADICALS
(+) FIBER DESTRUCTION	SMOKING
(+) MMPS	ALCOHOL
INFLAMMATION	OXIDATIVE STRESS
GLYCATION + AGE	LACK OF SLEEP
(+) FREE RADICALS	LIFESTYLE
(-) NATURAL ANTIOXIDANTS	DIET
HORMONAL CHANGES	ENVIRONMENT
(+) DNA MUTATIONS	INFLAMMATION
(+) DNA REPAIR	STRESS
ACCUMULATION OF WASTE	SLEEP DEPRIVATION

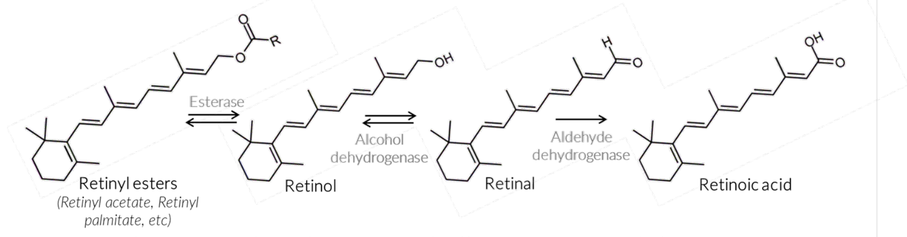
SKIN AGEING

The most profound changes due to photoageing occur in the dermis, where photodamage is characterized by degeneration of collagen and deposition of abnormal elastotic material reflected mainly by wrinkles and fine lines.

Retinol is the pure form of Vitamin A and is the most effective vitamin for anti-ageing treatment as it has the remarkable ability to stimulate collagen production, accelerate cell reproduction, normalise skin keratinization, improve hyperpigmentation & treat acne.

Retinol is a polyunsaturated compound with C=C double bonds and as such is susceptible oxidative degradation. Retinol is sensitive to light, oxygen, heavy metals and heat and therefore, would be manufactured under inert gas and packed in oxygen- and light-impermeable containers.

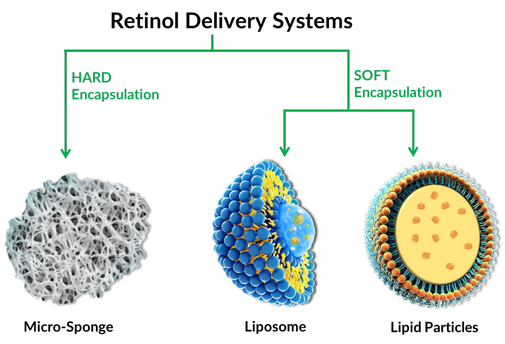
Vitamin A analogs

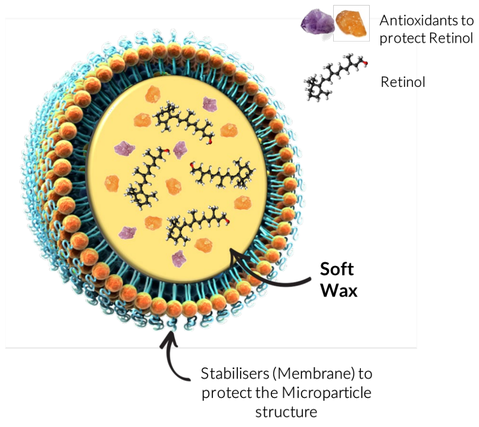


Although Retinol is a superstar ingredient for the skin, it is challenging to stabilise to maintain potency until usage.

Ultra-Reti™ Microparticles:

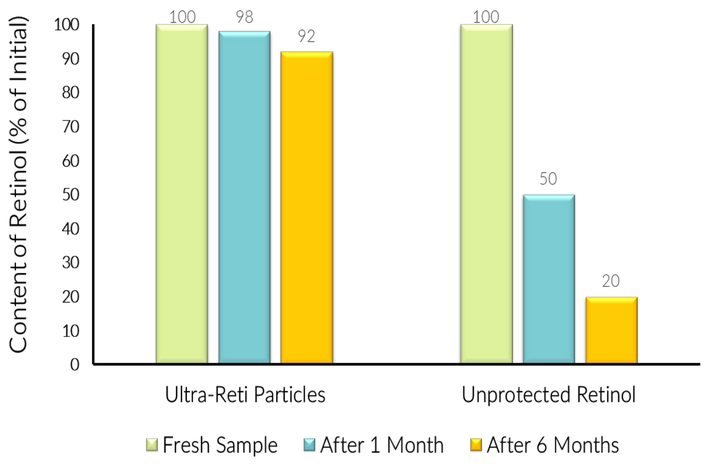
Retinol Delivery systems can be broadly categorised into two main categories, soft and hard capsules.
The hard capsules are the porous microcapsule shells that enable optimal isolation of the Retinol, prevent interaction with other ingredients, and protect Retinol from light and oxidation. However, they limit the Retinol release and delivery to the skin.
The soft capsules are liposome and emulsion encapsulations that have limitations in stabilising Retinol and compatibility with the chassis but can provide advanced release and delivery of Retinol to the skin.

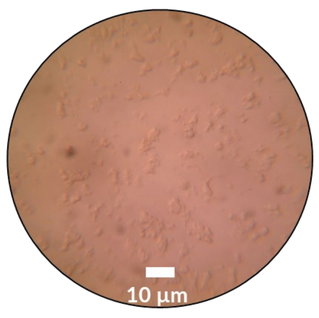




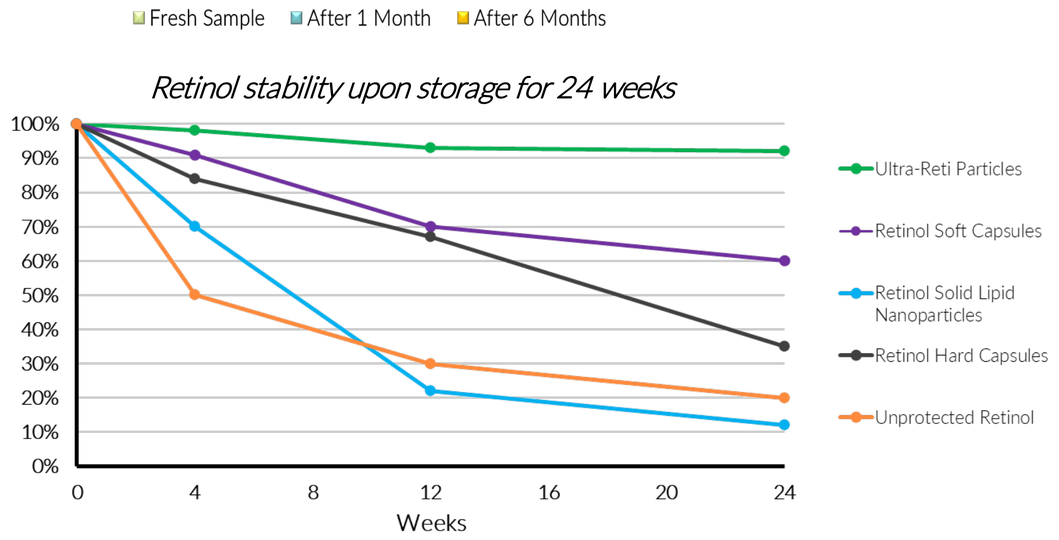
ULTRA-Reti™ microparticles are formed by encapsulating pure Vitamin A (Retinol) into a soft wax base which is readily absorbed into the skin.
The soft wax technology would have several advantages such as higher Retinol-loading capacity, highly sealed encapsulation to improve the stability of Retinol, enhanced stability over Time and in elevated temperatures.

Soft Wax technology would also improve the delivery and availability of the Retinol due to small size of the particles.

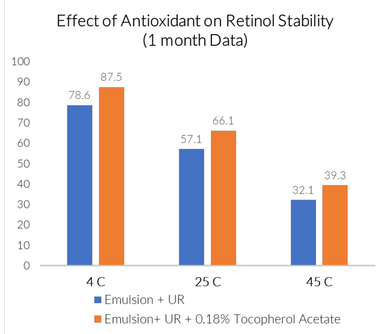


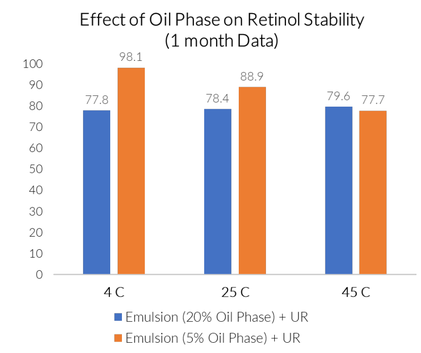


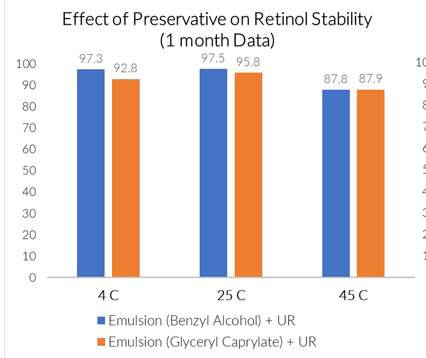
Optical Microscope Image of the ULTRA-RETI™ Microparticles
Particles to be **1.78 ± 0.47 µm**

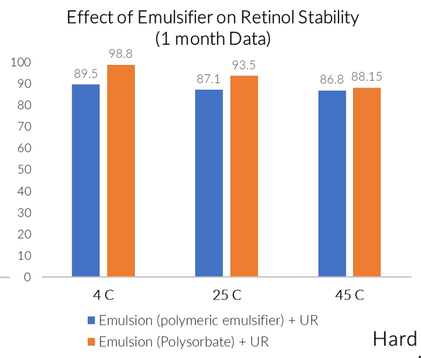


Incorporation into Cosmetic Chassis:



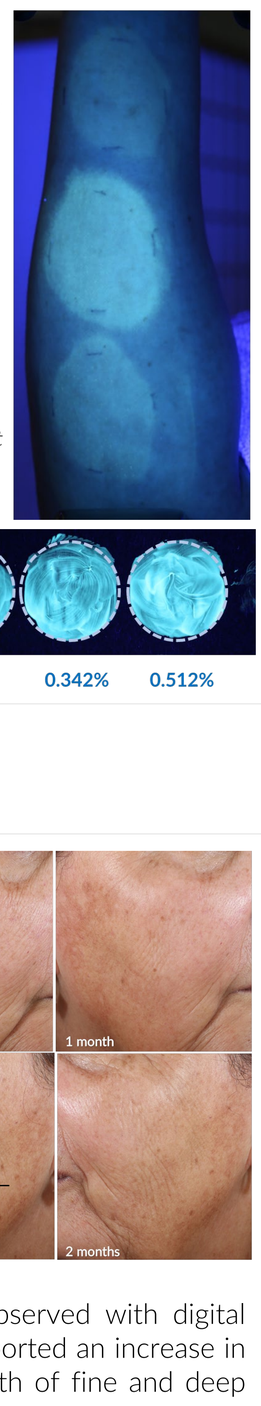






The Ultra-Reti™ Microparticles (UR) were incorporated in an emulsion chassis. The retinol stability impacted from the compatibility of the delivery system with several variables of the chassis (emulsifier, preservative, antioxidants, oil phase) was closely monitored to assure the highest Retinol stability can be achieved.

Availability of Ultra-Reti™ Microparticles

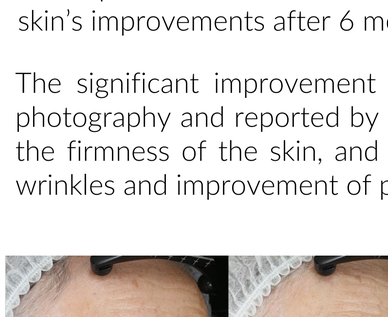


Hard Capsules of Retinol
(Same % of Retinol, but Different technology)

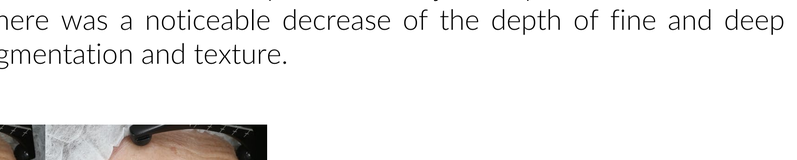
Ultra-Reti ™ Microparticles Technology

Soft Capsules of Retinol
(Same % of Retinol, but Different technology)

The delivery and availability of Retinol to the skin from different encapsulations and bases were also studied, using UV imaging to measure the Retinol which the skin has absorbed.
This is an important factor which can directly impact the clinical results of the final product.



Retinol Fluorescence & Concentration



Clinical Study:

85 panelists with signs of photoaging applied the formulations containing 3 concentrations of the Ultra-Reti microparticles * in a stepped strength approach. They applied the lowest concentration for 1 month, progressing to the middle strength in 2nd month and further progressing to highest concentration and staying at this concentration for the 3rd month forward.

Digital photography with a Canfield clinical camera system and subjective evaluation of wrinkling, pigmentation and firmness were performed prior to the study and at weeks 4, 8, and 12. Some panelists continued the trial up to 6 months and their skin's improvements after 6 months was recorded.

The significant improvement resulting from applying the formula was observed with digital photography and reported by the self-assessment of panelists. Subjects reported an increase in the firmness of the skin, and there was a noticeable decrease of the depth of fine and deep wrinkles and improvement of pigmentation and texture.

Panelist HP, after 1st month of lowest concentration and 2nd month of middle concentration of ULTRA-Reti™ microparticles

Panelist RS, after 1st month of lowest concentration and 2nd month of middle concentration of ULTRA-Reti™ microparticles and heist concentration from 3rd month forward.

* Equal to 0.15, 0.3 & 0.5% Retinol

Acknowledgements:

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