TO BLEACH
+
TO CARE
+
TO NOURISH

MULTI-FUNCTIONAL PRODUCT
MORE THAN 99.9 % OF NATURAL ORIGIN

HYDRACARE LIGHTENING
EVOIL HYDRACARE LIGHTENING showed whitening activity, at 100% concentration, when dosed 4 times.
REDUCED MELANIN
IN 47%
In the skin, melanocytes are located on the basal layer which separates dermis and epidermis.

- 1 melanocyte is surrounded by approx. 36 keratinocytes.
- Together, they form the so-called epidermal melanin unit.

**MELANOGENESIS**
The melanin produced and stored inside the melanocyte in the melanosomal compartment is transported via dendrites to the overlaying keratinocytes.

**MELANOGENESIS**
Tyrosinase is a melanogenic copper-containing enzyme that catalyzes the transformation of tyrosine to dopaquinone.

- Responsible for melanization in plants and animals, which leads to – sometimes undesirable – browning.

**MELANOGENESIS**
Effects of UV radiation on the skin are both beneficial and harmful. It induces synthesis of vitamin D, killing of pathogens and treating the disorders like psoriasis. On the other hand, they cause photoaging and skin cancer by making alterations in the cellular levels.
Penetration capacity of UV radiation on the skin. UVA radiation penetrates deep until subcutaneous tissue whereas the penetrating ability of UVB shows that it pose cutaneous damage very frequently.
Photoaging of human skin. When the epidermis of the skin absorbs the UVB radiation from the sunlight, it results in the induction of metalloproteinases (MMPs). The penetration of UVA deeper in dermis also induces the MMPs. As a result, the proteins present in the extracellular matrix are degraded that favours the wrinkle formation.

UV DAMAGE
Damage of DNA due to UV radiation and the development of cancer.

The DNA lesions are produced after long term exposure to UV radiation.

The tumor suppressor gene (p53) recognises the DNA lesions and it undergoes programmed cell death in normal cells.

But the mutations in p53 gene will promote the development of skin cancer.
Effects of UV radiation. The dermal tissue is usually protected by the antioxidant defense molecules.

If the balance is not maintained between prooxidants and antioxidants, skin structure sensitizes the oxidative stress.

The exposure of UV radiation on the skin generates oxidative stress resulting in structural and functional changes in the epidermis and biomolecules present within the cell.
In recent times and due to their protective effect against the harmful substances, Botanicals are becoming important as active ingredients for cosmetic formulations.
The use of active photoprotectives from natural origin is very beneficial in combating the deleterious effects of UV rays.

The important group of compounds acts as the UV blockers include phenolic acids, flavonoids and high molecular weight polyphenols.
The use of botanicals as photoprotectives has been gaining significant attention of researchers due to their safety, multiple biological actions on the skin and cost effectiveness.
Besides, the synergistic combination of plant actives is to be tested for obtaining the very good compounds for cosmetic formulations.
• In the Western culture it is still considered desirable to obtain a (bronze) tan.

• In the Eastern world, however, a centuries long tradition exists whereby a light complexion is regarded as equivalent to youth and beauty.
• In recent years, the interest in skin whitening has grown tremendously.

• The accumulation of an abnormal amount of melanin in different specific parts of the skin resulting in more pigmented patches might become an esthetic problem.
One of the most obvious cellular targets for depigmenting agents is the enzyme tyrosinase.
A number of tyrosinase inhibitors from both natural and synthetic sources have been identified.
Hydroquinone may act as a carcinogen.

Kojic acid is banned in some markets and it is limited in others.

Mercury compounds are banned.
PRODUCTS OF NATURAL SOURCES ARE PREFERRED AND WILL PREDOMINATE IN THE COSMETICS MARKET.

HYDRACARE LIGHTENING
Based on natural extracts

- Rheum rhaponticum root extract
- Glycyrrhiza glabra root extract
- Aloe barbadensis leaf extract
- Glabra root extract

Hydracare Lightening
Based on vegetable oils

- Camellia Japonica Seed Oil
- Oxalis Triangularis Seed Oil
- Actinidia Chinensis Seed Oil

Hydracare Lightening
Contains anti-aging products

SOLANUM LYPERSICUM FRUIT EXTRACT

CURCUMA LONGA

HYDRACARE LIGHTENING
MORE THAN 99.9 % OF NATURAL ORIGIN

HYDRACARE LIGHTENING
EVOIL HYDRACARE LIGHTENING can be considered as NON IRRITANT regarding its primary skin tolerance.

Panel: 11 healthy adult volunteers.

Result: The average irritant score of the product is 0.00.
IN VITRO EVALUATION OF WHITENING ACTIVITY ON THE TEST PRODUCT EVOIL HYDRACARE LICHTENING USING RECONSTRUCTED HUMAN EPIDERMIS (RHE)
The test was performed on reconstructed *in vitro* epithelia.
(A) Tissue without melanocytes; (B) Phototype II tissue; (C) Phototype IV tissue; (D) Phototype VI tissue.
Table 1. Cell viability evaluation of treated tissues (test sample and positive control) of RHPE.

<table>
<thead>
<tr>
<th>Sample</th>
<th>% cell viability (4 doses)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVOIL HYDRACARE LIGHTENING REF. TX008433 M130227-A</td>
<td>65.3%</td>
</tr>
<tr>
<td>2% Ascorbic Acid solution</td>
<td>81.2%</td>
</tr>
</tbody>
</table>

CONCLUSION

EVOIL HYDRACARE LIGHTENING did **NOT SHOW CITOTOXIC EFFECTS** on the *in vitro Reconstructed Human Pigmented Epidermis*

CELL VIABILITY EVALUATION BY MTT ASSAY
Figure 3. Melanin quantification standard curve.

y = 0.0005x + 0.0461

$R^2 = 0.9965$
MELANIN QUANTIFICATION

Melanin quantification in RHPE treated tissues. The quantity of melanin in the average value of three replicates (three treated tissues).
EVOIL HYDRACARE LIGHTENING SHOWED WHITENING ACTIVITY at a concentration of 100% when dosed 4 times (1 μl per dose).
ADVANTAGES

 ✓ Soluble in oils
 ✓ Not banned
 ✓ Not producing side effect
 ✓ High stability
REDUCED MELANIN
47 % AFTER ONLY 4 APPLICATIONS
THANK YOU!!!