

# Lightenex<sup>®</sup> Plus





# ACTIVE INGREDIENTS

Azelaic Acid 5%

Nobeltine &  
Hespridin 4%  
(Citrus unshiu  
extr)

Xanthumol 3%  
(Humulus Lupulus ext)

Salicylic acid 2%

Phytic Acid 5%

Mulberry  
extract 3%  
(Arbutin)  
(Glucopyranosi  
des)

Arbutin 2% & Magnesium  
Ascorbyl Phosphate

Licorice Extract 5%  
(Glabridin, Glabrin  
& Isoliquertin)

Diacetyl  
Boldine &  
Titanium Di-  
oxide 3%

Octadecene-Dioic Acid 2%

Total percentage  
of Depigmenters  
= 34%



## Azelaic Acid 5%



- ❖ Powerful Inhibitor of enzyme Thioredoxin Reductase.
- ❖ This enzyme adds electrons to Thioredoxin which can then activate Tyrosinase & also help make DNA.
- ❖ This accounts for why Azelaic acid only work on Hyperactive Melanocytes where DNA synthesis is fast.

Ref-Arch Dermatol Res1990;282(3).168-171.A possible mechanism of action for Azelaic Acid in the human Epidermis.Schallenter KU et al,Dept of Dermatology,University of Hamburg,Germany.



## Azelaic Acid 5%

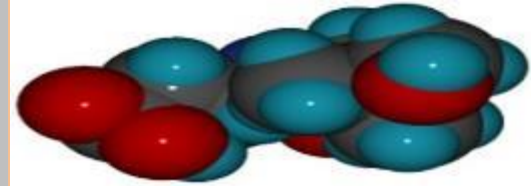


- ❖ Azelaic acid has an anti-proliferative & Cytotoxic effect on Melanocytes.
- ❖ Proven as effective as Hydroquinone in Melasma.
- ❖ Gentle exfoliant -removes melanin loaded epidermal cells gently without irritation

REF-DRUGS 1991 May;41(5):780-798.Azelaic acid.AReview og its Pharmacological properties&therapeutic efficiency in Acne&Hyper-pigmentary skin disorders..Fitton GA.Drug information service,Auckland,Australia.



## Phytic Acid 5%

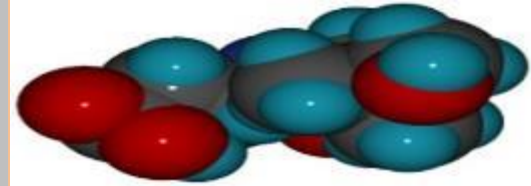


- ❖ Phytic acid Chelates Copper & Iron in skin(makes them unavailable)
- ❖ Copper is essential part of the enzyme tyrosinase which makes melanin.
- ❖ Gentle exfoliant
- ❖ Iron catalyses free Radilcle formation & subsiquent Oxidative damage.

REF-Will Phytic acid replace Hydroquinone.Romulo Mene MD.Plastic Surgeon.Rio De Janiero,Brazil.Third Congress of National Estetic Medicine.Milan,Italy 12 Oct 2001



## Phytic Acid 5%



- ❖ Phytic acid prevents Iron driven hydroxyl radicle generation & prevents Lipid Peroxidation.
- ❖ Is a depigmenting agent, prevents Calcinosis cutis (calcium leaching) & premature ageing along with skin cancer.
- ❖ Very well absorbed into skin

REF-Journa.l Biol.Chem.1987 Aug 25;262(24):11647-50.Phytic acid .A Natural Anti-oxidant.Graf E,Empson KL et al

REF-Front Biosc 2005 Jan 1;10:799-802.Absorption of Myo-Inositol Hexakisphosphate through the skin;study of the matrix effects.Mechanism of Phytate topical absorption



## Licorice Extract 5%

(Glabridin, Glabrin, Isoliquertin)



- ❖ Glabridin powerfully inhibits both tyrosinase isoenzymes T1 & T3.
- ❖ Prevents Erythema & hyperpigmentation at 0.5% in skin from UV-light.
- ❖ Anti-inflammatory action by inhibiting Super-oxide anion production % Cyclo-oxygenase activity.
- ❖ Inhibition of Licorice extract on Tyrosinase is higher than expected from Glabridin alone.

REF-Pigment Cell Research 1998 Dec;11(6):355-61. The Inhibitory effect of Glabridin from licorice extract on Melanogenesis & Inflammation.



## Licorice Extract 5% (Glabridin, Glabrin, Isoliquertin)



- ❖ Glabrene & Isoliquertin (Chalcone) present in Licorice extract in Licorice extract inhibit Tyrosinase strongly.
- ❖ A split face controlled study in Egypt on 20 female Melasma patients using Isoliquertin cream over 10 weeks gave a 70% response & only 20% in Placebo patients.

REF-Journal of Agricul Food Chem,2003,51(5),pp1201-1207.Ohad Nerya et al.Laboratory of natural compounds for Medicinal use,Migal,Galilea,Technological centre,PO BOX 831,Kiryat Shmona 11016.Israel.

REF-Int J Dermatology 2000 Apr;39(4):299-301.Topical Liguertin improves Melasma.Amer M, Metwalli M, Dept of Dermatol, Zagazig, University of Egypt.





# Melaslow

(Citrus unshiu ext)-Nobelitine Hesperidin



In Vitro :

- ❖ 1% Melaslow reduces Melanin by 32%
- ❖ 3% Melaslow reduces melanin by 50%
- ❖ Twice daily 5% Melaslow on 20 volunteers for age spots showed 28% decrease in 6 weeks & 71 % patient satisfaction
- ❖ 19 patient study on face Lightening showed 27% reduction in 6 weeks as shown by colorimetric.

REF-SEDERMA DISCLOSURES.



# Mulberry Extract 4%

(GLUCOPYRANOSIDES)(HYDROQUINONE ANOLOGUES)



- ❖ As well as two hydroquinone analogues, it contains two new compounds
- ❖ Chalcones are 757 & 328 times more potent than Kojic acid in Tyrosinase inhibition.

REF-Anal Chem Acta.2012 Mar16;719:87-95.An Ultra-filtration for screening&characterising Tyrosinase inhibitors from Mulberry leaves.



## Xanthumol 3%

(Humulus Lupulus Extract) (SEDERMA-WONDERLIGHT)



- ❖ Acts directly on Keratinocytes to inhibit the release of the Cytokine GM-CSF which signals skin damage to the Melanocyte
- ❖ Acts directly on Melanocyte to inhibit Microphthalmia associated Transcription Factor(MITF) which is the Master Regulator Transcription factor of Melanogenesis.
- ❖ Therefore inhibits the synthesis of mRNA at transcription level

REF-Exp Mol Med 2008 June 30;40(3)313-319.Korean Society of Molecular Biochem&Mol Biol.Effect of Xanthumol on Melanogenesis.Dept of Dermatology,Medical School&Inst for Med Sciences,Choubuk National University,JEOUJU 561-756 Korea.Tel



## Xanthumol 3%

(Humulus Lupulus Extract) (SEDERMA-WONDERLIGHT)



- ❖ MITF inhibition causes reduced Tyrosinase, Tyrosinase related protein 1&2 (TRP1&2).
- ❖ In Melanocytes -inhibits proliferation -inhibition differentiation, Melanin synthesis & dendritogenesis
- ❖ Quasi drug additive approved for Japan
- ❖ Direct inhibition of Melanin synthesis comparable to Kojic Acid.



## Xanthumol Sederma- Wonderlight



- ❖ Treatment of freckles & Lentiges in 25 Asian women  
Phototypes 3 or 4 mean age 34.1 yrs. Twice daily application of 3%wonderlight for 56 days resulted in upto 55%improvement in freckles & lentiges by Chromametry.



## Artubin & Map (Melfade)



62 Melasma patient study comparing 2% Hydroquinone with Melfade cream showed no difference in results between the two.

- ❖ In Vitro 1% inhibits 100% of mushroom Tyrosinase activity
- ❖ In Vivo on a comparative study it was 80% more effective than Beta Arbutin.

REF-Comparative efficacy of topical hydroquinone & melfade in the treatment of Melasma. Dept of Dermatol, Besat Hospital, Sanandaj, Kurdistan, Iran 2009.



## Diocetyl Boldine & Titanium Dioxide 3%



- ❖ Boldine is a Strong free Radicle scavanger (Anti-oxidant)
- ❖ Anti-inflammatory action & Anti-pyretic action (lowers body temperature)
- ❖ Prevents oedema,tissue damage & neutrophil infiltration.
- ❖ In human back skin it prevents skin redness in response to UV light.

REF-Boldine &its anti-oxidant or health promotion properties. Chem Biol Interact.2006 Jan2006 Jan 5;159(1):1-17.OBrien P etal.Graduate Dept of Pharmaceutical Sciences, Faculty of Pharmacy, University of Toronto, Ontario, Canada.



## Di-acetyl Boldine



- ❖ In a 27 Asian women study phototypes 3-4, DAB on average lightens pigmentation by 25% over 8 weeks.
- ❖ All 100% of tested were satisfied with the lightening effects.

REF-Research Disclosures:Author:Sederma.SAS.France.Research Number 532011.ISSN0374-4353.





## Octadecene Dioc Acid 2%

(Dioic Acid) (Azelaic type di-carboxylic acid)



- ❖ Prevents Transcription of Melanin synthesising enzyme Tyrosinase.
- ❖ 96 patient open, comparative 12 week study comparing 1% Dioic acid to 2% Hydroquinone showed no difference over 12 weeks

REF-Int J Dermatol.2009 Aug;48(8):893-5.Efficacy of Dioic acid compared with Hydroquinone in Melasma.Tirado-Sanchez A et al



## Salicylic Acid 2%

The  
Benefits of  
Salicylic  
Acid for  
Acne &  
Aging Skin



- ❖ Anti-inflammatory action by irreversible inhibition of Cyclooxygenase 1 & 2 (COX 1 & 2)
- ❖ Prevents release of Prostaglandin E that triggers skin inflammation leading to post-inflammatory hyperpigmentation
- ❖ At 2% it has no Keratolytic action



## Conclusion For New Formulation



1

Logical choice for treating Epidermal hyper-pigmentation.



2

For maintaining depigmentation after skin peels



3

Perfect Day cream without irritation