

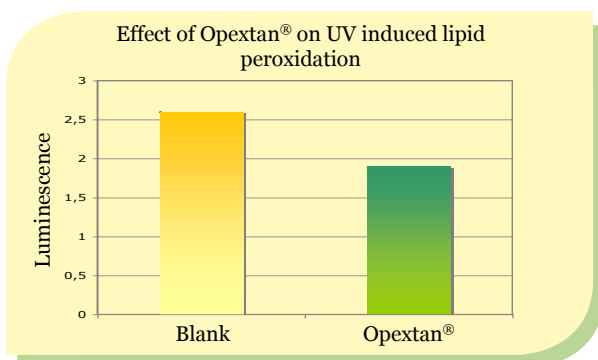


Opextan®

UV protectant, antiwrinkles,
beauty supplement, antiaging

ECOCERT VALIDATED

Proven efficacy on humans

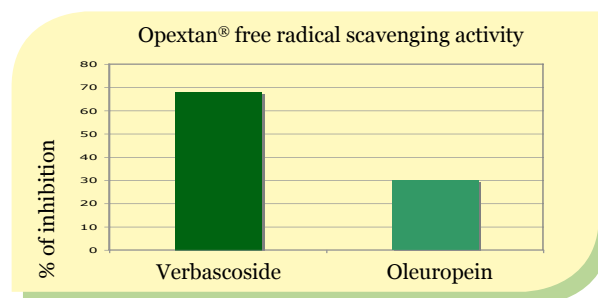


Lipid peroxidation is a well known example of oxidative damage and lipid peroxides are prominent non-radical intermediates of lipid peroxidation. The protective effect of Opextan® in a formulation at 0.5% applied topically was evaluated¹ on a group of 6 healthy volunteers, who were asked to wash their face and apply the Opextan® and the blank formulation on each half face. After three hours they were irradiated with the sunlight for about 20 minutes. Skin sebum was then sampled by sebutape, extracted and measured by dosing chemiluminescence in 0.1 µg recovered sebum. Luminescence indicating the level of lipid peroxidation in the Opextan® treated area was lower by 27.1%, which means that the Opextan® containing formulation protected skin lipids from UV induced peroxidation.

An additional clinical assessment has been led on 23 male healthy volunteers who applied on each half face the Opextan® containing formulation (2.5%) and the blank formulation, twice daily for three months.² The measurement of moisture of the skin horny layer and the viscoelasticity of the skin, as well as the skin replicas, were performed before the beginning of the study, at week 8 and week 12. The product containing Opextan® showed significant amelioration compared to the placebo group in terms of the roughness parameters of the replica analysis. An ameliorating tendency was seen as to the moisture of the horny layer as well.

Additional assessments on the skin protecting properties of Opextan® have also been carried out for oral application. Orally administered Opextan® was shown to improve skin sensitivity to UV irradiation and the oxidative status in healthy volunteers.³

Free radical scavenging activity



The Oxygen Radical Absorbance Capacity (ORAC) of Opextan® is 2200-2300 µmol TE/g. On the other side, the superoxide radical model mimics the in vivo situation as its formation is physiological (i.e. in case of UV skin exposure, when the harmful effects are associated to the formation of reactive oxygen species). Verbascoside and other characteristic constituents of pulp and leaves have been tested for their ability to scavenge the superoxide anion in vitro at a 0.016mM concentration.⁴ Their radical scavenging effect was expressed as percentage of inhibition of the superoxide radical formation. Verbascoside was shown to inhibit 68% of superoxide anion formation, whereas oleuropein inhibited by 30% the radical formation.

Additional assessments on the antioxidant activity of olive biophenols⁴ have underlined that verbascoside was more active than caffeic acid or hydroxytyrosol evaluated individually or in equimolar mixtures. Also, mixtures of polyphenols were more active than individual compounds, suggesting a remarkable synergy among biophenols.

Mechanism of action

Opextan® is an olive fruit extract whose most active component is verbascoside, a polyphenol typical of olive fruit pulp, the only edible part of the plant. Verbascoside is a strong free radical scavenger, and has been tested in vitro on DPPH free radical as well as superoxide anion O²⁻. Verbascoside, as well as other polyphenols present in the extract (hydroxytyrosol, caffeic acid), exerts a remarkable antioxidant and free radical scavenging activity.

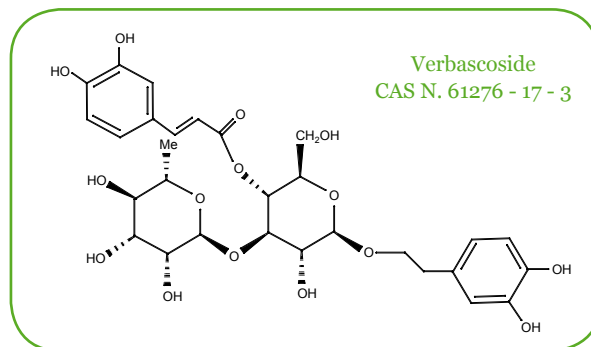
1. Maramaldi G., Artaria C., Ikemoto T., Haratake A., "Estratto standardizzato di frutti di *Olea europaea*", *Cosmetic Technology* 9 (5), 9-13 (2006). - 2. Matsuoka Y., et al, "Curative properties of a topical product containing olive fruit polyphenol shown by a placebo controlled, double blind study using half face", 107th Annual Meeting of Japanese Dermatological Association, (April 10-20, 2008)- 3. Maramaldi G., Artaria C., Ikemoto T., Haratake A., "Estratto standardizzato di frutti di *Olea europaea*", *L'Integratore Nutrizionale* 9 (3), 23-29 (2006). - 4. Obied H.K. et al, "Chemistry and bioactivity of olive biophenols in some antioxidant and antiproliferative in vitro assays", *Chem. Res. Toxicol.*, article in press, downloaded on Jan 15, 2009.



Safety data

Opextan® is devoid of any side effects as localized erythema or skin discomfort of any kind, and showed a good tolerability in all the trials performed so far in their topical application. Also, Opextan® resulted not mutagenic in the in vitro Ames test.

Characteristics



Opextan®		Available Documentation
Polyphenols content by spectrophotometry: $\geq 10\%$ Verbascoside $\geq 2\%$ Form: light brown powder, odor characteristic Stability: retesting date 24 months Level of use: 0.5% - 2.5% Solubility - Slightly soluble in: Water, Alcohol 50°, propylene glycol:water (1:1 v/v), Glycerin:water (1:1 v/v), Ethoxydiglycol:water (1:1 v/v), PEG 6 Capri-	lyc/capric triglycerides:water (1:1 v/v), Polyethylenglycol 400:water (1:1 v/v), Polyethylenglycol 600:water (1:1 v/v); Solubility - Freely soluble in: Polyoxyethylene Sorbitan Monooleate, Poxxyethylene Sorbitan Monooleate:water (1:1 v/v), PEG 40 Hydrogenated Castor Oil:water (1:2 v/v).	Botanical Certificate Methods of Analysis Reference Standard Declaration GMO free Safety Data Sheet Confidential Documentation

Formulation examples

O/W after sun emulsion	Formulative tips
OPEXTAN® 0.5% Ethanol 8.0% Dipropylene Glycol 3.0% Squalane 2.0% PEG-60 Hydrogenated Castor Oil 0.7% PEG-Cetylerther 0.5% Cetyl Alcohol 0.3% Olive Oil 0.1% Isocetyl Myristate 0.1% Preservatives q.s. Purified Water as needed to 100	As a general rule, plant derivatives should be added to the phase most suitable for their dissolution or dispersion. In the case of Opextan®, its hydrophilic nature makes it suitable for emulsions and should be added to the hydrophilic phase. Opextan® is rather thermostable, nevertheless we suggest adding it in a cool to slightly warm phase. Also suitable for: Products for the external treatment in sun care, after sun products, anti-tiaging lotions, around the eye and anti-wrinkle treatments.

Did you know...

Symbol of the Mediterranean culture, the olive tree is extremely long living due to its content of potent antioxidant compounds. Since the most ancient times, both Pliny and Hippocrates used to prescribe medications from olive as a cure for a number of disorders, and many of these old remedies have passed into folk medicine and are as relevant today as they were hundreds of years ago.

Additional information

Opextan® distinctive sign is a figurative logo as a guarantee of quality in the world of topical and oral cosmetics today. To know more, check www.opextan.info.



TRADE NAME	INCI (CTFA)	INCI (E.U.)	EINECS N.	CAS N.	INDENA CODE
Opextan®	Olea europaea (Olive) Fruit Extract	Olea europaea Fruit Extract		84012 - 27 - 1	36POF0090