



Photoprotective, lenitive and anti-aging properties of **Ozonized Primo Fiore[®]** by topical application before and after photostimulation with UVB.

Summary. Introduction: **Ozonized Primo Fiore[®]** (pool of functional highly with absorbing lenitive and antioxidant activities and "scavenger" mechanisms of ROS and free radicals. Since oxidative stress linked to the formation of free radicals exerts an important role in the UV-induced skin damage and the supplementation of antioxidant pool is applicable in photoprotection.

Purpose: The aim of the present study was to assess the photoprotective and lenitive of **Ozonized Primo Fiore[®]** by human topical application.

Materials and Methods: 21 healthy subjects were studied during a 5 month study. They were subdivided into 3 groups (A,B and C), each formed by 7 patients. They all were irradiated with source of UVB and evaluated by colorimeter. Patient in the A group applied **Ozonized Primo Fiore[®]** before photostimulation; patient in the B group applied **Ozonized Primo Fiore[®]** before and immediately after photostimulation and in the C group applied **Ozonized Primo Fiore[®]** only after photostimulation.

Results: in A group patients, following application of **Ozonized Primo Fiore[®]**, we observed a 20% erythema decrease respect a MED ; in B group patients, it was 60%, in C group, it was about 40%.

Conclusions: **Ozonized Primo Fiore[®]**, when topically applied, presents interesting capabilities of repairing UVB photodamage, especially when it was applied both before and after photostimulation. The topical application of **Ozonized Primo Fiore[®]** can, therefore, integrate the peculiar and natural functional characteristics of skin photoprotection.

KEY WORDS: **Ozonized Primo Fiore[®]**Antioxidants, Photoprotective and lenitive properties.

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Introduction

The skin has a wide range of antioxidant defence mechanisms, with very complex connections. This pool, however, can be easily destroyed by high doses of ultraviolet radiations (UV). Since oxidative stress linked to the formation of free radicals exerts an important role in the UV-induced skin damage, supplementation of natural antioxidant system, with a shielding action of UV radiations and a lenitive capacity, would have a rational for use in photoprotection.

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Ozonized Primo Fiore® is a pool of highly specific and differentiated functional molecules, some of them increased in unsaturated components and therefore rich of double bonds with UV radiations absorbing activities, other with antioxidant activities and "scavenger" effects of ROS and free radicals.

Vitamin E Acetate product derived from phytol usually termed all-rac-a-tocopherol, and the relative biological potencies of the tocopherols have been examined in several studies of animal models.

*Protocol 3: application of **Ozonized Primo Fiore®** only after photostimulation*

Patient in the third group (C group) applied products (2 applications, one every hour) immediately after photostimulation with UVB on the 4 areas not treated previously. Readings of phototest were made after 24 hours by 3 different operators clinically estimating the 4 irradiated areas:

- Erythema in the area corresponding to MED (area 1)
- The effect produced on the erythema by applying : **OZOILE®** according to the different ways in the 3 different protocols (area 2,3 and 4)

As objective clinical evaluation, on these area was also performed colorimetric assessment, taking as the index of erythema Δa^* . This was calculated as follows:

- $a^* \Delta$ for protocol 1 = a^* only irradiated skin (MED-UVB) – a^* each of the area of skin treated respectively with **Ozonized Primo Fiore®** applied only before irradiation;
- Δa^* for protocol 2 = a^* only irradiated skin (MED-UVB) a^* each of the areas of skin treated with the same products before and after irradiation respectively;
- $a^* \Delta$ for protocol 3 = a^* only irradiated skin (MED-UVB) a^* each of the areas of skin treated with the same products only after irradiation respectively.

Results

The colorimetric measures obtained confirms that **Ozonized Primo Fiore®**, has high photoprotective and lenitive properties through synergies of action of its active ingredients. The reduction of the degree of erythema MED UVB- induced was calculated as follow:

$$\% \text{ reduction of erythema} = (\Delta a \text{ sample } x^* / a^* \text{ MED UVB- INDIVIDUAL}) * 100.$$

- protocol 1- 20% decreased incidence of erythema respect to MED
- protocol 2 - 60% decreased incidence of erythema respect to MED
- protocol 3- 40% decreased incidence of erythema respect to MED.

Histogram of the values obtained.

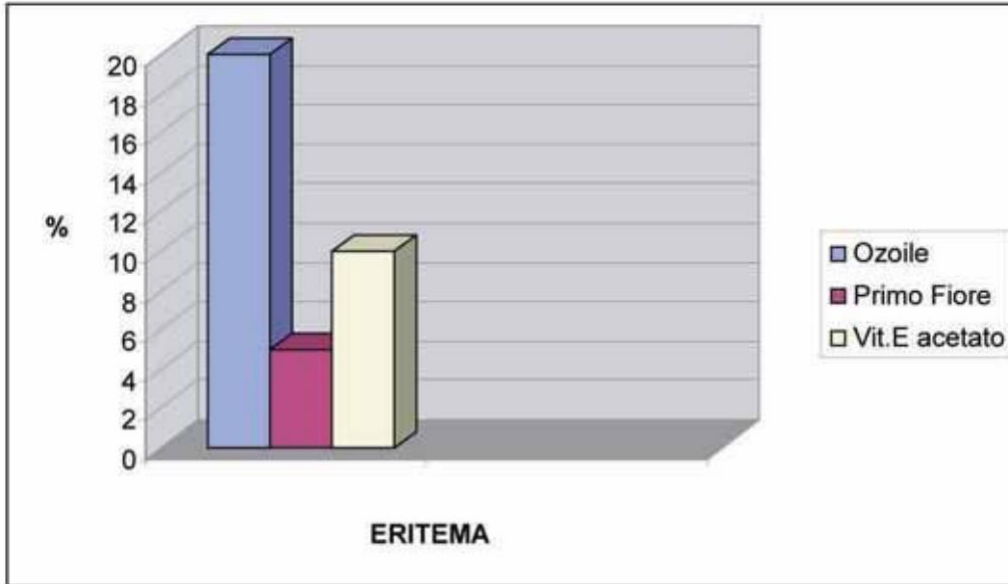
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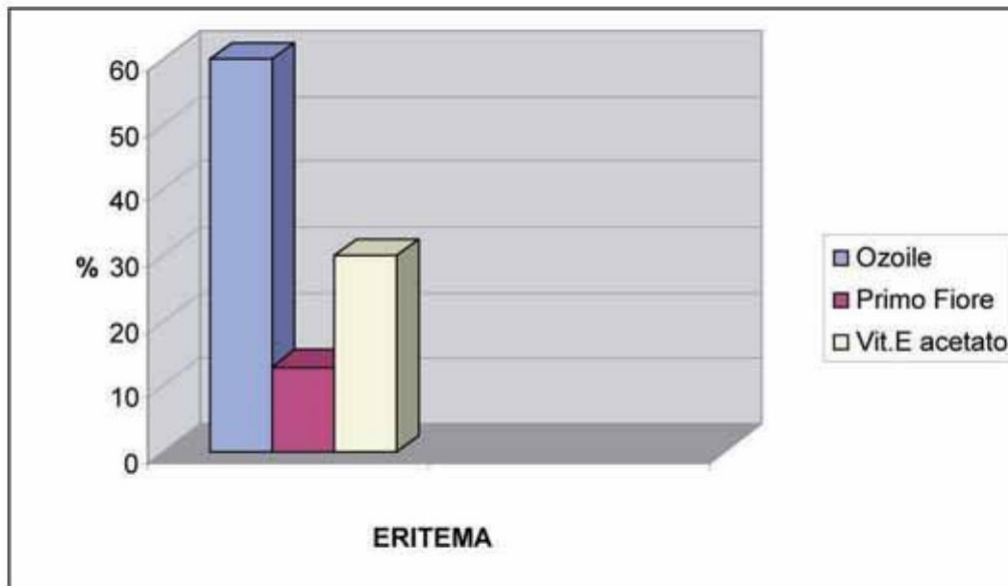
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when samples are applied only before photostimulation UVB (Protocol 1).

Table 1: Erythema reduction values



reduction values when samples are applied before and after photostimulation UVB (Protocol 2).

Table 2: Erythema

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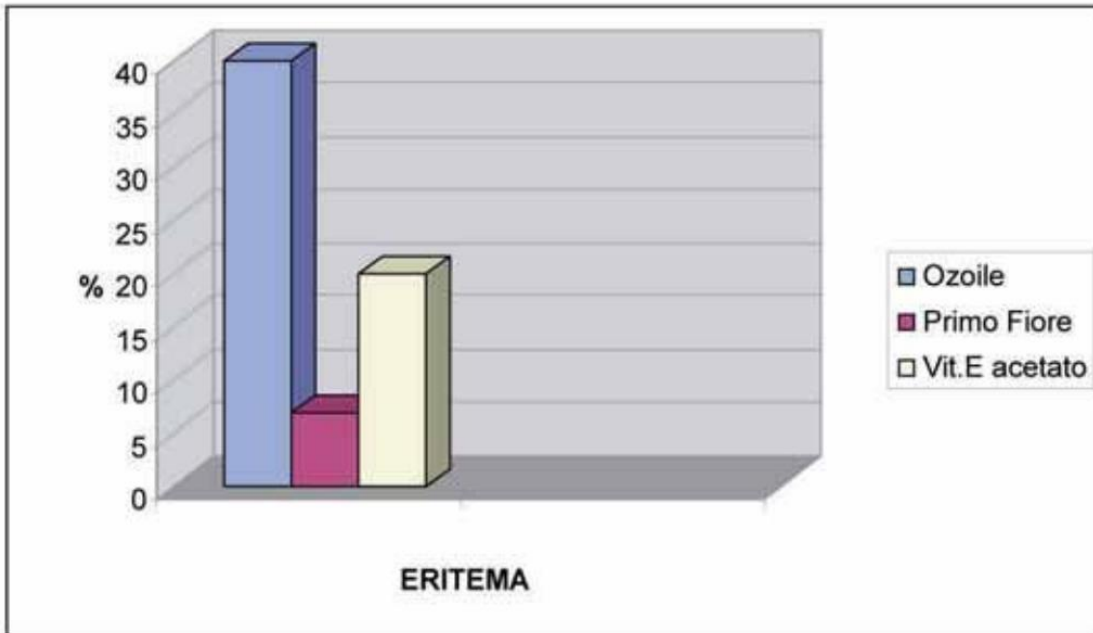


Table 3 : Erythema reduction values when samples are applied only after photostimulation UVB (Protocol 3).

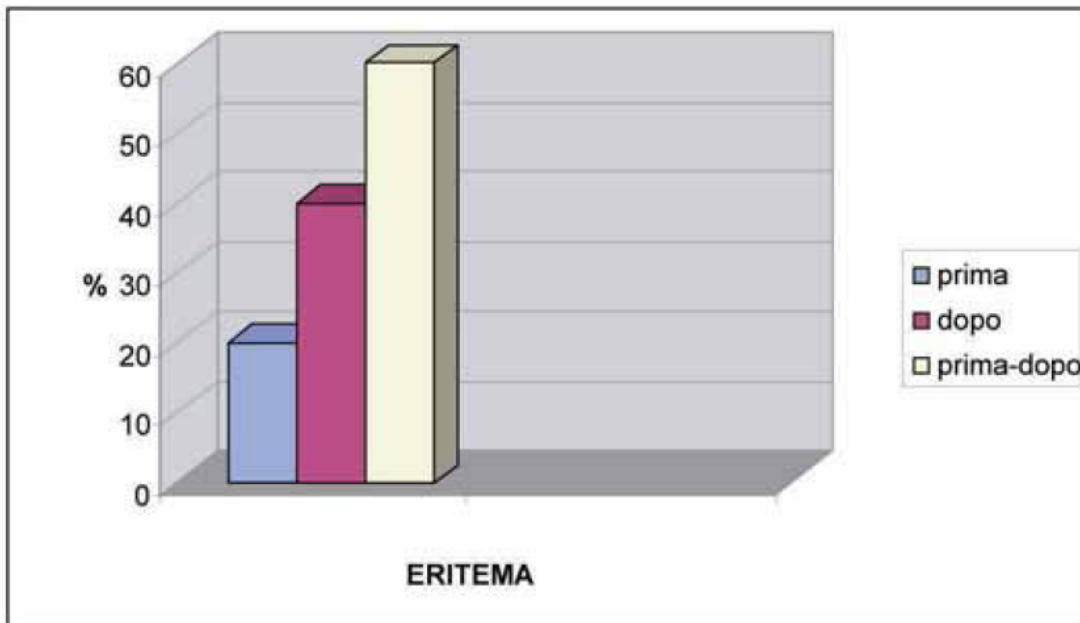


Table 4 : Erythema reduction values when samples are applied only before, before and after, only after photostimulation UVB (Protocol 1-3-2).

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Conclusions

Ozonized Primo Fiore®, excellent photoprotector present interesting lenitive and anti-aging properties, it is very specific and extremely versatile especially in medical- dermatological field.

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