

Efficacy or Exaggeration – The Likely Role of Evefresh Cream for SLE

Aruna V*, Soundharya R and Gayathri R

Dr. JRK's Siddha Research and Pharmaceuticals Pvt., Ltd., Chennai, Tamil Nadu, India

Abstract

The present study deals with photo protection benefit of Evefresh cream. We have used a rapid and an extremely sensitive tool- cyanotype paper to study the effect of the cream. The findings show that Evefresh cream provides photo protection and hence may be of great medical use for SLE patients to achieve photo protection from short exposure to sun. Evefresh cream being a face cream is regular use will certainly enable the users to achieve the above benefits. The paper reports the findings in detail.

Keywords: SLE; Photo protection; Curcuma; *Aloe vera*; Cyanotype

Introduction

Personal care industries are aggressively competing and crowding the market with wide variety of sun screeners and SPF products to offer sun protection benefit to the customers [1,2].

Photosensitivity is the major precursor of skin cancer [3]. The global warming and increase in the solar coverage of earth has made different parts of our planet vulnerable to UV radiation. Further several occupational reasons have increased the solar exposure of people thus making them 'risk group' to sun.

Need of the hour is an effective sunlight protection of the skin more than SPF/UV preparations. The sunlight protection preparations in this article refer to products that would offer mild physical sun protection benefit (SPF 1 to 4) along with moisturisation and skin lightening effect. On the contrary SPF/UV preparations under reference are the preparations that have high SPF and contain multiple physical and chemical UV A and or B screeners [4].

SLE (Systemic Lupus Erythematosus) is an auto immune disorder and its incidence and prevalence is alarmingly increasing globally and also in India [5]. SLE patients are extremely susceptible to sunlight and the sun exposure can even go detrimental to their life, at times [6].

Although the physical protection through careful clothing is inevitable for such 'risk group' however covering the entire body through clothing is not possible. Such group of patients therefore requires sunlight protection creams besides UV/SPF creams.

The utility of sunlight protection cosmetics for the 'risk group' is enormous especially those who might have had to endure short sun exposure. The typical sun screeners will be very problematic because of their messiness and dense oily residue post use [7].

In Siddha system of medicine, several plants are reported to have multi-various and paradoxical medicinal effects like same plant having both up & down regulation of melanogenesis, photo sensitization and sun protection. How the ancient Siddhars have identified all such medicinal values of several herbs is not only mind boggling but also bewildering.

The present paper reports the sunlight protection benefit of two important Siddha herbs viz., *Curcuma zedoaria* and *Aloe vera*. In essence, the Evefresh cream, the proprietary Siddha medicine is composed of *Curcuma zedoaria* and *Aloe vera*. The findings thus prove the value of Evefresh cream for SLE patients who have to endure short

term sun exposure. Further this preparation also may have some benefit for those who suffer from actinic keratosis.

Materials and Methods

We have used one of the most commonly used cyanotype paper procedure for the present study [8].

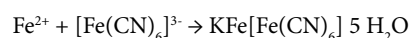
In brief we have used potassium ferric cyanide and ferric ammonium citrate solutions (1:1) to coat a white paper and the paper was then used for the experiment. Post treatment of the paper with the above solution, the paper was shade dried in dark chamber.

Principle and method of preparation

The principle behind the use of cyanotype paper is the photo conversion of ferric ion to ferrous ion which in turn reacts with potassium ferric cyanide. The use of blueprints or cyanotypes dates back to the 1840's when Sir John Herschel discovered the light sensitivity of certain iron salts.

In brief, to make a cyanotype paper, the paper is treated with a solution of potassium ferricyanide ($K_3Fe(CN)_6$) and ferric ammonium citrate ($Fe(NH_4)_3$) and shade dried to fix the chemicals.

When paper is exposed to light, the light reduces the ferric ion (+3) to ferrous ion (+2). The ferrous ions then react with potassium ferricyanide to produce iron (III) hexacyanoferrate (II) by the following reaction:



Iron (III) hexacyanoferrate (II), an insoluble, deep-blue colored compound called Prussian blue, forms the blue part of the final blueprint. Prussian blue can exist with different amounts of cations and water in the crystal lattice, so the exact molecular formula can vary depending upon conditions. To fix the image, the paper is washed with

***Corresponding author:** Aruna V, Dr. JRK's Siddha Research and Pharmaceuticals Pvt., Ltd., Chennai, Tamil Nadu, India, Tel: 9566165310; E-mail: aruna.v1988@gmail.com

Received March 15, 2017; Accepted March 25, 2017; Published March 31, 2017

Citation: Aruna V, Soundharya R, Gayathri R (2017) Efficacy or Exaggeration – The Likely Role of Evefresh Cream for SLE. Drug Des 6: 145. doi: 10.4172/2169-0138.1000145

Copyright: © 2017 Aruna V, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

water to remove the unreacted water-soluble salts, leaving the areas not exposed to light as white areas on the blueprint.

The entire experiment of handling the paper, application of the test materials, etc., were done in dark chamber until the paper is exposed to sun.

The cyanotype paper was cut into 6 pieces of equal size (2 × 7 inch).

1. First piece of the paper was kept in dark chamber as untreated control.
2. The second piece of paper was treated with a solution of 0.2% of *Curcuma zeodaria* and 2% *Aloe vera*. The quantity of above solution used for treating the paper was 1 mg/cm².
3. The third piece of paper was treated with 2% solution of *Psoralea corylifolia* and the quantity of above solution used was 1 mg/cm².
4. The fourth piece of paper was kept as positive control without any application.
5. The fifth and sixth pieces of paper were covered respectively with black and white paper.

All the above papers except the untreated control in quadruplet were exposed to sun simultaneously for 5 min. After 5 min exposure the papers were brought back to dark chamber for a period of rest for 5 min, washed with distilled water and then examined the colour change.

The paper that does not have any sunlight protection would turn blue on exposure to sun and subsequent washing while the paper that got light protection will not undergo any change during sun exposure and hence would not turn blue instead will lose its yellow colour and become white.

Results

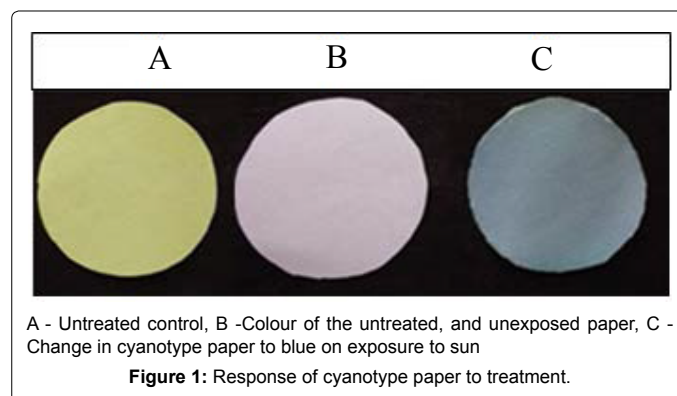
The paper that was kept as untreated control turned white on washing indicating that it had not undergone any sun reaction. Similarly the paper treated with combination of *Curcuma zeodaria* and *Aloe vera* exposed to sun turns white during wash clearly indicating the sun protection effect of the above Siddha herbs. Whereas the paper that was treated with the 2% extract of *Psoralea corylifolia* turns intense blue on exposure to sun; during post wash so was the untreated paper that was maintained as positive control indicating the likely role of the herb in accelerating the sun irradiation (Table 1).

In line with our expectation, the papers covered either by white or black sheet also did not undergo any photo reaction and hence turned white post wash (Figure 1).

| Experiments | Initial colour of the paper | Colour change on sun exposure | |
|---|-----------------------------|-------------------------------|------|
| | | White | Blue |
| Untreated control (in dark chamber) | Yellow | + | - |
| 0.2% of <i>Curcuma zeodaria</i> and 2% <i>Aloe vera</i> | Yellow | + | - |
| 2% solution of <i>Psoralea corylifolia</i> | Yellow | - | + |
| Positive control | Yellow | - | + |
| The paper covered by white sheet | Yellow | + | - |
| The paper covered by black sheet | Yellow | + | - |

'+' indicates change in colour from yellow to blue, '-' indicates change in colour from yellow to white

Table 1: Sunlight protection effect of *Curcuma zeodaria* and *Aloe vera*.



Discussion

The present study has thrown out vista of hope and array of promises from Siddha system of medicine. The combination of 0.2% of *Curcuma zeodaria* and 2% *Aloe vera* has clearly shown the sunlight protection effect.

Findings obtained with cyanotype paper can directly correlate with human skin due to high sensitivity of paper to sun which is relatable. The product that prevents the responsiveness of cyanotype paper to sun naturally such products/ingredients will have greater photo protection.

We have used one of the most sensitive tools- 'cyanotype papers' for the present study. The cyanotype paper was prepared with the help of potassium ferric cyanide and ferric ammonium citrate solutions at 1:1 ratio. The cyanotype paper is highly sensitive and would undergo rapid reaction during sun exposure thus turns into blue colouration. When such sensitive tool fails to react to sun clearly indicates the sun protection effect of extract combination of *Curcuma zeodaria* and *Aloe vera*. Further such finding clearly reveals nothing but the sun protection effect of the above herbs.

In line with the proven fact, the paper treated with *Psoralea corylifolia* turns blue on exposure to sun which clearly suggest the strong photo sensitization property of the herb [9].

Evefresh cream is the proprietary Siddha medicine of Dr. JRK's Siddha Research and Pharmaceuticals and is formulated with 0.2% of *Curcuma zeodaria* and 2% *Aloe vera*. The previous studies on Evefresh cream have clearly shown that the combination of the above herbs down regulate tyrosinase enzyme activity and the process of melanogenesis when studied using B16F10 melanoma cells. Further the above extract combinations also found to influence the number and length of the dendrites [10-12].

Findings of the present study have brought a new dimension to the above extract combination with far reaching medical importance.

The people who suffer from SLE and actinic keratosis, 'as a life practice' must avoid sun exposure [13]. However the avoidance of sun exposure is difficult to achieve because of several obvious reasons that might warrant the outdoor movements and activities. Under such occasions the patients are advised to minimize the sun exposure time and or are recommended to use umbrella, clothing and or SPF/UV creams. Even for short term sun exposure such precautions are necessary for SLE and actinic keratosis patients [14].

The use of SPF/UV creams always leave oily residue. Further many sun screeners like avobenzone are indicated to have several harmful effects on this skin.

For a short term exposure to sun, the patients of SLE and actinic keratosis need a cream with minimal sun protection. In addition the product is desired to have moisturizing benefit. Above all the product should not have any harmful effects to the skin. In the present context the combination of *Curcuma zeodaria* and *Aloe vera* assumes great medical importance because the ancient siddhars of the Siddha system of medicine have already proven the medicinal value of the above herbs along with the clinical safety nearly 5,000 years ago.

With supernal wisdom, the ancient Siddhars have gifted Siddha system of medicine to humanity. The present research findings with the help of an advanced technique – cyanotype paper not just validate the extraordinary medical importance of *Curcuma zeodaria* and *Aloe vera* but indeed the science of Siddha system of medicine which always remained beyond the ordinary intelligence and fathom of human understanding and comprehension.

The findings clearly highlight in non-exaggerated manner the medical importance of Evefresh cream for SLE and actinic keratosis patients.

References

1. Rai R, Srinivas CR (2007) Photoprotection. Indian J Dermatol Venerol Leprol 9: 73-79.
2. De Simone EM (1986) Sunscreen and sunscreen products. In: Handbook of nonprescription drugs. Feldman EG, Davidson DE (Edr), American Pharmaceutical Association, Washington, DC, USA.
3. Ananthaswamy HN (2001) Sunlight and skin cancer. J Biomed Biotechnol 1: 49.
4. Lowe NJ (2006) An overview of ultraviolet radiation, sunscreens and photo-induced dermatoses. Dermatol Clin 24: 9-17.
5. Kumar A (2002) Indian guidelines on the management of SLE. J Indian Rheumatol Assoc 10: 80-96.
6. Klein RS, Sayre RM, Dowdy JC, Werth VP (2009) The risks of ultraviolet radiation exposure from indoor lamps in lupus erythematosus. Autoimmune Rev 8: 320-324.
7. Karlsson I, Hillerström L, Stenfeldt AL, Mårtensson J, Börje A (2009) Photodegradation of dibenzoylmethanes: Potential cause of photocontact allergy to sunscreens. Chem Res Toxicol 22: 1881-1892.
8. Lawrence GD, Fishelson S (1999) Blueprint photography by the cyanotype process. J Chem Educ 76: 1216A.
9. Lakhani DM, Deshpande AS (2014) Various treatments for vitiligo: Problems associated and solutions. J Appl Pharm Sci 4: 101-105.
10. Arunothayam M, Krishnamoorthy JR, Rajagopal G, Ranganathan S (2012) Dermal melanogenesis in response to combination of *Curcuma zedoaria* and *Aloe vera* – A mexameter base evaluation. J Appl Cosmetol 30: 129-136.
11. Krishnamoorthy JR, Ranjith MS, Gokulshanakar S (2009) Extract combination of *Curcuma zedoaria* and *Aloe vera* inhibit melanin synthesis and dendrite formation in murine melanoma cells. J Appl Cosmetol 28: 103-108.
12. Krishnamoorthy JR, Ranjith Ms, Gokulshanakar S (2007) Effect of extract combination of *Curcuma zedoaria* and *Aloe vera* in retarding melanin synthesis in murine melanoma cells. Egyptian Dermatology Online Journal 5: 1-4.
13. Foering K, Chang AY, Piette EW, Cucchiara A, Okawa J, et al. (2013) Characterization of clinical photosensitivity in cutaneous lupus erythematosus. J Am Acad Dermatol 69: 205-213.
14. Taylor CR, Stern RS, Leyden JJ, Gilchrist BA (1990) Photoaging/photodamage and photoprotection. J Am Acad Dermatol 22: 1-15.