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(54) **Title**: A PHOTOPROTECTIVE PERSONAL CARE COMPOSITION

(57) **Abstract**: The invention relates to a photoprotective personal care composition. It is an object of the present invention to provide enhanced visible light protection and this is sought to be achieved using well known actives which are widely and inexpensively available. The present inventors have achieved this by incorporating visible light actives in a fatty acid containing composition along with select non-ionic surfactants.



A PHOTOPROTECTIVE PERSONAL CARE COMPOSITION

Field of the invention

The invention relates to a photoprotective personal care composition. The invention
5 more particularly relates to a sunscreen composition that provides enhanced visible
light protection.

Background of the invention

Solar radiation includes ultraviolet (UV), visible and infrared (IR) radiations. UV
10 radiation has a wavelength between 200 nm and 400 nm. Bulk of the UV radiation from
the sun which falls on earth are the UV-A (320 to 400 nm) and UV-B (290 to 320 nm)
radiation. UV radiation has traditionally been known to cause various problems like
reddening of the skin, localized irritation, sunburn, melanoma and formation of wrinkles.
Thus, majority of the cosmetic solutions to protecting skin have targeted blocking the
15 UV radiation from falling on the skin.

In the recent past there is evidence that it is also essential that the body is protected
against the damaging effects of visible spectrum of light. Visible part of light ranges
from 400 to 800 nm. It is believed that continued exposure to visible light is responsible
20 for damaging effects on skin like erythema, pigmentation, thermal damage and free
radical production (Effects of Visible Light on the Skin, Photochemistry and
Photobiology Volume 84 Issue 2, Pages 450 – 462, 2008).

Hence in addition to protection from UV rays it is also necessary to get broader
25 spectrum protection which includes visible light. Not many compositions have been
disclosed for providing protection against visible radiation. Some of the actives that
provide visible light protection include curcumin, β -carotene, lycopene, alizarin and
xanthophyll. Each of these molecules have one or the other problem e.g. insufficient
solubilisation, colouration of the composition and of the skin when the composition is
30 applied on it, and instability in storage. The present inventors have been working
towards not only solving the above problems but towards enhancing the efficacy of
these actives in providing visible light protection in personal care composition
especially for topical applications.

CN101623240A (Hangzhou Liuyi Technology Co, 2010) discloses a method for preparing novel sun cream which comprises the main components of tea polyphenol, zinc oxide, glycerol, beta-carotene, Tween-80 and vaseline.

5

US5152983A (Unilever, 1994) discloses a sunscreen composition suitable for topical application to human skin or hair, to provide protection from excessive exposure to ultra-violet rays, comprises: i) an effective amount of a substituted 1,3-diketone having an ultra-violet absorption band within the range of from 250 to 500 nm, and a extinction coefficient E of from 5,000 to 70,000; and ii) a physiologically acceptable vehicle for the substituted 1,3-diketone.

10

US2005008588A (L'Oreal) discloses the use of at least one agent for screening out light radiation with a wavelength ranging from 370 to 500 nm as an agent for inhibiting the degradation of endogenous carotenoids present in the skin.

15

The above referenced publications do not disclose a personal care photoprotective composition that provides enhanced visible light protection using widely available and inexpensive visible light protecting actives like curcumin and others. The present inventors have found that certain visible light protective actives when used with specific non-ionic surfactants in a cosmetically acceptable aqueous base comprising fatty acids, it is possible to provide enhanced visible light protection, better than that achieved heretofore with such actives.

20

It is thus an object of the present invention to obviate the drawbacks of the prior art and provide enhanced visible light protection in personal care compositions.

25

Another object of the present invention is to achieve the above object using well known actives which are widely and inexpensively available.

30

Summary of the Invention

The first aspect of the present invention provides for a photoprotective personal care composition comprising

- 3 -

- (i) 0.2 to 5 wt% of an organic visible light absorber having a solubility in water of less than 0.1 wt% at 25 °C and a molar absorption coefficient higher than 1000 $\text{M}^{-1} \text{cm}^{-1}$ at a wavelength in the range of 400 to 800 nm;
- (ii) 0.2 to 5 wt% a non-ionic surfactant having an HLB value higher than 10;
- 5 (iii) a cosmetically acceptable base comprising 1 to 25 wt% fatty acid and
- (iv) 20 to 80 wt% water.

It is preferred that the cosmetically acceptable base comprises 0.1 to 10 wt% soap by weight of the composition.

10

Another aspect of the invention relates to a method of providing enhanced visible light protection comprising the step of applying a composition of the invention to the external surface of the body.

15 Detailed description of the Invention

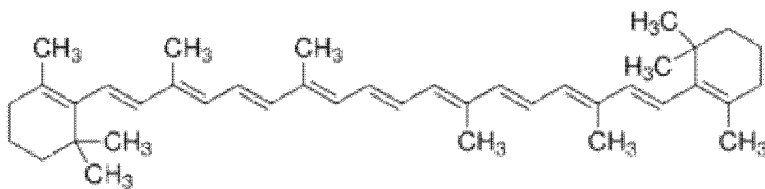
These and other aspects, features and advantages will become apparent to those of ordinary skill in the art from a reading of the following detailed description and the appended claims. For the avoidance of doubt, any feature of one aspect of the present invention may be utilized in any other aspect of the invention. The word "comprising" is
20 intended to mean "including" but not necessarily "consisting of" or "composed of." In other words, the listed steps or options need not be exhaustive. It is noted that the examples given in the description below are intended to clarify the invention and are not intended to limit the invention to those examples per se. Similarly, all percentages are weight/weight percentages unless otherwise indicated. Except in the operating and
25 comparative examples, or where otherwise explicitly indicated, all numbers in this description and claims indicating amounts of material or conditions of reaction, physical properties of materials and/or use are to be understood as modified by the word "about". Numerical ranges expressed in the format "from x to y" are understood to include x and y. When for a specific feature multiple preferred ranges are described in
30 the format "from x to y", it is understood that all ranges combining the different endpoints are also contemplated.

By “a photoprotective personal care composition” as used herein, is meant to include a composition for topical application to sun-exposed areas of the skin and/or hair of mammals, especially humans. Such a composition may be generally classified as leave-on or rinse off, and includes any product applied to a human body for also
5 improving appearance, cleansing, odor control or general aesthetics. It is more preferably a leave-on product. The composition of the present invention can be in the form of a liquid, lotion, cream, foam, scrub, gel, or toner, or applied with an implement or via a face mask, pad or patch. Non-limiting examples of such sunscreen compositions include leave-on skin lotions, creams, antiperspirants, deodorants,
10 lipsticks, foundations, mascara, sunless tanners and sunscreen lotions. “Skin” as used herein is meant to include skin on the face and body (e.g., neck, chest, back, arms, underarms, hands, legs, buttocks and scalp) and especially to the sun exposed parts thereof. The composition of the invention is also of relevance to applications on any other keratinous substrates of the human body other than skin e.g. hair where products
15 may be formulated with specific aim of providing photoprotection.

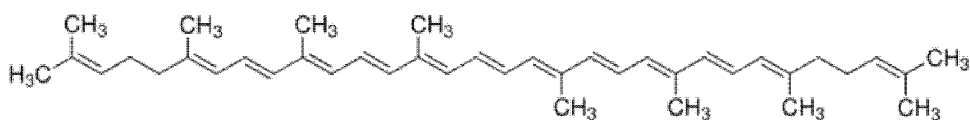
An advantage of the present invention is that the composition is capable of providing enhanced visible light protection.

20 The visible light absorber used in the composition of the present invention has a low water solubility which is less than 0.1 wt% at 25 °C and has a molar absorption coefficient higher than $1000 \text{ M}^{-1} \text{ cm}^{-1}$ at a wavelength in the range of 400 to 800 nm. By the above definition of visible light absorber is meant that the absorber has a molar absorption coefficient higher than $1000 \text{ M}^{-1} \text{ cm}^{-1}$ at, at least one wavelength in the
25 range of 400 to 800 nm. The molar absorption coefficient (ϵ), molar extinction coefficient, or molar absorptivity, is a measure of how strongly a chemical species absorbs light at a given wavelength. It is an intrinsic property of the species. Preferred visible light absorbers for use in the composition of the invention are curcumin, β - carotene, lycopene, Alizarin and Xanthophyll. The above compounds have the general
30 chemical structure, as given below.

- 5 -

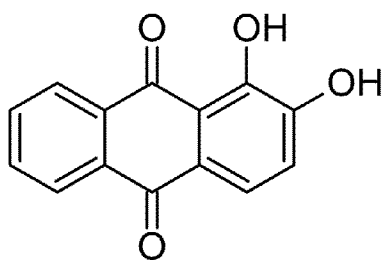


Beta carotene



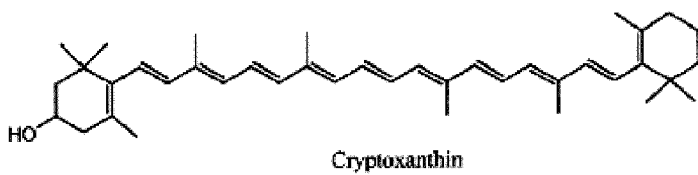
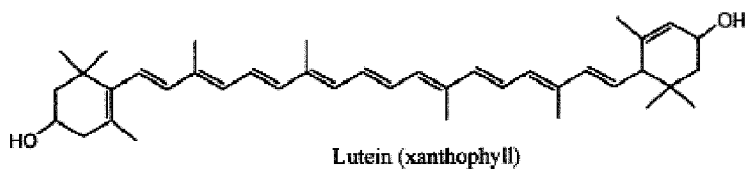
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Lycopene



Alizarin

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Xanthophylls

These compounds are available from both natural and synthetic sources. Curcumin is available naturally from *Curcuma longa* plant. The pure curcumin used for the experiments was obtained from Rolex Chemicals, lycopene >90% from tomato was obtained from Sigma Aldrich, beta carotene (synthetic) was also obtained from Sigma Aldrich. Alizarin is a red pigment from madder plant which is also synthesized chemically was obtained from Alfa Aesar chemicals. Xanthophylls in general are yellow pigments belongs to the class of carotenoids separated from natural plant extracts.

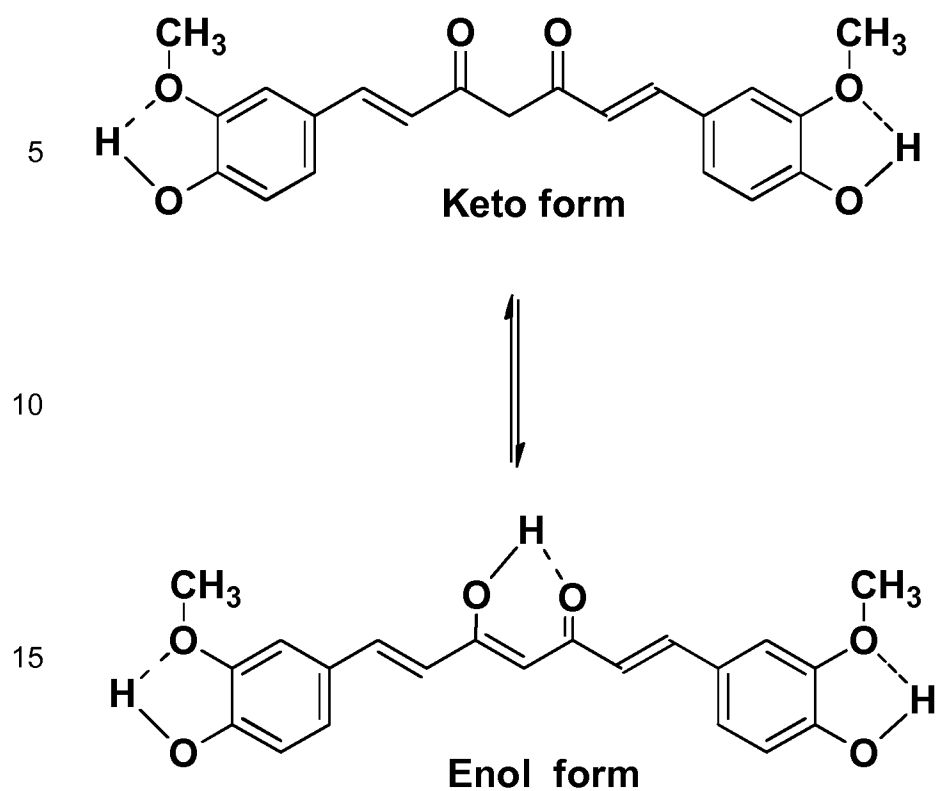
The water solubility and molar absorption coefficient of these compounds are given in the table below:

Compound	Solubility in water at 25 °C, wt%	Molar absorption coefficient (Wavelength)
Curcumin	Insoluble	47000 (410nm)
β -carotene	Insoluble	137000 (452nm)
Lycopene	Insoluble	185000 (474nm)
Alizarine	Insoluble	5000 (430nm)
xanthophyll	Insoluble	100000-400000 (400-800nm)

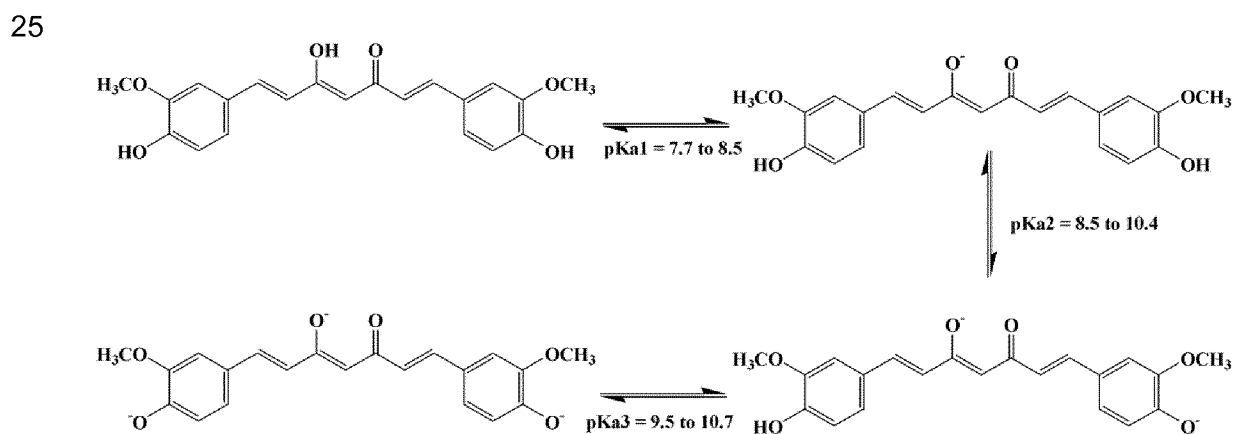
Of the various visible light absorbers, the preferred ones are curcumin, Alizarin and beta carotene, the most preferred one being curcumin.

Curcumin molecule belongs to the family of β -diketones. It has an active methylene carbon with two hydrogen atoms and it exists in two tautomeric forms and their structure is shown below.

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20 It has three acidic protons, one of which is enolic and other two are phenolic protons and their dissociation constants are given below.



It is insoluble in water but it can be solubilized into water by converting to its salt form and is soluble in organic solvents. This molecule absorbs light at 420 ± 10 nm in the visible region and gives yellow-orange colour and also it has variable absorption coefficient from 20000 to 48000 $M^{-1}cm^{-1}$ depending on the solvent. It is readily soluble
5 in alkaline medium and give a red coloured solution. This red colour is due to the removal of phenolic protons and the colour can be reversed back by neutralization with acid.

The organic visible light absorber is present in 0.2 to 5%, preferably 0.5 to 3% by
10 weight of the composition.

An important ingredient that contributes to benefits of the present invention is a non-ionic surfactant. The non-ionic surfactant for use in the composition of the present invention has an HLB value of at least 10, preferably at least 13, further more
15 preferably at least 15.

HLB is calculated using the Griffin method wherein $HLB = 20 \times M_h / M$ wherein M_h is the molecular mass of the hydrophilic portion of the molecule and M is the molecular mass of the whole molecule, giving a result on an arbitrary scale of 0 to 20. Typical
20 values for various surfactants are given below:

A value <10 : Lipid soluble (water insoluble)

A value >10 : Water soluble

A value from 4 to 8 indicates an anti-foaming agent

A value from 7 to 11 indicates a W/O (water in oil) emulsifier

25 A value from 12 to 16 indicates oil in water emulsifier

A value from 11 to 14 indicates a wetting agent

A value from 12 to 15 is typical of detergents

A value of 16 to 20 indicates a solubiliser or hydrotrope

30 The non-ionic surfactant is preferably selected from the group comprising fatty alcohol ethoxylates, fatty acid ethoxylates, alkyl phenol ethoxylates or polyoxyethylene sorbitan alkyl esters. Preferred non-ionic surfactants of the fatty alcohol ethoxylate class are sold under the brand names of Brij 35, Brij 97, Brij700, Brij 99, Brij 56, Brij 76, C12EO7,

and Brij S10. Preferred non-ionic surfactants of the fatty acid ethoxylate class are sold under the brand names of Myrj S20, Myrj S40, Myrj S40, Myrj S50, and PEG-100 stearate. Preferred non-ionic surfactants of the polyoxyethylene sorbitan alkyl esters class are sold under the brand names of Tween 21, Tween20, Tween40, Tween 60,
5 Tween 65 tristearate, Tween 85 trioleate, and Tween 80. Preferred non-ionic surfactants of the alkyl phenol ethoxylate class are sold under the brand names of Triton X114, Triton X100, Triton X102, TritonX165, Triton X305, TritonX405 or Triton X705. It is observed that the above mentioned non-ionic surfactants all have an HLB value higher than 10. The inventors have also used non-ionic surfactants having HLB
10 value less than 10 and other types of surfactants e.g of the anionic, cationic, amphoteric or zwitterionic class and found that they do not provide the enhanced visible light protection when used in these types of compositions as compared to the selected non-ionic surfactants. The non-ionic surfactant is included in 0.2 to 5% preferably 0.5 to 3%, more preferably in 1 to 2.5% by weight of the composition.
15

The composition of the invention comprises a cosmetically acceptable base comprising 1 to 25% fatty acid preferably 3 to 20% fatty acid. In a preferred aspect the composition may include 0.1 to 10% soap. The cosmetically acceptable bases are preferably in a cream, lotion, or emulsion format. The preferred base is one which is an oil-in-water
20 emulsion. A more preferred format is a cream or lotion, further more preferred format is a vanishing cream. Vanishing cream base is one which may comprise 3 to 25%, more preferably 5 to 20% fatty acid. The fatty acids may be saturated or unsaturated fatty acids. The base preferably comprises 0.1 to 10%, more preferably 0.1 to 3% soap. C₁₂ to C₂₀ fatty acids are especially preferred in vanishing cream bases, further more
25 preferred being C₁₄ to C₁₈ fatty acids. In creams, the fatty acid is preferably substantially a mixture of stearic acid and palmitic acid. Soaps in the vanishing cream base include alkali metal salt of fatty acids, like sodium or potassium salts The soap is preferably the potassium salt of the fatty acid mixture. The fatty acid in vanishing cream base is often prepared using hystric acid which is substantially (generally about 90 to
30 95%) a mixture of stearic acid and palmitic acid. Thus, inclusion of hystric acid and its soap to prepare the vanishing cream base is within the scope of the present invention. It is particularly preferred that the composition comprises at least 6%, preferably at least 10%, more preferably at least 12% fatty acid. The cosmetically acceptable base is

usually from 10 to 99.9%, preferably from 50 to 99% by weight of the composition. The cosmetically acceptable base preferably includes water. Water is preferably included in 35 to 90%, more preferably 50 to 85%, further more preferably 50 to 80% by weight of the composition.

5

Without wishing to be bound by theory, the inventors believe that the visible light absorbers used in the invention are better solubilised in the matrix comprising the specific non-ionic surfactant and fatty acid thereby enhancing the spreading of these molecules on the substrate of interest leading to the high photoprotection desired by the way of the present invention.

10

The personal care composition may preferably additionally comprise one or more UV sunscreens. The UV sunscreens may be inorganic or organic. A wide variety of organic sunscreen agents are suitable for use in combination with the essential ingredients of this invention. Most suitable organic sunscreen are 2-ethylhexyl-p-methoxycinnamate (as a UVB sunscreen agent) and/ or butylmethoxydibenzoylmethane (as a UVA

15

sunscreen agent).

A safe and effective amount of sunscreen may be used in the compositions of the present invention. The composition preferably comprises from about 0.1% to about 10%, more preferably from about 0.1% to about 5% w/w of a sunscreen agent.

20

Useful inorganic sun-blocks are also preferably used in the present invention. These include, for example, zinc oxide iron oxide, silica, such as fumed silica, and titanium dioxide. When present, inorganic sunscreen is preferably present in 0.1 to 10% by weight of the composition. The preferred inorganic sunscreens are titanium dioxide or zinc oxide. The inorganic sunscreens preferably have an average particle size in the range of 5 to 100 nm. The inorganic sunscreen is preferably hydrophobically coated. Suitable hydrophobic coating materials are aluminium stearate, silicones or ferric stearate.

25

30

The composition of the invention may additionally comprise a skin lightening agent. The skin lightening agent is preferably chosen from a vitamin B3 compound or its derivative e.g. niacin, nicotinic acid, niacinamide or other well known skin lightening

agents e.g. aloe extract, ammonium lactate, azelaic acid, kojic acid, citrate esters, ellagic acid, glycolic acid, green tea extract, hydroquinone, lemon extract, linoleic acid, magnesium ascorbyl phosphate, vitamins like vitamin B6, vitamin B12, vitamin C, vitamin A, a dicarboxylic acid, resorcinol derivatives, hydroxycarboxylic acid like lactic acid and their salts e.g. sodium lactate, and mixtures thereof. Vitamin B3 compound or its derivative e.g. niacin, nicotinic acid, niacinamide are the more preferred skin lightening agent, most preferred being niacinamide. Niacinamide, when used, is preferably present in an amount in the range of 0.1 to 10%, more preferably 0.2 to 5% by weight of the composition.

10

The composition according to the invention may also comprise other diluents. The diluents act as a dispersant or carrier for other materials present in the composition, so as to facilitate their distribution when the composition is applied to the skin. Diluents other than water can include liquid or solid emollients, solvents, humectants, thickeners and powders.

15

The composition of the invention may comprise a conventional deodorant base as the cosmetically acceptable carrier. By a deodorant is meant a product in the stick, roll-on, or propellant medium which is used for personal deodorant benefit e.g. application in the under-arm or any other area which may or may not contain anti-perspirant actives.

20

Deodorant compositions can generally be in the form of firm solids, soft solids, gels, creams, and liquids and are dispensed using applicators appropriate to the physical characteristics of the composition.

25

The compositions of the present invention can comprise a wide range of other optional components. The CTFA Cosmetic Ingredient Handbook, Second Edition, 1992, which is incorporated by reference herein in its entirety, describes a wide variety of non-limiting cosmetic and pharmaceutical ingredients commonly used in the skin care industry, which are suitable for use in the compositions of the present invention. Examples include: antioxidants, binders, biological additives, buffering agents, colorants, thickeners, polymers, astringents, fragrance, humectants, opacifying agents,

30

conditioners, exfoliating agents, pH adjusters, preservatives, natural extracts, essential oils, skin sensates, skin soothing agents, and skin healing agents.

According to another aspect of the present invention there is provided a method of providing enhanced visible light protection comprising the step of applying a composition of the invention on to a desired external surface of the body. The method preferably comprises applying the composition and leaving it on for at least 5 minutes, preferably at least one hour. Preferably the composition is not washed off for these time frames after applying the composition.

The invention is now further described by way of the following non-limiting examples.

Examples

Examples A to C and 1 to 4: Transmittance of composition as per the invention as compared to compositions outside the invention

Composition as shown in Table 1 was prepared

Table 1

Ingredients	Wt%
Glycerine	1.0
Methyl paraben	0.2
Potassium hydroxide	0.6
Stearic acid	17.0
Cetyl alcohol	0.5
Silicone oil	1.2
Propyl paraben	0.1
Phenoxy ethanol	0.2
Curcumin	1.0
Non-ionic surfactant As in Table -2	2.0
Water	To 100.0

The process of preparing the compositions was as follows.

Water was taken in a stainless steel container and heater to 80 °C under constant stirring using a Silverson mixer model L4RT. The water phase ingredients (glycerine, methyl paraben, non-ionic surfactant and potassium hydroxide) were then separately weighed and added to the water under stirring for about ten minutes. Stearic acid was weighed separately, heated to a molten state and added to the water phase with stirring. The rest of the ingredients were then added to the mixture and homogenization was continued for 5 more minutes. The composition thus formed was slowly cooled to room temperature.

- 10 Various compositions using the base composition of Table – 1 with different non-ionic surfactants were prepared as shown in Table – 2. The compositions were tested for % transmission which is an indicator of degree of photoprotection. The lower the transmission the better the photoprotection. The samples were tested using the following procedure.

- 15 Transpore (ex.3M) tape was used as substrate to spread the compositions. Transpore tape was mounted onto a steel holder and on which 2mg/cm² of the composition was dispensed using a syringe. Parafilm was used as a finger coat and the sample was spread uniformly onto the transpore tape. The sample thus spread on the tape was dried under ambient condition (about 25 °C) for 15 minutes. After 15 minutes, the sample was exposed to solar light simulator (Suntest CPS ++) and the intensity of transmitted light was collected using a detector from International light. The data on the transmitted light at 420 nm for the various samples is summarised in Table 2.

25 Table 2

Examples	Non-ionic surfactant	HLB Value	% transmittance @ 425 nm
A	-	-	*
B	Brij - 52	5.3	87.8
C	C12EO5	9.2	73.2
1	Brij S10	12.0	52.7
2	C12EO7	13.2	53.3
3	Brij 35	16.9	64.9
4	Brij 700	18.8	56.2

*The sample of Example A clearly had discrete yellow spots which indicated that the curcumin was difficult to mix and was present as discrete granules.

The data in Table 1 indicates that the samples as per the invention which comprises
 5 water, fatty acid (at about 17%), non-ionic surfactant having HLB value in the desired range (higher than 10) along with a visible light absorber (Examples 1 to 4) provides low transmittance values which is indicative of higher visible light protection. This is in comparison to Examples A to C which provide low visible light protection.

10 Examples D, E and 5 to 8: Compositions comprising low fatty acid base
 Composition as shown in Table -3 was prepared

Table 3

Ingredients	Wt%
Methyl paraben	0.2
TiO ₂ MT 100 Z	0.1
Glycerine	1.0
TiO ₂ (MP 40)	0.1
Stearic acid	3.0
Cetyl alcohol	0.5
Isopropyl myristate	2.0
LLPO	1.5
Glyceryl mono Sterate	1.5
Dimethicone 200,200	0.5
Carbomer 980	0.4
Triethanolamine	1.0
Niacinamide	3.0
Avobenzon	0.4
Parsol MCX	1.25
Curcumin	1.0
Non-ionic surfactant As in Table -2	2.0
Water	To 100

15 The process of preparing the above composition was similar to that for composition of Table 1.

Various compositions using the base composition of Table 3 with different non-ionic surfactants were prepared as shown in Table 4. The compositions were tested for % transmission using a procedure as used for samples of Table 2.

- 5 The data on the transmitted light at 420 nm for the various samples is summarised in Table 4.

Table 4

Examples	Non-ionic surfactant	HLB Value	% transmittance
D	Brij - 52	5.3	*
E	C12EO5	9.2	87.8
5	Brij S10	12.0	73.2
6	C12EO7	13.2	52.7
7	Brij 35	16.9	53.3
8	Brij 700	18.8	64.9

- 10 *The sample of Example A clearly had discrete yellow spots which indicated that the curcumin was difficult to mix and was present as discrete granules.

- The data in Table 4 indicates that the samples as per the invention with lower amount of fatty acid (Examples 5 to 8) provides low transmittance values which is indicative of
 15 higher visible light protection in comparison to Examples D and E (outside the invention) which provide low visible light protection.

Examples F, and 9 to 11: Effect of inclusion of fatty acid

- 20 The importance of including fatty acid in the composition of the invention was studied. Various compositions as shown in Table -5 were prepared.

Table -5

Examples	F	9	10	11
Non-ionic surfactant, Brij -35, wt%	2	2	2	2
Curcumin, wt%	1	1	1	1
Stearic acid, wt%	0	1	3	17
Water, wt%	To 100	To 100	To 100	To 100

The % transmittance at various wavelengths were measured, similar to the preceding examples and the data is summarised in Table -6.

5

Table-6

%transmittance at wavelength, nm	Example F	Example 9	Example 10	Example 11
400	52.3	43.7	35.0	26.5
410	49.2	40.9	32.5	25.3
420	48.3	39.9	32.0	24.4
430	48.1	40.3	31.9	24.5

The data in Table – 6 above indicates the essential nature of the need for inclusion of fatty acid which clearly demonstrates the reduced transmittance with increased amount of fatty acid, thereby providing better photoprotection in the visible range of solar radiation.

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Claims

1. A photoprotective personal care composition comprising
 - (i) 0.2 to 5 wt% of an organic visible light absorber having a solubility in water of less than 0.1 wt% at 25 °C and a molar absorption coefficient higher than $1000 \text{ M}^{-1} \text{ cm}^{-1}$ at a wavelength in the range of 400 to 800 nm;
 - (ii) 0.2 to 5 wt% a non-ionic surfactant having an HLB value higher than 10;
 - (iii) a cosmetically acceptable base comprising 1 to 25 wt% fatty acid and
 - (iv) 20 to 80 wt% water.
2. A composition as claimed in claim 1 wherein said organic visible light absorber is chosen from curcumin, β -carotene, lycopene, Alizarin or Xanthophyll.
3. A composition as claimed in any one of the preceding claims wherein the non-ionic surfactant is selected from the group comprising fatty alcohol ethoxylates, fatty acid ethoxylates, alkyl phenol ethoxylates or polyoxyethylene sorbitan alkyl esters.
4. A composition as claimed in claim 3 wherein said non-ionic surfactant is Brij 35, Brij 97, Brij700, Brij 99, Brij 56, Brij 76, C12EO7, Brij S10, Myrj S20, Myrj S40, Myrj S40, Myrj S50, PEG-100 stearate, Tween 21, Tween20, Tween40, Tween 60, Tween 65 tristearate, Tween 85 trioleate, Tween 80, Triton X114, Triton X100, Triton X102, TritonX165, Triton X305, TritonX405 or Triton X705.
5. A composition as claimed in any one of the preceding claims comprising 0.5 to 3 wt% non-ionic surfactant.
6. A composition as claimed in any one of the preceding claims wherein said fatty acid is present in higher than 3 wt%.
7. A composition as claimed in any one of the preceding claims wherein said fatty acid is stearic acid or palmitic acid or a mixture thereof.

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8. A composition as claimed in any one of the preceding claims comprising 0.1 to 10 wt% soap.
9. A composition as claimed in claim 8 wherein said soap is a potassium soap.
10. A composition as claimed in any one of the preceding claims wherein said composition is a cream or a lotion.
11. A method of provided enhanced visible light protection comprising the step of applying a composition as claimed in any one of the preceding claims on to a desired external surface of the body.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2013/063339

A. CLASSIFICATION OF SUBJECT MATTER INV. A61Q17/04 A61K38/35 A61K8/35 A61K8/31 A61K8/34 A61K8/67 ADD. According to International Patent Classification (IPC) or to both national classification and IPC											
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) A61Q A61K Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EPO-Internal, WPI Data											
C. DOCUMENTS CONSIDERED TO BE RELEVANT <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Category*</th> <th style="width: 70%;">Citation of document, with indication, where appropriate, of the relevant passages</th> <th style="width: 20%;">Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; vertical-align: top;">X</td> <td style="vertical-align: top;"> DE 102 33 598 A1 (BEIERSDORF AG [DE]) 12 February 2004 (2004-02-12) paragraph [0023] paragraph [0040] paragraph [0049] paragraph [0054] paragraph [0077] paragraph [0004] - paragraph [0005] </td> <td style="text-align: center; vertical-align: top;">1-11</td> </tr> <tr> <td style="text-align: center; vertical-align: top;">X</td> <td style="vertical-align: top;"> US 2008/233060 A1 (GRUNE GUERRY L [US]) 25 September 2008 (2008-09-25) the whole document ----- -/- </td> <td style="text-align: center; vertical-align: top;">1-11</td> </tr> </tbody> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X	DE 102 33 598 A1 (BEIERSDORF AG [DE]) 12 February 2004 (2004-02-12) paragraph [0023] paragraph [0040] paragraph [0049] paragraph [0054] paragraph [0077] paragraph [0004] - paragraph [0005]	1-11	X	US 2008/233060 A1 (GRUNE GUERRY L [US]) 25 September 2008 (2008-09-25) the whole document ----- -/-	1-11
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.									
X	DE 102 33 598 A1 (BEIERSDORF AG [DE]) 12 February 2004 (2004-02-12) paragraph [0023] paragraph [0040] paragraph [0049] paragraph [0054] paragraph [0077] paragraph [0004] - paragraph [0005]	1-11									
X	US 2008/233060 A1 (GRUNE GUERRY L [US]) 25 September 2008 (2008-09-25) the whole document ----- -/-	1-11									
☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.											
<table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> * Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed </td> <td style="width: 50%; vertical-align: top;"> "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family </td> </tr> </table>			* Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family							
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Date of the actual completion of the international search 5 December 2013		Date of mailing of the international search report 13/12/2013									
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016		Authorized officer Bader, Karl Günther									

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2013/063339

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
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Information on patent family members

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