[0014] This matrix generally consists of predominantly saturated polymers and/or lipids stable to oxidation (Comunian et al. “Protection and controlled release of vitamin C by different micro/nanocarriers”, Crit Rev Food Sci Nutr. 2020, Dec 22;1-22).

[0015] The matrices used in the products known to date have the purpose of protecting the active ingredients incorporated, making them more bioavailable, that is able to reach the circulatory system, and increasing skin penetration and gradual release

[0016] For these reasons, however, the activity of the active ingredients is expressed equally on the entire area of skin where the product is applied regardless of the localized concentration of ROS and not preferentially in the areas with a higher concentration of ROS, which are those in which there would be a greater need.

[0017] Furthermore, for the production of similar products, it is necessary to use organic solvents, such as dichloromethane, chloroform, diethyl ether and ether-methanol mixtures which can be toxic, or high temperatures, higher than 60°C and up to 100°C (Ghasemiyeh et al., “Solid lipid nanoparticles and nanostructured lipid carriers as novel drug delivery systems: applications, advantages and disadvantages”, Res Pharm Sci.2018 Aug; 13(4):288-303). This results in an economically and energetically expensive process.

BRIEF SUMMARY

[0018] In light of the limitations of the prior art described above, the main aim of the present disclosure is to provide a product for skin care and a process for its manufacture which are capable of improving the prior art indicated above.

[0019] Within this aim, an object of the disclosure is to provide lipid particles which have a high sensitivity to ROS and are able to convey the active ingredients incorporated therein in the areas which have ROS and in particular in those with a higher concentration of ROS.

[0020] Another object of the disclosure is to provide a skin care product with a greater affinity for ROS than similar products known to date. Another object of the disclosure is to provide a method for manufacturing a skin care product that does not provide for the use of organic solvents and the use of high temperatures.

[0021] Not the least object of the disclosure is to provide a product for skin care and a process for its manufacture which are highly reliable, relatively easy to implement and at competitive costs.

[0022] In one aspect, this task, as well as these and other purposes which will be apparent later, are achieved by lipid particles wherein each of said particles comprises:

[0023] - (a) a matrix, comprising:

[0024] (i) from greater than or equal to 20% to less than or equal to 60% by weight on the total weight of the lipid particle, of a lipid component characterized by a melting temperature from greater than or equal to 40°C to less than or equal to 55°C;

[0025] (ii) from greater than or equal to 20% to less than or equal to 30% by weight on the total weight of the lipid particle of one or more unsaturated fatty acids;

[0026] (iii) from greater than or equal to 10% to less than or equal to 12% by weight on the total weight of the lipid particle of one or more excipients selected from surfactants, suspending agents, humectants and their mixtures;

[0027] and (b) at least one antioxidant agent, incorporated in said matrix.

[0028] In another aspect, the aims and objects of the present disclosure are also achieved by a process for the preparation of lipid particles according to the disclosure, comprising the steps of:

[0029] (i) melting the lipid component;

[0030] (ii) dispersing the one or more unsaturated fatty acids in the fused lipid component of step (i);

[0031] (iii) dispersing in water previously heated to a temperature from greater than or equal to 40°C to less than or equal to 50°C:

[0032] - the at least one antioxidant agent; and

[0033] - the one or more excipients;

[0034] (iv) adding said dispersion obtained in step (ii) to said aqueous dispersion obtained in step (iii), under stirring, obtaining an emulsion;

[0035] (v) cooling the emulsion obtained in step (iv) to a temperature from greater than or equal to 5°C to less than or equal to 15°C, obtaining an emulsion consisting of lipid particles in an aqueous phase.

[0036] In another aspect, the tasks and purposes of the disclosure are also achieved by lipid particles for use in the topical treatment of a condition associated with an accumulation of ROS ("Reactive Oxygen Species") in the skin of a patient, wherein each of said lipid particles comprises:

[0037] (a) a matrix comprising:

[0038] (i) a lipid component;

[0039] (ii) one or more unsaturated fatty acids;

[0040] (iii) one or more excipients selected from surfactants, suspending agents, humectants and their mixtures;

[0041] and

[0042] (b) at least one antioxidant agent, incorporated in said matrix.

[0043] In another aspect, the aims and objects of the present disclosure are also achieved by a skin care product comprising the lipid particles according to the disclosure.

[0044] Finally, the aims and objects of the disclosure are also achieved by lipid particles according to the disclosure or a skin care product according to the disclosure for use in the topical treatment of a condition associated with an accumulation of ROS in a patient's skin.

[0044a] In another aspect, the present disclosure relates to lipid particles as disclosed herein or skin care product as disclosed herein for use in the topical treatment of a condition associated with an accumulation of ROS in the skin of a patient.

[0045] Further characteristics and advantages of the disclosure will become clearer from the following detailed description.

DETAILED DESCRIPTION

[0046] In a first aspect, the present invention relates to lipid particles wherein each of said particles comprises a matrix and at least one antioxidant agent incorporated therein.

[0047] The matrix of the lipid particles of the invention comprises from greater than or equal to 20% to less than or equal to 60% by weight on the total weight of the lipid particle, of a lipid component having a melting temperature from greater than or equal to 40°C to less than or equal to 55°C.

[0048] Advantageously, the aforementioned melting temperature is closer to the temperature of the skin (37°C) than the melting temperatures of other waxes used to create lipid particles such as microcristalline wax, carnauba wax, bees wax, that have a melting temperature above 65°C.

[0049] In a preferred embodiment, the lipid component is a mixture of at least two of mimosa wax (acacia decurrens), jojoba seed wax, sunflower seed wax, polyglycerol, pentaerythrityl distearate, and transesterification products of polyglycerol and at least one wax chosen from jojoba wax, mimosa wax and sunflower seed wax.