Abstract: The present invention is about a cosmetic composition and method of preparation of the same. The composition disclosed in this invention is characterized by comprising oils or compounds obtained from vegetal Amazon species, more specifically, Bactris gasipaes H. B. K. and Bertholletia excelsa. Specifically, this invention comprises a caroten obtained from Bactris gasipaes H. B. K and na oil obtained from Bertholletia excelsa. The process of production the anti-aging cream disclosed in this invention in the low energy emulsion (LEE) method.

Declaration under Rule 4.17:
— of inventorship (Rule 4.17(iv))
Published:
— with international search report
**Description**

COSMETIC COMPOSITION COMPRISING PLANT EXTRACTS AND PREPARATION METHOD OF THE SAME

5 **Field of the Invention**

The present invention discloses an antioxidant cream composition comprising a mixture of extracts of *Bactris gasipaes* H.B.K. and *Bertholletia excelsa*, as well as methods for its preparation, specially using the emulsification process with low energy (ELE) in the manufacture of the skin care product.

10 **Background of the Invention**

The use of cosmetics is important to soften or protect the skin against aggressions, providing fatty matter and water, retarding the wrinkle formation and deeply cleaning the epidermis.

Creams are used in topic applications and may have drugs dissolved or in suspension. In the 2nd century, Galeno prepared a cream composed of oil, rose's essence, white wax and water, actually called "cold cream", which serves as base to many creams.

The creams are defined as viscous or semi-solids liquid emulsions of the oil-in-water (O/W) or water-in-oil (W/O) types. In general, are used as emollients or as skin treatment”. The expression "cream" is mainly used in the cosmetic and pharmaceutical industry but several products called cream could not be considered as genuine creams, for they are products that have creamy appearance but are not emulsion-based (ANSEL, 2000). Cream is suitable for cosmetically acceptable and soft formulations, such as O/W. The emulsions are used internally to delivery aqueous and oily drugs, to mask the flavor of some oily drugs and sometimes to improve the absorption of some drugs. By using surfactants in cream formulations, the mixture of oily and aqueous ingredients became easier and even possible.
The base of hydrating cream is composed of water, hydrolates, inhibitors products and emulsifiers. In the preparation process of cosmetic emulsions, the external phase volume is generally higher than of the internal phase. In O/W emulsions, the aqueous phase can reach until 90% of the formulation.

5 The Low energy emulsification process (LEE)

The process of low energy emulsification (LEE) was disclosed by the researches as an economic process with better use of energy that guarantees a better rate in the emulsion production. This technique is evolving rapidly and is being applied to the production of different kinds of emulsion. The process LEE occurs in three phases: oily phase, aqueous beta phase (β) and aqueous alfa phase (α). This process offers an economy of 50% thermal energy and a decreasing in the time necessary to cool the emulsion. In the present invention, this time is lower than in conventional methods ensuring the integrity of the active molecules present in the formulation.

The inventors of the present invention decided to use products from two plants, namely Bactris gasipaes and Bertholletia excelsa to prepare a cream by the LEE method.

Bactris gasipaes is a species of palm native to the tropical forests of the South and Central America. It is a palm which fruit is a drupe with an edible pulp surrounding the single seed, 4-6 cm long and 3-5 cm broad. The rind (epicarp) of this wild palm can be red, yellow, or orange when the fruit is ripe depending on the variety of the palm. B. gasipaes is well known by the native populations where it usually grows up, and they having been used for centuries as food. They frequently eat the fruit stewed in salted water. However, it may be peeled and dressed with salt and honey, used to make compotes and jellies, or also used to make flour and edible oil. Because the huge importance of B. gasipaes for the native populations, there are numerous common names for this plant in several languages and many countries such as peach-palm or pewa, pejibaye, tembe, pupunheira, and pupunha.

The skin is the organ most prone to oxidation processes and degenerative alteration occurs after some years due to the accumulation of
toxic substances in the organism (free radicals). When attacked, the skin presents visible signs of aging such as loss of brightness, dehydration signals, decreasing elasticity, spots formation and presence of superficial, medium and profound wrinkles.

The 'β-carotene, obtained from the fruit of Bactris gasipaes H. B. K., is a liposoluble pro-vitamin, mandatory to vision, growth and mainly to epithelium regeneration. It is considered an effective therapeutic component in aging prevention, restoring damaged tissue and renewing cells.

Bertholletia excelsa, is a species of the Lecythidaceae family and is known by the vulgar names of brazil-nut, true-nut, castanha-do-para among others. The fruit is called chestnut since it has a ligneous and hard shell. The seeds represent 25% of the fruit weight and the nuts (the seed without the shell), which have high nutritive value and are internationally appreciated being used in gastronomy, 13%. It is one of the most important products of Amazon exploration.

Specifically, the composition presented here is a cosmetic cream with cutaneous antioxidant action being indicated in anti-aging treatment. By being rich in essentials fatty acids (omega 3 and 6) this cream with Bactris gasipaes H. B. K. oil when applied in the skin causes lipids regeneration from the corneous layer, restructuring the lipid protector layer so the skin becomes more hydrated.

The research in patent literature has pointed some documents that use Bactris spp or Bertholletia spp. The most relevant will be described here.

The document WO 1999/64029 discloses a plant extract obtained from Bactris spp more specifically, Bactris balanoidea, used to treat several diseases such as diabetes, influenza, common cold, pulmonary emphysema, bronchitis, cancer and asthma. The present invention differs from the prior art by not being intended to have pharmaceutical effects but rather cosmetic effects, restricted to the skin.

The document WO 2007/133641 discloses a cosmetic preparation to skin treatment that comprises the use of anti-oxy-vitamins as caroten, flavonoids,
retinoids and others. Several kinds of skin treatment are disclosed in this document, among them, anti-aging treatment. Several anti-oxy-vitamins are suggested in this document, but none of them is derived from *Bactris gasipaes*.

The document WO 05/039525 discloses a composition to skin care and cleansing that comprises an oil seed obtained from several plant species, among them, *Bertholletia excelsa*.

The document US 6,471,972 discloses an anti-aging composition which the anti-aging mechanism is to promote the adhesion of keratinocytes of the epidermal baseal layer, to the dermo-epidermal junction, especially to the collagen IV. In this document it is suggested the use of an extract from *Bertholletia* as an stimulator of collagen synthesis. There is no mention about the simultaneous use of *Bactris gasipaes* extract.

Therefore, it can be seen that the prior art neither teach nor suggests the use of cosmetic compositions, specially anti-aging creams compositions, comprising extracts from *Bactris gasipaes* and/or *Bertholletia excelsa* as main active agents.

**Objectives of the Invention**

It is an objective of the invention a cosmetic composition comprising an oil-in-water emulsion wherein the oil phase comprises at least one extract of a plant belonging to the genus Bactris and at least one extract of a plant belonging to the genus *Bertholletia*.

In a preferred embodiment, the plant extract belongs to *Bactris gasipaes* *H.B.K* and/or *Bertholletia excelsa*. In a preferred embodiment the Bactris oil is a source of carotenoids, such as β-carotene.

It is a further object of the invention a preparation method comprising the steps of:

a) heating the aqueous and oily phases, independently, to a temperature of about 70°C;

b) adding the oily phase over the aqueous phase;

c) cooling to a temperature of about 40°C; and
d) adding the remainder ingredients.

**Detailed description of the invention**

The following examples are intended solely to exemplify some embodiment of the many existent ways of performing the invention, and therefore are to be understood as not limiting the present invention.

**Plant Oils**

The plant oils useful in the present invention are chosen from plants belonging to the genus *Bactris* and *Bertholletia*.

The plant oils are extracted by a process according to the method for continuous extractions at controlled temperature and the extraction must be performed in the absence of light. The resulting oil from *Bactris* contained a high level of carotenoids, according to methods of the state of the art.

In a preferred embodiment, the plants are *Bactris gasipaes* H.B.K. and *Bertholletia excelsa*, and both are present in an amount of from 1% w/w to 15% w/w.

In a more preferred embodiment, the composition is a cream composition comprising 2% w/w of *Bactris gasipaes* H.B.K. oil and 1% w/w *Bertholletia excelsa* oil.

**Emollient**

As used herein, the expression "emollient" and "emollient material" refers to one or more liquids that soften or soothe the skin. An emollient material may be one or more generally hydrophobic materials (typically in liquid form) including, but not limited to, vaseline, mineral oils, animal and vegetable oils and fats, fatty acid esters derived from fatty acids or fatty alcohols, mixtures of hydrocarbon materials that resemble petrolatum in appearance and consistency.
Suitable emollients according to the description include, without limitation, isopropyl miristate, Vaseline, fatty alcohols, and they may be present in an amount of from 15% w/w to 25% w/w.

Surfactant/Emulsifier

The surfactants (or emulsifier) useful in the present invention are chosen from the group comprising anionic, cationic, non-ionic, amphoteric and/or zwitterionic surfactants. Examples of each class are detailed below.

a) Anionic Surfactants

The anionic surfactant may comprise, wholly or predominantly, a C8-15 linear alkyl benzene sulphonate. Primary alkyl or alkenyl sulphate in which the alkyl or alkenyl chain has of 8 to 18 carbon atoms especially 10 to 14 carbon atoms and a solubilising cation, is also commercially significant as an anionic surfactant and may be used in this invention, olefin sulphonates; alkane sulphonates; dialkyl sulphosuccinates; and fatty acid ester sulphonates. One or more soaps of fatty acids may also be included. Examples are sodium soaps derived from the fatty acids from coconut oil, beef tallow, sunflower or hardened rapeseed oil. These may be formed by adding fatty acid and a base such as sodium carbonate to a mixture which is used to form the surfactant-rich base particles.

b) Cationic Surfactants

Cationic surfactants that may be used include quaternary ammonium salts of the general formula:

$$R_1R_2R_3R_4N^+X^-$$

wherein the R groups are long or short hydrocarbyl chains, typically alkyl, hydroxyalkyl or ethoxylated alkyl groups, and X is a solubilising anion (for example, compounds in which Ri is a C₈-C₂₂ alkyl group, preferably a Ce-C₁₀ or C₁₂-C₁₄ alkyl group, R₂ is a methyl group, and R₃ and R₄, which may be the same or different, are methyl or hydroxyethyl groups); and cationic esters (for example, choline esters).
c) Non-ionic Surfactants

Nonionic surfactants that may be used include the primary and secondary alcohol ethoxylates, especially the C₈-C₂₀ aliphatic alcohols ethoxylated with an average of from 1 to 20 moles of ethylene oxide per mole of alcohol, and more especially the C₁₀-C₁₅ primary and secondary aliphatic alcohols ethoxylated with an average of from 1 to 10 moles of ethylene oxide per mole of alcohol. Non-ethoxylated nonionic surfactants include alkylpolyglycosides, glycerol monoethers, and polyhydroxyamides (glucamide).

d) Amphoteric and/or Zwitterionic Surfactants

Preferred amphoteric surfactants are amine oxides. These are materials of the general formula:

\[ R₁R₂R₃N-O \]

wherein \( R₁ \) is typically a C₈-C₁₈ alkyl group, for example, C₁₂-C₁₄ alkyl, and \( R₂ \) and \( R₃ \), which may be the same or different, are C₁-C₃ alkyl or hydroxyalkyl groups, for example, methyl groups. The most preferred amine oxide is coco dimethylamine oxide. Preferred zwitterionic surfactants are betaines, and especially amidobetaines. Preferred betaines are C₈-C₁₈ alkyl amidoalkylbetaines, for example, coco amidopropyl betaine (CAPB).

The emulsifier may be present in an amount of up to 10% w/w.

Additional compounds

As additional compounds that can be used in this compositions are flavorings, anti-freezing agent, preservatives (antibacterial, antifungal, antiviral), antioxidants, such as BHT, thickening agents, sequestering or chelant agents, such as EDTA, conditioning agents, such as volatile silicones, panthenol, neutralizing agents and can be used in an amount of up to 75% w/w.

Preparation Method

Initially, the oily phase and part of the aqueous phase are independently heated, at about 70°C. The oily phase must be poured in the aqueous phase under stirring, preferably with the aid of a 750-3000 rpm stirring during.
During the process, the melting temperature of both phases should not exceed 60°C, and the mixture of both phases, forming the emulsion, is performed at a temperature of about 50°C. The aqueous phase and oily phase ingredients are heated in separated flasks. During the emulsification process, inversion of the emulsion phase.

After this a cooling process should take place and when the system reaches 40°C, the remainder phase (either aqueous or oily) is added to the mixture and homogenized.

**Exemplo 1.** Anti-oxidant cream formula with carotenoids from *Bacths gasipaes H. B. K.* oil.

In the preparation of this cream, it was used the technique of low energy emulsification process (LEE) in which the oily phase was composed by carotenoids and fatty matter and the other components were distributed in both aqueous phase associated with the essences.

Initially the parabens are solubilized in propylene glycol and then added into the aqueous phase B, which will have a great amount of water, leaving little to be added later to complete the desired volume.

Phases A and B were separately heated to reach a temperature of about 70°C. Phase A was poured over phase B under stirring (750-3000 rpm) when both phases have the same temperature. The mixture is then homogenized and cooled and when it reaches a temperature below 40°C, phase C is added, followed by homogenization.

<table>
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<tr>
<th>Phase</th>
<th>Composition</th>
<th>Amount (% w/w)</th>
</tr>
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<tbody>
<tr>
<td>A</td>
<td>Polawax</td>
<td>15%</td>
</tr>
<tr>
<td></td>
<td>Isopropyl myristate</td>
<td>4%</td>
</tr>
<tr>
<td></td>
<td>Liquid vaselin</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>Eumulgin B2 (carbomers)</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td>BHT</td>
<td>0.05%</td>
</tr>
<tr>
<td>B</td>
<td>Carbomero 940 (sol.2%)</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>Propyleneglicol</td>
<td>4%</td>
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</table>
The results of the quality tests have revealed that the composition have good stability based in the organoleptic and physic-chemical characteristics and also based in the microbiological control of the cream. The product has high viscosity, stability, consistency and better appearance than others obtained by the conventional methods.
Claims

COSMETIC COMPOSITION COMPRISING PLANT EXTRACTS AND PREPARATION METHOD
OF THE SAME

1. Cosmetic composition comprising plant extracts characterized by the fact that it comprises an oil-in-water emulsion wherein the oil phase comprises at least one extract of a plant belonging to the genus Bactris and at least one extract of a plant belonging to the genus Bertholletia.

2. Cosmetic composition, according to claim 1, characterized by the fact that the plant belonging to the genus Bactris is Bactris gasipaes H.B.K.

3. Cosmetic composition, according to claim 2, characterized by the fact that the extract of Bactris gasipaes H.B.K. has a high content of carotenoids.

4. Cosmetic composition, according to claim 3, characterized by the fact that the carotenoids are β-carotene.

5. Cosmetic composition, according to claim 1, characterized by the fact that the plant belonging to the genus Bertholletia is Bertholletia excelsa.

6. Cosmetic composition, according to claim 1, characterized by the fact that the Bactris oil and Bertholletia oil are present in an amount of from 1% w/w to 15% w/w.

7. Cosmetic composition, according to claim 1, characterized by the fact that the emulsion comprises emollients and emulsifiers.

8. Cosmetic composition, according to claim 7, characterized by the fact that the emulsifiers are chosen from the group consisting of anionic, non-ionic, cationic, amphoteric and/or zwitterionic and mixtures thereof.

9. Cosmetic composition, according to claim 8, characterized by the fact that the anionic emulsifiers are chosen from the group consisting of C8-15 linear alkyl benzene sulphonate, primary alkyl or alkenyl sulphate in which the alkyl or alkenyl chain has of 8 to 18 carbon atoms and a solubilising cation, olefin sulphonates, alkane sulphonates, dialkyl sulphosuccinates, fatty acid ester sulphonates, soaps of fatty acids and mixtures thereof.
10. Cosmetic composition, according to claim 8, characterized by the fact that the cationic emulsifiers are chosen from the group consisting of quaternary ammonium salts of the general formula:

\[ R_1R_2R_3R_4^+ X^- \]

wherein the R groups are long or short alkyl, hydroxyalkyl or ethoxylated alkyl groups, and X is a solubilising anion, cationic esters and mixtures thereof.

11. Cosmetic composition, according to claim 8, characterized by the fact that the non-ionic emulsifiers are chosen from the group consisting of primary and secondary alcohol ethoxylates, with an average of from 1 to 20 moles of ethylene oxide per mole of alcohol, alkylpolyglycosides, glycerol monoethers, polyhydroxyamides and mixtures thereof.

12. Cosmetic composition, according to claim 8, characterized by the fact that the amphoteric and/or zwitterionic emulsifiers are chosen from the group consisting of materials of the general formula:

\[ R_1R_2R_3\rightarrow N-O \]

wherein R1 is typically a C8-C18 alkyl group, and R2 and R3, which may be the same or different, are C8-C12 alkyl or hydroxyalkyl groups; C8-C18 alkyl amidoalkylbetaines.

13. Cosmetic composition, according to claim 8, characterized by the fact that the emulsifiers are present in an amount of up to 10% w/w.

14. Cosmetic composition, according to claim 7, characterized by the fact that the emollient is chosen from the group comprising vaseline, mineral oils, animal and vegetable oils and fats, fatty acid esters derived from fatty acids or fatty alcohols.

15. Cosmetic composition, according to claim 14 characterized by the fact that the emollients are present in an amount of from 15% w/w to 25% w/w.

16. Cosmetic composition, according to claim 1, characterized by additionally comprising flavorings, anti-freezing agent, preservatives, antioxidants, thickening agents, sequestering or chelant agents, conditioning agents, neutralizing agents and mixtures thereof.
17. Cosmetic composition, according to claim 16, characterized by the fact that the additional agents are present in an amount of up to 75% w/w.

18. Cosmetic composition, according to claim 1, characterized by the fact that the emulsion is a cream to be applied onto the skin.

19. Preparation method of a cosmetic composition comprising plant extracts characterized by the fact that it comprises the steps of:
   a) heating the aqueous and oily phases, independently, to a temperature of about 70°C;
   b) adding the oily phase over the aqueous phase;
   c) cooling to a temperature of about 40°C; and
   d) adding the remainder ingredients.

20. Preparation method, according to claim 19, characterized by the fact that the addition of step b) is performed under stirring, followed by homogenization.

21. Preparation method, according to claim 19, characterized by the fact that the addition of step d) is followed by homogenization.

22. Preparation method, according to claim 19, characterized by the fact that the emulsion formed in step d) is formed by a Low Energy Emulsion process.
**CORRECTED VERSION**

**INTERNATIONAL SEARCH REPORT**

**INTERNATIONAL APPLICATION**

**International application No.**
PCT/BR 2007/000374

**A CLASSIFICATION OF SUBJECT MATTER**

IPC*: A61K 8/97 (2006.01); A61Q 19/08 (2006.01); C11D 9/48 (2006.01); C11D 10/04 (2006.01)

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)

IPC*: A61K, A61Q, C11D

**Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched**

**Electronic database consulted during the international search (name of database and where practicable, search terms used)**

WPI, EPDOC, PAJ, DEPATISNET

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

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<td>A</td>
<td>WO 2001/000253 A1 (KIMBERLEY-CLARK WORLDWIDE INC.), 4 January 2001 (04.01.2001), Page 3, line 30 - page 5, line 28; page 7, line 26 - page 9, line 25; claims 1 to 9.</td>
<td>1 - 18</td>
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[x] Further documents are listed in the continuation of Box C.  
[x] See patent family annex.

* 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 reference (as specified)
  "O" document referred to in the disclosure of the international application, but not in any citation
  "T" document cited to establish the publication date of another citation or other special reference (as specified)

**Date of the actual completion of the international search**

15 September 2008 (15.09.2008)

**Date of mailing of the international search report**


**Name and mailing address of the ISA/ A**

Austrian Patent Office  
Dresdner Straße 87, A-1200 Vienna

**Authorized officer**

BAUMSCHABL F.

**Facsimile No. +43 / 1 / 534 24 / 535**

**Telephone No. +43 / 1 / 534 24 / 459**
Continuation of first sheet

Continuation No. II:

Observations where certain claims were found unsearchable

(Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

Claims Nos.: 19 - 22 because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

Claim 19 is formulated as independent claim. The ingredients and phases of the cosmetic composition are formulated so wide without any technical features that no meaningful international search could be carried out. Claims 20 to 22 are formulated as dependent claims of claim 19. The expressions are so generally that no meaningful search is possible. "Low Energy Emulsion process" has no specifying power.
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