Title: HERBAL PERSONAL CARE FORMULATIONS AND METHOD OF PREPARING THE SAME

Abstract: Disclosed herein is a herbal personal care formulation comprising extracts of herbs and enzyme based preservatives, essential oil blend, and cosmeceutically acceptable excipients, and method of preparing the same.
HERBAL PERSONAL CARE FORMULATIONS AND METHOD OF
PREPARING THE SAME

Field of the Invention

This invention, in general relates to a herbal personal care formulation. In particular the present invention provides a herbal personal care formulation comprising extracts of herbs and enzyme based preservatives and essential oil blend, along with cosmeceutically acceptable excipients and method of preparing the same.

Background of the Invention

Herbs are highly susceptible to bacterial and fungal contamination, therefore herbal personal care products require good preservatives to withstand the shelf life without any micro contamination. This is also because Personal care products like shampoos kept in the bathroom and used over a period of few weeks and therefore there is a possibility of contamination during use. Traditionally preservatives used like Parabens, phenoxyethanol, formaldehyde, formaldehyde liberators are used extensively for preserving personal care products including herbal PC. However there are some safety concerns raised by some consumers on these preservatives. Studies have been done to use essential oils as preservatives, however essential oils above certain levels impart color and odor to the product. This restricts the delivery of products with consumer acceptable sensory profiles. Other nature identical preservatives like Potassium sorbate are also evaluated, but they are weaker in controlling bacterial contamination if the

Now-a-days consumers increasingly prefer natural ingredients in cosmetics, which are free from chemical and other impurities and are safe to use.

It is therefore an important aspect to develop a herbal cream and lotion formulation that is made of natural ingredients to provide better moisturising effect and is safe to use.

Related Art

US Patent no. 7,083,779B2 by Behl et al. discloses a synergistic herbal formulation comprising herbal extract of *Azadirechta indica*, *Citrullus colocynthis*, *Cucumis sativus* and pharmaceutically acceptable carriers. The herbal formulation is non-toxic and biodegradable and useful in the form of lotion, cream, mouthwash, toothpaste or similar forms of application in daily life.
US Patent no. 7,279,151 by Pushpangadan et al. disclose a herbal dental care formulation comprising herbs such as Citrus karna, Zanthoxylum armatum, and Azadirachta indica thereof which can be combined with pharmaceutically acceptable carriers or diluents to be administered in the form of powder, paste, gel, mouthwash and chewing gum etc. The formulation also contains Mint.

Summary of the Invention

It is a principal object of the present invention to provide a personal care formulation comprising extracts of herbs and enzyme based preservatives and essential oil blend, along with cosmeceutically acceptable excipients.

It is another object of the present invention to provide a personal care formulation comprising extracts of herbs and enzyme based preservatives and essential oil blend, wherein said formulation is devoid of any unsafe preservative.

Further object is to provide a method of preparing a personal care formulation comprising extracts of herbs and enzyme based preservatives and essential oil blend, wherein said method is devoid of using any solvent.

The above and the other objects of the present invention are attend according to following preferred embodiments of the present invention, however the scope of the invention is not restricted to the particular embodiment.

In accordance with one preferred embodiment of the present invention, there is provided a personal care formulation comprising extracts of herbs and enzyme-based preservatives and essential oil blend, along with other cosmeceutically acceptable excipients, wherein the extract is prepared employing a super critical fluid extraction and water extraction.

In accordance with another preferred embodiment of the present invention, there is provided a personal care formulation comprising extracts of herbs and enzyme-based preservatives and essential oil blend, along with other cosmeceutically acceptable excipients, wherein the extract of herbs is obtained from a blend of herbs selected from Azadirachta indica, Curcuma longa, Glycyrrhiza glabra, Asparagus racemosus, Tinospora cordifolia and Sida cordifolia and in various combinations thereof.

In accordance with one other preferred embodiment of the present invention, there is provided a personal care formulation comprising extracts of herbs and
enzyme-based preservatives and essential oil blend, along with other cosmeceutically acceptable excipients, wherein the extract of herbs is obtained from a blend of herbs selected from *Azadirachta indica* and *Curcuma longa*.

In accordance with one other preferred embodiment of the present invention, there is provided a personal care formulation comprising extracts of herbs and enzyme-based preservatives and essential oil blend, along with other cosmeceutically acceptable excipients, wherein the extract of herbs is obtained from a blend of herbs selected from *Glycyrrhiza glabra*, *Asparagus racemosus*, *Tinospora cordifolia* and *Sida cordifolia* and in various combinations thereof.

In accordance with yet another preferred embodiment of the present invention, there is provided a personal care formulation comprising extracts of herbs and enzyme-based preservatives and essential oil blend, along with other cosmeceutically acceptable excipients, wherein the blend extract is used in the range of 0.5% to 2%.

In accordance with yet another preferred embodiment of the present invention, there is provided a personal care formulation comprising extracts of herbs and enzyme-based preservatives and essential oil blend, along with other cosmeceutically acceptable excipients, wherein the preservatives are natural, two-part "system", based on an enzyme solution containing lactoperoxidase and glucose oxidase and a substrate solution containing glucose, thiocyanate and iodide ions, and essential oil blends.

In accordance with still another preferred embodiment of the present invention, there is provided a personal care formulation comprising extracts of herbs and enzyme-based preservatives and essential oil blend, along with other cosmeceutically acceptable excipients, wherein the preservative is used in the range of 0.05% to 1.05%.

In accordance with still another preferred embodiment of the present invention, there is provided a personal care formulation comprising extracts of herbs and enzyme-based preservatives and essential oil blend, along with other cosmeceutically acceptable excipients, wherein said formulation is in the form of any kind of personal care formulation, preferably, Face wash, Revitalizing hand wash and Revitalizing Body Lotion.

In accordance with yet another preferred embodiment of the present invention, there is provided a personal care formulation comprising extracts of herbs and
enzyme-based preservatives and essential oil blend, along with other cosmeceutically acceptable excipients, wherein said formulation is prepared by a method comprising blending the organically certified herbs and extracting the resultant herbs employing super critical fluid extraction (SCFE), mixing the resultant extract of blend with enzyme based preservatives and essential oil blend, along with cosmeceutically acceptable excipients.

In accordance with yet another preferred embodiment of the present invention, there is provided a personal care formulation comprising extracts of herbs and enzyme-based preservatives and essential oil blend, along with other cosmeceutically acceptable excipients, wherein said formulation is prepared by a method comprising blending the organically certified herbs and extracting the resultant herbs employing percolation or soxhlation using water, mixing the resultant extract of blend with enzymes based preservatives and essential oil blend, along with cosmeceutically acceptable excipients.

**Detailed Description of the invention**

While this specification concludes with claims particularly pointing out and distinctly claiming that, which is regarded as the invention, it is anticipated that the invention can be more readily understood through reading the following detailed description of the invention and study of the included examples.

The present invention discloses a personal care formulation comprising extracts of herbs and enzyme-based preservatives and essential oil blend, along with other cosmeceutically acceptable excipients.

The present invention describes the preparation of various types of herbal personal care formulation.

According to one of the example, wherein various Face Washes are developed preferably Neem and Turmeric Face wash.

According to one other example, wherein various lotions are developed preferably and Revitalizing Body Lotion.

According to one other example of the present invention, wherein Revitalizing hand wash is developed.
The said extract of herbs according to the present invention is obtained from a blend of herbs selected from *Azadirachta indica*, *Curcuma longa*, *Glycyrrhiza glabra*, *Asparagus racemosus*, *Tinospora cordifolia* and *Sida cordifolia*.

In accordance with preferred embodiment of the present invention, there is provided a method of preparing the extract from said herbs, wherein process is performed using suitable extraction technique, preferably super critical fluid extraction, cold percolation method, hot-soxhlation method or percolation method.

In accordance with the present invention, said extract of herbs can be prepared by using any parts of herbs, preferably leaf of *Azadirachta indica*, rhizomes of *Curcuma longa*, root of *Glycyrrhiza glabra*, root of *Asparagus racemosus*, stem of *Tinospora cordifolia* and root of *Sida cordifolia*.

This invention discloses a synergistic combination of preservatives containing enzyme based preservatives like Biovert®, nature identical preservatives like Sorbates and essential oil blends maximum total microbial count. Biovert is enzyme based preservative sold by Arch chemicals.

It is a natural, two-part "system" used to maintain product integrity, based on an enzyme solution containing lactoperoxidase and glucose oxidase and a substrate solution containing glucose, thiocyanate and iodide ions. The assigned INCI designation for the Biovert® system is glucose (&) glucose oxidase (&) lactoperoxidase.

The following examples further illustrate the invention and its unique characteristics in elaborate manner. However, following examples are not intended to limit the scope of invention in any way.

**Example 1**

We have evaluated face washes with use of biovert, potassium sorbate and other herbal materials /oils for total microbial count.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Use of material</th>
<th>Formula A % addn.</th>
<th>Formula B % addn.</th>
<th>Formula C % addn.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coco glucoside</td>
<td>Foaming agent</td>
<td>15.00</td>
<td>15.00</td>
<td>15.00</td>
</tr>
<tr>
<td>Decyl glucoside</td>
<td>Foaming agent</td>
<td>30.00</td>
<td>30.00</td>
<td>30.00</td>
</tr>
<tr>
<td>Citric acid</td>
<td>pH neutralizer</td>
<td>1.50</td>
<td>1.50</td>
<td>1.50</td>
</tr>
<tr>
<td>Glycerine</td>
<td>Humectant</td>
<td>3.00</td>
<td>3.00</td>
<td>3.00</td>
</tr>
<tr>
<td><strong>Amaze-XT</strong></td>
<td><strong>Thickener</strong></td>
<td>0.50</td>
<td>0.50</td>
<td>0.50</td>
</tr>
<tr>
<td><strong>Natural Vitamin E</strong></td>
<td><strong>Antioxidant</strong></td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
</tr>
<tr>
<td><strong>Sweet Marjoram Oil</strong></td>
<td><strong>Preservative</strong></td>
<td>0.20</td>
<td>0.20</td>
<td>0.20</td>
</tr>
<tr>
<td><strong>Organic Neem Leaf Extract (CO2)</strong></td>
<td><strong>Active</strong></td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td><strong>Organic Turmeric Oil</strong></td>
<td><strong>Active</strong></td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td><strong>Essential Oil Blend</strong></td>
<td><strong>Fragrance</strong></td>
<td>0.50</td>
<td>0.50</td>
<td>0.50</td>
</tr>
<tr>
<td>(Cinnamon leaf oil, Camphor oil, Cedarwood oil, Rosemary oil)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Potassium Sorbate</strong></td>
<td><strong>Preservative</strong></td>
<td>0.00</td>
<td>0.50</td>
<td>0.50</td>
</tr>
<tr>
<td><strong>Biovert</strong></td>
<td><strong>Preservative</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>1.05</td>
</tr>
<tr>
<td><strong>DM Water</strong></td>
<td><strong>Diluent</strong></td>
<td>49.18</td>
<td>48.68</td>
<td>47.63</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
</tbody>
</table>

**Manufacturing Method**

1. Decyl Glucoside and Coco Glucoside is weighed in the side vessel and mixed well for 10 minutes. The mixture pH is adjusted by 20% citric acid solution around 5.50.

2. Glycerin is taken in a separate SS Vessel and Amaze-XT is dispersed in it using Karl Homogeniser.

3. DM water is taken in the main vessel and to it is added the slurry of glycerine & amaze-XT to form gum dispersion.

4. The surfactant mixture from the step 1 is then transferred to the main vessel under vacuum. This is mixed for 20 minutes to ensure complete mixing.

5. Natural Vitamin E is added into the main vessel and mixed well.

6. The active, Organic Neem Leaf Extract & Organic Turmeric Oil, is added and mixed well for 10 minutes.

7. Essential Oil Blend and sweet marjoram oil are added in the mixing vessel one by one in an interval of 5 minutes.
8. Finally, Potassium Sorbate & Biovert is added to the mail vessel and mixed well.

9. DM water is added finally 3 batch quantity to 100%.

Example 2

Evaluation Details:

AU the three formulations were evaluated for microbial study for a week and the results were found as follows:

<table>
<thead>
<tr>
<th>S. NO.</th>
<th>FORMULA NO.</th>
<th>TVC (cfu/gm/ml)</th>
<th>TFC (cfu/gm/ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>TNTC</td>
<td>TNTC</td>
</tr>
<tr>
<td>2</td>
<td>B</td>
<td>100</td>
<td>&lt;10</td>
</tr>
<tr>
<td>3</td>
<td>C</td>
<td>&lt;10</td>
<td>&lt;10</td>
</tr>
</tbody>
</table>

Example 3

Neem & Turmeric Face Wash:

<table>
<thead>
<tr>
<th>Phase</th>
<th>Ingredients</th>
<th>Percentage addition</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Plantacare 818 UP</td>
<td>29.00</td>
</tr>
<tr>
<td></td>
<td>Plantacare 2000 UP</td>
<td>15.00</td>
</tr>
<tr>
<td></td>
<td>Citric Acid I.P</td>
<td>1.50</td>
</tr>
<tr>
<td></td>
<td>DM Water</td>
<td>5.00</td>
</tr>
<tr>
<td>B</td>
<td>Glycerin I.P</td>
<td>3.00</td>
</tr>
<tr>
<td></td>
<td>Amaze-XT</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>DM Water</td>
<td>39.63</td>
</tr>
<tr>
<td>C</td>
<td>Potassium Sorbate</td>
<td>0.50</td>
</tr>
<tr>
<td></td>
<td>DM Water</td>
<td>3.00</td>
</tr>
<tr>
<td>D</td>
<td>Organic Neem Leaf Extract (CO₂)</td>
<td>0.01</td>
</tr>
<tr>
<td></td>
<td>Organic Turmeric Oil</td>
<td>0.01</td>
</tr>
<tr>
<td></td>
<td>Plantacare 818 UP</td>
<td>1.00</td>
</tr>
</tbody>
</table>
Manufacturing Method

1. Charge 'Phase A' ingredients in the main vessel and mix for 20 minutes with continuous stirring at 40 rpm. Give Vacuum at 550 mm for 60 minutes, till a clear solution is formed.

2. Weigh the 'Phase B' DM Water in a side vessel containing high-speed propeller stirrer. Take 'Glycerin' in a side vessel and add 'Amaze-XT' slowly into the glycerin with continuous stirring to form slurry. Add the pre-mixed phase of Glycerin and Amaze-XT into the vortex of the water. Mix it at very high speed for about 30 minutes to form a uniform gel till there is no lumps found in the solution.

3. Charge the 'Phase C' ingredients into the side vessel and mix to form a uniform solution.

4. Transfer 'Phase C' into the main vessel containing Amaze-XT gel to form 'Phase BC', and continue stirring for some time till a clear gel is formed.

5. Transfer the Amaze-XT gel 'Phase BC' into the main vessel to form 'Phase ABC' and mix for 20 minutes at 80rpm till no lumps remain, and then continue mixing at slow speed at 40rpm for 10 minutes.

6. Charge the 'Phase D' ingredients into the side vessel and mix with continuous stirring for 10 minutes.

7. Transfer the pre-mixed 'Phase D' to the main vessel by passing it through nylon muslin filter with continuous stirring at 60 rpm for 20 minutes to form 'Phase ABCD'. Reduce the speed to 40 rpm once the 'Phase D' is mixed completely into the gel of the main vessel and continue mixing at same speed for another 10 minutes.

8. Charge the 'Phase E' ingredients into the side vessel and mix with continuous stirring for 10 minutes to form a uniform blend of perfume.

9. Transfer the pre-mixed 'Phase E' into the main vessel, Natural Vitamin E & Essential Oil blend mixture into the main vessel to form 'Phase ABCDE' and mix for 20 minutes.
10. Give Vacuum a t 550 mm for 60 minutes, till a clear transparent gel is formed.

11. Add 'Phase F' to the main mixer and mix for 15 minutes.

12. Check the pH of the product, which should be in the range of $pH = 4.8-5.4$.

13. Submit the sample to QA Dept. for analysis.

14. Fill the product after QA Depths approval.

### Preparation of various Lotion Formulations:

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Formula A % addn</th>
<th>Formula B % addn</th>
<th>Formula C % addn</th>
</tr>
</thead>
<tbody>
<tr>
<td>DM Water (Boiled &amp; Cooled)</td>
<td>83.64</td>
<td>83.44</td>
<td>82.39</td>
</tr>
<tr>
<td>Olivem 1000</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Organic Sesame Oil</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Organic Sunflower Oil</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Glycerin</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Organic Coconut Oil</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Biovert Substrate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solution</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>ARD 431 (Combination of Glycyrrhiza glabra, Asparagus racemosus, Tinospora cordifolia and Sida cordifolia)</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Vanzan NF</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>Natural Vitamin E</td>
<td>0.2</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>Soliga Honey</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>Benzyl Benzoate</td>
<td>0</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>Benzyl Salicylate</td>
<td>0</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>Organic Sweet Marjoram Oil</td>
<td>0.11</td>
<td>0.11</td>
<td>0.11</td>
</tr>
<tr>
<td>Organic Vetiver Oil</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
</tr>
</tbody>
</table>
**Manufacturing Method:**

1. Blend and keep the essential oils along with benzyl salicylate.
2. Take DM Water in the main vessel. Heat to boil and cool to 80°C.
3. Heat fixed oils along with olivem 1000 to 80°C.
4. Disperse Vanzan NF in glycerin. Ensure that no lumps are formed and transfer to DM water in main vessel. Mix for 15 min. Maintain the temperature at 80°C.
5. Transfer fixed oil with emulsifier phase to the main vessel at 80°C. Mix for 20 min at 20 rpm only.
6. Start Cooling with continuous mixing at 20 rpm.
7. Transfer Soliga honey an & Nattu-alf & min E to the main vessel at 45°C. Mix thoroughly.
8. Mix Biovert Substrate Solution and Biovert Enzyme Solution in formulation C and add to the main vessel at less than 40°C. For formulations A and B don't add biovert.
9. Add Perfume blend and Mix well for 15 min.

**Example 5**

**Evaluation Details**

All the three formulations were evaluated for microbial study and the results were found as follows,
### Example 6
**Revitalizing Hand and Body Lotion**

<table>
<thead>
<tr>
<th>S. NO.</th>
<th>FORMULA NO.</th>
<th>TVC (cfu/gm/ml)</th>
<th>TFC (cfu/gm/ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>TNTC</td>
<td>TNTC</td>
</tr>
<tr>
<td>2</td>
<td>B</td>
<td>10</td>
<td>&lt;10</td>
</tr>
<tr>
<td>3</td>
<td>C</td>
<td>&lt;10</td>
<td>&lt;10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name of the Raw Material</th>
<th>%Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>DM Water (Boiled)</td>
<td>82.25</td>
</tr>
<tr>
<td>Olivem 1000</td>
<td>4.00</td>
</tr>
<tr>
<td>Organic Sesame Oil</td>
<td>3.00</td>
</tr>
<tr>
<td>Organic Sunflower Oil</td>
<td>3.00</td>
</tr>
<tr>
<td>Organic Coconut Oil</td>
<td>2.00</td>
</tr>
<tr>
<td>Glycerin</td>
<td>3.00</td>
</tr>
<tr>
<td>Vanzan NF</td>
<td>0.30</td>
</tr>
<tr>
<td>Organic Glycyrrhiza Glabra Root Extract</td>
<td>0.125</td>
</tr>
<tr>
<td>Organic Asparagus Racemosus Root Extract</td>
<td>0.125</td>
</tr>
<tr>
<td>Organic Tinospora Cordifolia Stem Extract</td>
<td>0.125</td>
</tr>
<tr>
<td>Organic Sida Cordifolia Root Extract</td>
<td>0.125</td>
</tr>
<tr>
<td>Soliga Honey</td>
<td>0.10</td>
</tr>
<tr>
<td>Natural Vitamin E</td>
<td>0.20</td>
</tr>
<tr>
<td>Biovert Substrate Solution</td>
<td>1.00</td>
</tr>
<tr>
<td>Biovert Enzyme Solution</td>
<td>0.05</td>
</tr>
<tr>
<td>Benzyl Benzoate</td>
<td>0.10</td>
</tr>
<tr>
<td>Benzyl Salicylate</td>
<td>0.10</td>
</tr>
</tbody>
</table>
Manufacturing Method:

1. Blend and keep Phase G ingredients
2. Take DM Water (Phase A) in the main vessel. Heat to boil and cool to 80°C
3. Heat Phase B to 80°C
4. Disperse Vanzan NF in glycerin (Phase C). Ensure that no lumps are formed
5. Transfer Phase C to Phase A. Mix for 15 min. Maintain the temperature at 80°C
6. Transfer Phase B to the main vessel at 80°C. Mix for 20 min at 20 rpm only
7. Start Cooling with continuous mixing at 20 rpm.
8. Transfer Soliga honey (Phase D) and Natural Vitamin E (Phase E) to the main vessel at 45°C. Mix thoroughly.
9. Mix Biovert Substrate Solution and Biovert Enzyme Solution (Phase F) and add to the main vessel at at less than 40°C.
10. Add Perfume blend (Phase J) and mix well for 15 mins.
11. Send the sample to Qc for analysis.

Example 7

Total Microbial count (TMC) of the product

Dissolved or diluted 10 gm or 10 ml of the test substance to be examined in to sterile test tube. To this, added sufficient amount of Soyabean Casein Digest broth or Buffer sodium chloride-peptone solution (Hi-media) of pH 7.0 ± 0.2 to produce 10 ml. The samples were mixed using vortex mixer. From this dispensed 0.1 ml of the final dilution on the surface of the previously prepared sterile Soyabean Casein Digest agar plates and Sabouraud Chloramphenicol agar media plates, not more than one
hour after preparing the appropriate dilutions for inoculation. Then, the vortexed samples were spread on the prescribed media agar plate (Hi-Media) in duplicate for bacteria and fungi, using turntable and sterile spreader uniformly, maintaining aseptic conditions, in the Laminar Air Flow cabinet. Reverted the Petri dishes and incubated in the incubators set at 30-35°C for 3-5 days for bacteria and for fungi at 20-25°C for 5-7 days. After the completion of incubation period, examined the plates for growth, count the number of colonies manually or using colony counter, and express the average of two plates in terms of colony forming units per gram or per ml of the test substance (CFU/gm or CFU/ml), using the following formula:

Average number of colonies from 2 plates × dilution factor

\[
\text{CFU/gm or CFU/ml} = \frac{\text{Quantity of test substance spread on media in ml}}{2 \times \text{dilution factor}}
\]

Example 8

Preparation of extract from *Azhadirachta indica* by Super Critical Fluid Extraction

The dried material of leaves of *Azhadirachta indica* was pulverized to coarse powder and about 25 Kg of powdered material was placed in a SCF extractor at the temperature of 40-50°C at high pressure of 280-320 bar using carbon dioxide as super critical fluid for extraction upto 4 to 6 hours and then the extract was collected in the collection vessel and evaporated at room temperature to remove any further residues of carbon dioxide. The extract thus obtained was free from any solvent residues and in highest pure form.
Example 9
Preparation of water extract from *Azadirachta indica* by percolation method

The dried materials of leaves of *Azadirachta indica* was pulverized to coarse powder and 25 Kg of powdered material was placed in percolator soaked with purified water for 24 hours at room temperature. The next day the extract was decanted from the percolator and filtered through muslin cloth and dried to fine powder.

Example 10
Preparation of water extract from *Azadirachta indica* by hot-soxhlation method

The dried materials of leaves of *Azadirachta indica* was pulverized to coarse powder and 25 Kg of powdered material was placed in soxhlator and refluxed with purified water at steam temperature for 4-6 hours. The process was repeated for three cycles and the resultant extracts were filtered through muslin cloth and concentrated to dryness.

Example 11
Preparation of extract from *Curcuma longa* by Super Critical Fluid Extraction

The dried material of rhizomes of *Curcumà longa* was pulverized to coarse powder and about 25 Kg of powdered material was placed in a SCF extractor at the temperature of 40-50C at high pressure of 280-320 bar using carbon dioxide as super critical fluid for extraction upto 4 to 6 hours and then the extract was collected in the collection vessel and evaporated at room temperature to remove any further residues of carbon dioxide. The extract thus obtained was free from any solvent residues and in highest pure form.

Example 12
Preparation of water extract from *Curcuma longa* by percolation method

The dried materials of leaves of *Curcuma longa* was pulverized to coarse powder and 25 Kg of powdered material was placed in percolator soaked with purified water for 24 hours at room temperature. The next day the extract was decanted from the percolator and filtered through muslin cloth and dried to fine powder.
Example 13
Preparation of water extract from *Curcuma longa* by hot-soxhlation method

The dried materials of leaves of *Curcuma longa* was pulverized to coarse powder and 25 Kg of powdered material was placed in soxhlator and refluxed with purified water at steam temperature for 4-6 hours. The process was repeated for three cycles and the resultant extracts were filtered through musclin cloth and concentrated to dryness.

Example 14
Preparation of extract from *Glycyrrhiza glabra* by Super Critical Fluid Extraction

The dried material of rhizomes of *Glycyrrhiza glabra* was pulverized to coarse powder and about 25 Kg of powdered material was placed in a SCF extractor at the temperature of 40-50°C at high pressure of 280-320 bar using carbon dioxide as super critical fluid for extraction up to 4 to 6 hours, and then the extract was collected in the collection vessel and evaporated at room temperature to remove any further residues of carbon dioxide. The extract thus obtained was free from any solvent residues and in highest pure form.

Example 15
Preparation of water extract from *Glycyrrhiza glabra* by percolation method

The dried materials of leaves of *Glycyrrhiza glabra* was pulverized to coarse powder and 25 Kg of powdered material was placed in percolator soaked with purified water for 24 hours at room temperature. The next day the extract was decanted from the percolator and filtered through musclin cloth and dried to fine powder.

Example 16
Preparation of water extract from *Glycyrrhiza glabra* by hot-soxhlation method

The dried materials of leaves of *Glycyrrhiza glabra* was pulverized to coarse powder and 25 Kg of powdered material was placed in soxhlator and refluxed with purified water at steam temperature for 4-6 hours. The process was repeated for three cycles and the resultant extracts were filtered through musclin cloth and concentrated to dryness.
Example 17
Preparation of extract from *Organic Asparagus racemosus* roots by Super Critical Fluid Extraction

The dried material of *Asparagus racemosus* roots was pulverized to coarse powder and about 25 Kg of powdered material was placed in a SCF extractor at the temperature of 40-50°C at high pressure of 280-320 bar using carbon dioxide as super critical fluid for extraction up to 4 to 6 hours and then the extract was collected in the collection vessel and evaporated at room temperature to remove any further residues of carbon dioxide. The extract thus obtained was free from any solvent residues and in highest pure form.

Example 18
Preparation of water extract from *Asparagus racemosus* by percolation method

The dried materials of leaves of *Asparagus racemosus* was pulverized to coarse powder and 25 Kg of powdered material was placed in percolator soaked with purified water for 24 hours at room temperature. The next day the extract was decanted from the percolator and filtered through muslin cloth and dried to fine powder.

Example 19
Preparation of water extract from *Asparagus racemosus* by hot-soxhlation method

The dried materials of leaves of *Asparagus racemosus* was pulverized to coarse powder and 25 Kg of powdered material was placed in soxhlatror and refluxed with purified water at steam temperature for 4-6 hours. The process was repeated for three cycles and the resultant extracts were filtered through muslin cloth and concentrated to dryness.

Example 20
Preparation of extract from Organic *Tinospora cordifolia* stem by Super Critical Fluid Extraction

The dried material of *Tinospora cordifolia* stem was pulverized to coarse powder and about 25 Kg of powdered material was placed in a SCF extractor at the temperature of 40-50°C at high pressure of 280-320 bar using carbon dioxide as super critical fluid for extraction up to 4 to 6 hours and then the extract was collected in the
collection vessel and evaporated at room temperature to remove any further residues of carbon dioxide. The extract thus obtained was free from any solvent residues and in highest pure form.

**Example 21**

Preparation of water extract from *Tinospora cordifolia* by percolation method

The dried materials of leaves of *Tinospora cordifolia* was pulverized to coarse powder and 25 Kg of powdered material was placed in percolator soaked with purified water for 24 hours at room temperature. The next day the extract was decanted from the percolator and filtered through musclin cloth and dried to fine powder.

**Example 22**

Preparation of water extract from *Tinospora cordifolia* by hot-soxhlation method

The dried materials of leaves of *Tinospora cordifolia* was pulverized to coarse powder and 25 Kg of powdered material was placed in soxhlator and refluxed with purified water at steam temperature for 4-6 hours. The process was repeated for three cycles and the resultant extracts were filtered, through musclin cloth and concentrated to dryness.

**Example 23**

Preparation of extract from Organic *Sida cordifolia* roots by Super Critical Fluid Extraction

The dried material of *Sida cordifolia* roots was pulverized to coarse powder and about 25 Kg of powdered material was placed in a SCF extractor at the temperature of 40-50C at high pressure of 280-320 bar using carbon dioxide as super critical fluid for extraction upto 4 to 6 hours and then the extract was collected in the collection vessel and evaporated at room temperature to remove any further residues of carbon dioxide. The extract thus obtained was free from any solvent residues and in highest pure form.

**Example 24**

Preparation of water extract from *Sida cordifolia* by percolation method

The dried materials of leaves of *Sida cordifolia* was pulverized to coarse powder and 25 Kg of powdered material was placed in percolator soaked with purified water for 24 hours at room temperature. The next day the extract was
decanted from the percolator and filtered through muscin cloth and dried to fine powder.

Example 25

Preparation of water extract from *Sida cordifolia* by hot-soxhlation method

The dried materials of *Asparagus racemosus* and *Sida cordifolia* was pulverized to coarse powder and 25 Kg of powdered material was placed in soxhlator and refluxed with purified water at steam temperature for 4-6 hours. The process was repeated for three cycles and the resultant extracts were filtered through muscin cloth and concentrated to dryness.

Example 26

Preparation of extract from herbal blend by Super Critical Fluid Extraction

The shade dried material of herbal blend of *Glycyrrhiza glabra* roots and/or *Asparagus racemosus* roots and/or *Tinospora cordifolia* stem and/or *Sida cordifolia* roots in the ratio of 1:1:1:1 respectively was pulverized to coarse powder and about 100 Kg of powdered herbal blend was placed in a SCF extractor at the temperature of 40-50°C at high pressure of 300-350 bar using carbon dioxide as super critical fluid for extraction up to 4 to 6 hours and then the extract was collected in the collection vessel and evaporated at room temperature to remove any further residues of carbon dioxide. The extract thus obtained was free from any solvent residues and in highest pure form.

Example 27

Preparation of extract from herbal blend by hot soxhalation

The shade dried material of herbal blend of *Glycyrrhiza glabra* roots and/or *Asparagus racemosus* roots and/or *Tinospora cordifolia* stem and/or *Sida cordifolia* roots in the ratio of 1:1:1:1 respectively was pulverized to coarse powder and about 100 Kg of powdered herbal blend was placed in soxhlator using water as solvent of extraction at refluxing temperature and recycled the process until extraction is completed, then plant extracts were filtered and concentrated to dryness on rotatory evaporator or on steam bath at optimum temperature. The herbal material was also placed in percolator and extracted with Water-at room temperature for 24 h to 48 h., then plant extracts were filtered and concentrated
Example 28

Preparation of extract from herbal blend by cold percolation

The shade dried material of herbal blend of Glycyrrhiza glabra roots and/or Asparagus racemosus roots, and/or Tinospora cordifolia stem and/or Sida cordifolia roots in the ratio of 1:2:1:1, respectively, was pulverized to coarse powder and about 100 Kg of powdered herbal blend was placed in percolator soaked with purified water for 24 hours at room temperature. The next day the extract was decanted from the percolator and filtered through muslin cloth and dried to fine powder.

While this invention has been described in detail with reference to certain preferred embodiments, it should be appreciated that the present invention is not limited to those precise embodiments. Rather, in view of the present disclosure, which describes the current best mode for practicing the invention, many modifications and variations would present themselves to those skilled in the art without departing from the scope and spirit of this invention.
We Claim:

1. A personal care formulation comprising extracts of herbs and enzyme based preservatives and essential oil blend, along with cosmeceutically acceptable excipients, wherein the extract is prepared employing a super critical fluid extraction and water extraction.

2. The formulation according to claim 1, wherein the extract of herbs is obtained from a blend of herbs from Azadiracta indica, Curcuma longa, Glycyrrhiza glabra, Asparagus racemosus, Tinospora cordifolia and Sida cordifolia and in various combinations thereof.

3. The formulation according to claim 1, wherein the extract of herbs is obtained from a blend of herbs selected from Azadiracta indica and Curcuma longa.

4. The formulation according to claim 1, wherein the extract of herbs is obtained from a blend of herbs selected from Glycyrrhiza glabra, Asparagus racemosus, Tinospora cordifolia and Sida cordifolia and in various combinations thereof.

5. The formulation according to claim 1, wherein the blend extract is used in the range of 0.5% to 2%.

6. The formulation according to claim 1, wherein the preservatives are natural, two-part "system", based on an enzyme solution containing lactoperoxidase and glucose oxidase and a substrate solution containing glucose, thiocyanate and iodide ions, and essential oil blends.

7. The formulation according to claim 1, wherein the preservative is used in the range of 0.05% to 1.05%.

8. The formulation according to claim 1, wherein said formulation is prepared by a method comprising blending the herbs and extracting the resultant herbs employing super critical fluid extraction (SCFE), mixing the resultant extract of blend with enzyme based preservatives along with essential oil blend, and cosmeceutically acceptable excipients.

9. The formulation according to claim 1, wherein said formulation is prepared by a method comprising blending the herbs and extracting the resultant herbs employing percolation or soxhlation using water, mixing the resultant extract of blend
with enzymes based preservatives along with essential oil blend, and cosmeceutically acceptable excipients.