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THE PATENTS ACT, 1970
(39 of 1970)
&
The Patents Rules, 2003
COMPLETE SPECIFICATION
(See section 10; rule 13)

TITLE

"HERBAL HAIR-CARE COMPOSITION AND THE PROCESS THEREOF"

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The following specification particularly describes the nature of the invention and the manner in which it is to be performed

FIELD OF INVENTION

The present invention relates to a topical hair–care composition. More particularly, the present invention relates to an herbal hair-care product which includes a composition of oil-based products of herbs, and oils.

BACKGROUND ART

Hair products are a category of leading products in the cosmetic industry. There is a high demand of hair-care products which provide solutions to common hair problems.

Hair damage can lead to thinning of hair, split ends, and rough texture. Pollution, radiations, chemical fumes, heat, dry air, and dirt are external factors which cause hair damage. Hence, it is necessary to provide an invention which can stay adhered to the strands of hair and mask the hair from such damaging factors.

Hair problems like rough hair, dryness, scalp infections, split ends and hair-fall are the most common hair problems in the society. Although these problems are not life-threatening, they cause social stigma, anxiety and awkwardness among individuals.

Hair-fall is undesired and difficult to reverse. Anti-hairfall treatments in the form of edible medications and drugs which target biochemical factors or control hormones are available, but also cause severe metabolic adverse effects. Topical anti-hairfall products can be utilized by anyone without the threat of severe adverse reactions or metabolic side-effects. However, currently used topical anti-hairfall products include synthetic chemicals which cause irritations and allergic reactions and therefore are not desired.

Herbal based hair care composition is also available in the existing art. However, they are not effective as compared to the present product.

In the existing art, *Zingiber cassumunar, Acacia concinna, Hibiscus, Cyperus scariosus, Eclipta prostrata, Citrus sinensis, Emblica officinalis, Azadirachta indica, Bacopa monnieri, Solanum anguivi, Glycyrrhiza glabra or Lawsonia*

inermis may be used for topical application. However, the working-interrelation of these plants as haircare is not known in the existing art.

Also, the existing art is failed to suggest how to use the aforesaid plants in order to prepare a stable composition.

OBJECT OF THE INVENTION

- It is an objective of the invention to provide an herbal hair-care composition of *Eulophia ochreta, Zingiber cassumunar, Acacia concinna, Hibiscus, Cyperus scariosus, Eclipta prostrata, Citrus sinensis, Emblica officinalis, Azadirachta indica, Bacopa monnieri, Solanum anguivi, Glycyrrhiza glabra, Lawsonia inermis.*
- It is another objective of the invention to provide a hair-care composition with uniform spreading effect onto the hair.
- It is yet another objective of the invention to provide a composition which has nourishing effects on hair as well as prevents hair loss.
- It is yet another objective of the invention is to provide a herbal hair care product with no or lesser irritation.
- It is yet another objective of the invention to provide a stable composition of the aforesaid herbs and oils with natural preservatives.
- It is further objective of the present invention to prepare the aforesaid composition.

SUMMARY OF THE INVENTION:

According to one aspect of the present invention, there is provided an herbal hair-care composition comprising of:

i. Coconut oil-based products of *Eulophia ochreta, Zingiber cassumunar, Acacia concinna, Hibiscus, Cyperus scariosus, Eclipta prostrata, Citrus sinensis, Emblica officinalis, Azadirachta indica, Bacopa monnieri, Solanum anguivi, Glycyrrhiza glabra*, and *Lawsonia inermis*;

ii. oils selected from a group consisting of *Trigonella foenum-graecum* oil, *Nigella sativa* oil, *blended Olea europaea* oil, blended *Simmondsia chinensis* oil, *Salvia Rosmarinus* oil and *Lavendula officinalis* oil;

wherein the ratio of oil-based herbal products: oils is 68.5: 31.5;

wherein *Olea europaea* oil is blended with methylsulfonylmethane & biotin, and *Simmondsia chinensis* oil is blended with omega-3-fatty acids & Vitamin E.

According to another aspect of the present invention, there is provided a process for preparing a hair-care composition comprising the steps of:

i. heating powdered *Eulophia ochreta, Zingiber cassumunar, Acacia concinna, Hibiscus, Cyperus scariosus, Eclipta prostrata, Citrus sinensis, Emblica officinalis, Azadirachta indica, Bacopa monnieri, Solanum anguivi, Glycyrrhiza glabra* and *Lawsonia inermis* separately in coconut oil at 110-120°C for 60 minutes to obtain coconut oil-based product of each herb;

ii. mixing the oil-based products of herbs as obtained in step (i) to form a mixture;

iii. adding *Trigonella foenum-graecum* oil, *Nigella sativa* oil, blended *Olea europaea* oil, blended *Simmondsia chinensis* oil, *Salvia rosmarinus* oil, and *Lavendula officinalis* oil to the mixture as obtained in step (ii);

iv. keeping aside the product as obtained in step (iii) for 12 hours;

v. filtering the product as obtained in step (iv).

DETAILED DESCRIPTION

The present invention provides an herbal hair-care composition comprising of:

i. coconut oil-based products of *Eulophia ochreta, Zingiber cassumunar, Acacia concinna, Hibiscus, Cyperus scariosus, Eclipta prostrata, Citrus sinensis, Emblica officinalis, Azadirachta indica,*

Bacopa monnieri, Solanum anguivi, Glycyrrhiza glabra and *Lawsonia inermis*;

ii. oils selected from a group consisting of *Trigonella foenum-graecum* oil, *Nigella sativa* oil, *blended Olea europaea* oil, *blended Simmondsia chinensis* oil, *Salvia Rosmarinus* oil and *Lavendula officinalis* oil;

wherein the ratio of oil-based herbal products: oils is 68.5: 31.5;

wherein *Olea europaea* oil is blended with methylsulfonylmethane & biotin, and *Simmondsia chinensis* oil is blended with omega-3-fatty acids & Vitamin E.

The herbs: *Eulophia ochreta, Zingiber cassumunar* were procured from Bhimashankar region, Pune, Maharashtra; *Acacia concinna, Hibiscus, Cyperus scariosus, Eclipta prostrata, Citrus sinensis, Emblica officinalis, Azadirachta indica, Bacopa monnieri, Solanum anguivi, Glycyrrhiza glabra* and *Lawsonia inermis* were procured from Karad region, Satara, Maharashtra. The *Cocos nucifera oil, Olea europaea oil, Trigonella foenum-graecum oil, Nigella sativa oil, Simmondsia chinensis, Salvia rosmarinus, Lavendula officinalis* were obtained from the Local market (Bagwan Medical), Karad, Satara, Maharashtra- 415110.

In an embodiment of the invention, the hair-care composition comprises coconut oil-based products of herbs- *Eulophia ochreta, Zingiber cassumunar, Acacia concinna, Hibiscus, Cyperus scariosus, Eclipta prostrata, Citrus sinensis, Emblica officinalis, Azadirachta indica, Bacopa monnieri, Solanum anguivi, Glycyrrhiza glabra* and *Lawsonia inermis.* In preferred embodiment, the composition comprises:

Eulophia ochreta in an amount of 12.5% by weight;

Zingiber cassumunar in an amount of 12.5% by weight;

Acacia concinna in an amount of 10% by weight;

Hibiscus in an amount of 8% by weight;

Cyperus scariosus in an amount of 5% by weight;

Eclipta prostrata in an amount of 4% by weight;

Citrus sinensis in an amount of 4% by weight;

Emblica officinalis in an amount of 3% by weight;
Azadirachta indica in an amount of 2% by weight;
Bacopa monnieri in an amount of 2% by weight;
Solanum anguivi in an amount of 2% by weight;
Glycyrrhiza glabra in an amount of 2% by weight; &
Lawsonia inermis in an amount of 1.5% by weight.

In an embodiment of the invention, the composition comprises an oil includes a combination of *Trigonella foenum-graecum* oil, *Nigella sativa* oil, blended *Olea europaea* oil, blended *Simmondsia chinensis* oil, *Salvia rosmarinus* oil and *Lavendula officinalis* oil. In preferred embodiment, the oil comprises:
Trigonella foenum-graecum oil in an amount of 8% by weight;
Nigella sativa oil in an amount of 6% by weight;
blended *Olea europaea* oil in an amount of 12.3% by weight;
blended *Simmondsia chinensis* oil in an amount of 5% by weight;
Salvia rosmarinus oil in an amount of 0.1% by weight; &
Lavendula officinalis oil in an amount of 0.1% by weight;

In a preferred embodiment, methylsulfonylmethane & biotin are added to *Olea europaea* oil to form blended *Olea europaea* oil; wherein, the ratio of methylsulfonylmethane: biotin: *Olea europaea* oil is 0.1: 0.2: 12, respectively.

In a preferred embodiment, omega-3-fatty acids & Vitamin E are added to *Simmondsia chinensis* oil to form blended Simmondsia chinensis oil wherein the ratio of omega-3-fatty acids: vitamin E: *Simmondsia chinensis* oil is 0.5: 0.5: 4, respectively.
In a preferred embodiment, the hair-care composition is in the form of lotion.

In an embodiment of the invention, the process for preparing a hair-care composition comprising the steps of:

i. heating powdered *Eulophia ochreta, Zingiber cassumunar, Acacia concinna, Hibiscus, Cyperus scariosus, Eclipta prostrata, Citrus*

sinensis, Emblica officinalis, Azadirachta indica, Bacopa monnieri, Solanum anguivi, Glycyrrhiza glabra and *Lawsonia inermis* separately in coconut oil at 110-120°C for 60 minutes to obtain coconut oil-based product of each herb;

ii. mixing the oil-based products of herbs as obtained in step (i) to form a mixture;

iii. adding *Trigonella foenum-graecum* oil, *Nigella sativa* oil, blended *Olea europaea* oil, blended *Simmondsia chinensis* oil, *Salvia rosmarinus* oil, and *Lavendula officinalis* oil to the mixture as obtained in step (ii);

iv. keeping aside the product as obtained in step (iii) for 12 hours;

v. filtering the product as obtained in step (iv).

The invention is now illustrated by non-limiting examples:

Example 1 (Inventive Example)

Preparation of herbs:

Eulophia ochreta, Zingiber cassumunar, Acacia concinna, Hibiscus, Cyperus scariosus, Eclipta prostrata, Citrus sinensis, Emblica officinalis, Azadirachta indica, Bacopa monnieri, Solanum anguivi, Glycyrrhiza glabra and *Lawsonia inermis,* were dried separately at 45°C for 12 hours and homogenized (using Labpro 129 Homogenizing Stainless Steel tissue Homogenizer) to obtain a fine powder of each herb. The dried and powdered herbs were used for further process.

Table 1: Inventive composition

Ingredients	Quantity (in % by weight)
Eulophia ochreta Lindl	12.5%
Zingiber cassumunar Roxb	12.5%
Acacia concinna	10%
Hibiscus	8%
Cyperus scariosus	5%

Eclipta prostrata		4%
Citrus sinensis		4%
Emblica officinalis		3%
Azadirachta indica		2%
Bacopa monnieri		2%
Solanum anguivi		2%
Glycyrrhiza glabra		2%
Lawsonia inermis		1.5%
Blended *Olea europaea* oil	*Olea europaea* oil	12%
	Biotin	0.2%
	Methyl sulfonyl methane	0.1%
Trigonella foenum-graecum Oil		8%
Nigella sativa oil		6%
Blended *Simmondsia chinensis* Oil	*Simmondsia chinensis* Oil	4%
	Omega 3 fatty acid	0.5%
	Vitamin E	0.5%
Salvia rosmarinus Oil		0.1%
Lavendula officinalis Oil		0.1%

Preparation of oil-based products of herbs:

The each of the powdered herbs were placed in muslin bag and thereafter were heated in coconut oil at 110-120°C for 60 minutes to form an oil-based herbal product of each herb.

Mixing:

The oil-based products of all the herbs were mixed in proportions as given in Table 1. A mixture of oil-based products was thus obtained.

Adding oils:

Methylsulfonylmethane & biotin was mixed with *Olea europaea* oil in a vortex mixer at a speed of 500 rpm for 1 minute to obtain a blended *Olea europaea* oil. Omega-3-fatty acids & vitamin E were mixed with *Simmondsia*

chinensis oil using a vortex mixer at a speed of 400 rpm for 30-40 seconds blended *Simmondsia chinensis* oil.

To the mixture of oil-based products as obtained above (after mixing step), *Trigonella foenum-graecum* oil, *Nigella sativa* oil, blended *Olea europaea* oil, *Salvia rosmarinus* oil, and *Lavendula officinalis* oil are added in proportions as mentioned in Table 1 with stirring at 55-70 rpm to obtain a composition.

Refining:

The composition as obtained above was settled for 12 hours. The settled composition was filtered through a sieve having mesh size 270 (to separate particles larger than 53 micron).

Example 2 (Comparative Example)

Table 2

Ingredients		Quantity (in % by weight)
Eulophia ochreta Lindl		5%
Zingiber cassumunar Roxb		5%
Acacia concinna		15%
Hibiscus		15%
Cyperus scariosus		2.5%
Eclipta prostrata		1.5%
Citrus sinensis		2.5%
Emblica officinalis		5%
Azadirachta indica		5%
Bacopa monnieri		2.5%
Solanum anguivi		4%
Glycyrrhiza glabra		2.5%
Lawsonia inermis		1.5%
Blended *Olea europaea*	*Olea europaea* oil	14%

oil	Biotin	0.1%
	Methyl sulfonyl methane	0.1%
Trigonella foenum-graecum Oil		10%
Nigella sativa oil		4%
Blended *Simmondsia chinensis* Oil	*Simmondsia chinensis* Oil	1%
	Omega 3 fatty acid	3%
	Vitamin E	0.3%
Salvia rosmarinus Oil		0.3%
Lavendula officinalis Oil		0.2%

Method: The composition was prepared as per the method described in Example 1 except the proportions of ingredients.

Example 3 (Comparative Example)

Table 3

Ingredients	Quantity (in % by weight)
Eulophia ochreta Lindl	7%
Zingiber cassumunar Roxb	7%
Acacia concinna	11%
Hibiscus	9%
Cyperus scariosus	4%
Eclipta prostrata	3%
Citrus sinensis	1.5%
Emblica officinalis	4%
Azadirachta indica	4%
Bacopa monnieri	5%
Solanum anguivi	2.5%
Glycyrrhiza glabra	4%
Lawsonia inermis	3%

Blended *Olea europaea* oil	*Olea europaea* oil	10%
	Biotin	0.1%
	Methyl sulfonyl methane	0.1%
Trigonella foenum-graecum Oil		12%
Nigella sativa oil		8%
Blended *Simmondsia chinensis* Oil	*Simmondsia chinensis* Oil	2%
	Omega 3 fatty acid	1.5%
	Vitamin E	1%
Salvia rosmarinus Oil		0.2%
Lavendula officinalis Oil		0.1%

Method: The composition was prepared as per the method described in Example 1 except the proportions of ingredients.

Example 4 (Comparative Example)

Table 4

Ingredients	Quantity (in % by weight)
Eulophia ochreta Lindl	14%
Zingiber cassumunar Roxb	14%
Acacia concinna	4.8%
Hibiscus	4.8%
Cyperus scariosus	6%
Eclipta prostrata	5%
Citrus sinensis	5%
Emblica officinalis	1.2%
Azadirachta indica	2.5%
Bacopa monnieri	3.3%
Solanum anguivi	4.5%
Glycyrrhiza glabra	4.5%
Lawsonia inermis	3.4%

Blended *Olea europaea* oil	*Olea europaea* oil	12%
	Biotin	0.2%
	Methyl sulfonyl methane	0.1%
Trigonella foenum-graecum Oil		6%
Nigella sativa oil		4%
Blended *Simmondsia chinensis* Oil	*Simmondsia chinensis* Oil	3%
	Omega 3 fatty acid	1%
	Vitamin E	0.5%
Salvia rosmarinus Oil		0.1%
Lavendula officinalis Oil		0.1%

Method: The composition was prepared as per the method described in Example 1 except the proportions of ingredients.

Example 5 (Comparative Example)

The composition was same as in Example 1 except that the method used for preparation of the composition comprised of simple addition of methylsulfonylmethane, biotin, omega-3-fatty acid, vitamin E, *Olea europaea* oil and *Simmondsia chinensis* oil to the oil based herbal products along with other oils; without preparing blended oils of *Olea europaea* and *Simmondsia chinensis*.

EFFECT OF THE COMPOSITION (EXAMPLE 1-5) ON HAIR:

Hair growth:

The study was carried out as per the method similar to *Datta K, Singh AT, Mukherjee A, Bhat B, Ramesh B, Burman AC. Eclipta alba extract with potential for hair growth promoting activity. J Ethnopharmacol 2009;124(3):450-6; Jaybhaye D, Varma S, Gagne N, Bonde V, Gite A, Bhosle D. Effect of Tectona grandis Linn. seeds on hair growth activity of albino mice. Int J Ayurveda Res 2011;1: 211-5; & 3.Jung IY, Al-Rezaab SM, Kang SC. Hair growth promoting effect of Zizyphus jujuba essential oil. Food Chem Toxicol 2010;48:1350e4.*

36 Albino mice (Male 18 and Female 18) weighing between 17 and 26 gm were obtained for evaluating hair growth potential of compositions of examples 1 to 5.

The selected mice were housed in polypropylene cages under standard conditions with 23±3°C and 35-65% humidity defined by the IAEC Committee. Mice were kept for 7 days prior to the hair growth testing to get acquainted with climatic conditions. The efficacy of a hair composition (Example 1 to 5) in mice was studied. The 6 mice per groups were selected for their hair growth cycle (1). The selected mice were shaven with an area of 4-3 cm. The selected mice were shaved from their dorsal portion by a 4 - 3 cm area for this experiment. 0.5 mL of hair composition (Example 1 to 5) were applied to shaved area of the respective groups once a day where Minoxidil 1% suspension (MINITOP) was applied as standard and the parameters as given below were assessed.

Skin irritation test:

Hair care product should not have any irritating effect on the skin including shaved region and should not cause skin lesions such as itchy eyes, skin rashes, inflammation, stuffy nose etc. With this aim, the skin irritation test of the developed composition (Example 1-5) was performed in which shaven dorsal region of the selected mice was properly cleaned with surgical spirit first and then hair composition (Example 1 to 5) were rubbed onto the said region over 1 sq cm and the mice were monitored for 2 days for any skin lesions.

Hair growth initiation and completion by qualitative analysis:

The hair growth was confirmed with visual observation of two well-known parameters namely, hair growth initiation (days to begin hair growth) and hair growth completion period (days taken to fully cover the shaved skin area with new hair). The qualitative analysis for the determination initiation and completion period of hair were counted for hair composition (Example 1

to 5) & Minoxidil (standard) treated animals, which was significantly compared with control or vehicle treated animals.

Hair length and weight:

Twenty hairs were pulled from the earlier shaved region of selected mice on 28th day of study. The measured lengths of hairs were noted and the mean length in mm was taken for the final calculation. The final results were represented as the mean length in mm of plucked 20 hairs.

Hair fall:

100 participants have used the above hair composition, based on survey, 06 participants were selected and no. of hairs falls in morning at first comb of the hairs in a day and mean was taken of 7th, 14th, 21st, 28th day of the study.

Table 5

Sr no.	Attributes	Example 1	Example 2	Example 3	Example 4	Example 5	Std Minoxidil
1	Skin irritation test	No skin lesions observed	Slight Skin rashes	Red spot	Skin rashes	Skin rashes	Red spot
2	Hair texture (Softness)	Straight and Soft	Medium coarse	Coarse	Coarse and dry	Oily	Soft hairs
3	Fragrance after application	Pleasant	Pleasant	Mild	characteristic odor	Odor	Pleasant
4	Hair growth in length(mm)	22.08	11.30	10.08	6.78	5.78	12.42
5	Hair weight (mg)	3.7	2.4	2.2	2.0	2.5	3.2
4	No. of hair follicular units per square centimeter	84 _+ 03	49 _+ 03	48 _+ 03	45_+ 03	43_+ 03	51_+ 03
5.	Hair fall (as per survey)(no	08 _+ 03	17 _+ 03	23 _+ 03	32 _+ 03	39 _+ 03	16_+ 03

	of hairs)						

The hair-care composition of Example 1 exhibited superior effect as compared to Example 2-5 in view of efficacy (hair texture, hair growth, No. of hair follicular units per square centimeter and hair-fall) as well as safety (skin-irritation test) ground.

STABILITY STUDIES:

The stability analysis for the hair-care composition was performed as per ICH guideline (40^0C at 75% RH) up to 6 months and the following results were observed:

Example 1:

Table 6

Parameter	Method	0 hour	3 months	6 months
Physical and Chemical tests				
Viscosity	Brookfield Viscometer	0.912 P	0.912 P	0.912 P
Colour	Manual	yellowish green	yellowish green	yellowish green
Consistency	Manual	Homogenous liquid	Homogenous liquid	Homogenous liquid
Spreadability	Glass slide method	15 sec	15 sec	15 sec
Specific gravity	Specific Gravity Balance	0.973	0.973	0.973
pH	pH meter	5.5	5.5	5.5
Foaming capacity (Foam in	Foam test	40cm	40cm	40cm

height)				
Microbiological tests				
Total Plate Count	Horizontal method for enumeration of microorganisms, BIS Apr 2012	<10cfu/ml	<10cfu/ml	<10cfu/ml
Yeast & Mould Count	Method for yeast and mould count foodstuffs, BIS May 1999	<10cfu/ml	<10cfu/ml	<10cfu/ml
Coliform Count	Horizontal method for the detection and enumeration of coliforms, BIS Apr 2012	<10cfu/ml	<10cfu/ml	<10cfu/ml

Table 6 shows that the composition as exemplified in Example 1 is stable up to 6 months. No significant change of any aforesaid parameters was observed up to 1 year.

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Example 2:

Table 7

Parameter	Method	0 hour	3 months	6 months
Physical and Chemical tests				
Viscosity	Brookfield Viscometer	0.989 P	0.989 P	1.089 P
Colour	Manual	Yellowish brown	Yellowish brown	Brown
Consistency	Manual	Homogenous liquid	Homogenous liquid	Sticky liquid
Spreadability	Glass slide method	32 sec	32 sec	38 sec
Specific gravity	Specific Gravity Balance	0.998	0.998	0.998
pH	pH meter	4.5	4.5	4.0
Foaming capacity (Foam in height)	Foam test	33cm	33cm	28cm
Microbiological tests				
Total Plate Count	Horizontal method for enumeration of microorganisms, BIS Apr 2012	<10cfu/ml	<10cfu/ml	25 cfu/ml
Yeast & Mould Count	Method for yeast and mould count foodstuffs,	<10cfu/ml	<10cfu/ml	20 cfu/ml

	BIS May 1999			
Coliform Count	Horizontal method for the detection and enumeration of coliforms, BIS Apr 2012	<10cfu/ml	<10cfu/ml	<10cfu/ml

Table 7 shows that the composition as exemplified in Example 2 is stable up to 3 months.

Example 3:

Table 8

Parameter	Method	0 hour	3 months	6 months
Physical and Chemical tests				
Viscosity	Brookfield Viscometer	0.812 P	0.812 P	1.095 P
Colour	Manual	Yellowish brown	Yellowish brown	Brown
Consistency	Manual	Homogenous liquid	Homogenous liquid	Sticky liquid
Spreadability	Glass slide method	10sec	10sec	29 sec
Specific gravity	Specific Gravity Balance	0.872	0.872	1.070

pH	pH meter	6.5	6.5	6.5
Foaming capacity (Foam in height)	Foam test	35cm	35cm	26 cm
Microbiological tests				
Total Plate Count	Horizontal method for enumeration of microorganisms, BIS Apr 2012	<10cfu/ml	<10cfu/ml	44 cfu/ml
Yeast & Mould Count	Method for yeast and mould count foodstuffs, BIS May 1999	<10cfu/ml	<10cfu/ml	28 cfu/ml
Coliform Count	Horizontal method for the detection and enumeration of coliforms, BIS Apr 2012	<10cfu/ml	<10cfu/ml	16 cfu/ml

Table 8 shows that the composition as exemplified in Example 3 is stable up to 3 months.

Example 4:

Table 9

Parameter	Method	0 hour	3 months	6 months
Physical and Chemical tests				
Viscosity	Brookfield Viscometer	0.961 P	0.961 P	1.261 P
Colour	Manual	Greenish Brown	Greenish Brown	Greenish Brown
Consistency	Manual	Homogenous liquid	Homogenous liquid	Homogenous liquid
Spreadability	Glass slide method	30sec	30sec	30sec
Specific gravity	Specific Gravity Balance	1.093	1.093	1.293
pH	pH meter	7.0	7.0	7.0
Foaming capacity (Foam in height)	Foam test	22cm	22cm	19cm
Microbiological tests				
Total Plate Count	Horizontal method for enumeration of microorganisms, BIS Apr 2012	<10cfu/ml	15 cfu/ml	55 cfu/ml

Yeast & Mould Count	Method for yeast and mould count foodstuffs, BIS May 1999	<10cfu/ml	<10cfu/ml	20 cfu/ml
Coliform Count	Horizontal method for the detection and enumeration of coliforms, BIS Apr 2012	<10cfu/ml	<10cfu/ml	11cfu/ml

Table 9 shows that the composition as exemplified in Example 4 is stable up to 3 months.

5 Example 5:

Table 10

Parameter	Method	0 hour	3 months	6 months
Physical and Chemical tests				
Viscosity	Brookfield Viscometer	1.155 P	1.155 P	1.155 P
Colour	Manual	Yellowish brown	Yellowish brown	Dark brown
Consistency	Manual	Homogenous liquid	Layered liquid	Liquid separated

				into phases/ layers
Spreadability	Glass slide method	40 sec	45 sec	53 sec
Specific gravity	Specific Gravity Balance	1.198	1.198	1.198
pH	pH meter	7.5	7.5	7.5
Foaming capacity (Foam in height)	Foam test	21 cm	21 cm	13 cm
Microbiological tests				
Total Plate Count	Horizontal method for enumeration of microorganisms, BIS Apr 2012	<10cfu/ml	<10cfu/ml	37 cfu/ml
Yeast & Mould Count	Method for yeast and mould count foodstuffs, BIS May 1999	<10cfu/ml	<10cfu/ml	20 cfu/ml
Coliform Count	Horizontal method for the detection and	<10cfu/ml	<10cfu/ml	17 cfu/ml

	enumeration of coliforms, BIS Apr 2012			

Table 10 shows that the composition as exemplified in Example 5 was not stable and lacked the desired physicochemical properties.

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We claim,

1. An herbal hair-care composition comprising of:
   i. coconut oil-based products of *Eulophia ochreta, Zingiber cassumunar, Acacia concinna, Hibiscus, Cyperus scariosus, Eclipta prostrata, Citrus sinensis, Emblica officinalis, Azadirachta indica, Bacopa monnieri, Solanum anguivi, Glycyrrhiza glabra*, and *Lawsonia inermis*;
   ii. oils selected from a group consisting of *Trigonella foenum-graecum* oil*, Nigella sativa* oil, *blended Olea europaea* oil*,* blended *Simmondsia chinensis* oil*, Salvia Rosmarinus* oil and *Lavendula officinalis* oil;
   wherein the ratio of said oil-based herbal products: said oils is 68.5: 31.5;
2. The composition as claimed in claim 1, wherein-
   the amount of Eulophia ochreta is 12.5% by weight;
   the amount of Zingiber cassumunar is 12.5% by weight;
   the amount of Acacia concinna is 10% by weight;
   the amount of Hibiscus is 8% by weight;
   the amount of Cyperus scariosus is 5% by weight;
   the amount of Eclipta prostrata is 4% by weight;
   the amount of Citrus sinensis is 4% by weight;
   the amount of Emblica officinalis is 3% by weight;
   the amount of Azadirachta indica is 2% by weight;
   the amount of Bacopa monnieri is 2% by weight;
   the amount of Solanum anguivi is 2% by weight;
   the amount of Glycyrrhiza glabra is 2% by weight; &
   the amount of Lawsonia inermis is 1.5% by weight.
3. The composition as claimed in claim 1, wherein-
   the amount of *Trigonella foenum-graecum* oil is 8% by weight;
   the amount of *Nigella sativa* oil is 6% by weight;
   the amount of blended *Olea europaea* oil is 12.3% by weight;
   the amount of blended *Simmondsia chinensis* oil is 5% by weight;
   the amount of *Salvia rosmarinus* oil is 0.1% by weight; &
   the amount of *Lavendula officinalis* oil is 0.1% by weight.

4. The composition as claimed in claim 1-2, wherein the blended *Olea europaea* oil includes methylsulfonylmethane, biotin, and *Olea europaea* oil wherein the ratio of the methylsulfonylmethane, the biotin, and the *Olea europaea* oil is 0.1: 0.2: 12.
5. The composition as claimed in claim 1-2, wherein the blended *Simmondsia chinensis* oil includes omega-3-fatty acids, vitamin E, and *Simmondsia chinensis* oil wherein the ratio of the omega-3-fatty acids, the vitamin E, and the *Simmondsia chinensis* oil the 0.5: 0.5: 4.
6. The composition as claimed in claim 1 is in the form of lotion.
7. A process for preparing a hair-care composition comprising the steps of:
    i. heating powdered *Eulophia ochreta, Zingiber cassumunar, Acacia concinna, Hibiscus, Cyperus scariosus, Eclipta prostrata, Citrus sinensis, Emblica officinalis, Azadirachta indica, Bacopa monnieri, Solanum anguivi, Glycyrrhiza glabra* and *Lawsonia inermis* separately in coconut oil at 110-120°C for 60 minutes to obtain coconut oil-based product of each herb;
    ii. mixing the oil-based products of herbs as obtained in step (i) to form a mixture;
    iii. adding *Trigonella foenum-graecum* oil, *Nigella sativa* oil, blended *Olea europaea* oil, blended *Simmondsia chinensis* oil, *Salvia rosmarinus* oil, and *Lavendula officinalis* oil to the mixture as obtained in step (ii) and stirring;
    iv. keeping aside the product as obtained in step (iii) for 12 hours;
    v. filtering the product as obtained in step (iv).
8. The process as claimed in claim 6, wherein the stirring in step (iii) is performed at a speed of 55-70 rpm.
9. The process as claimed in claim 6, wherein the blended *Olea europaea* oil of step (iii) is prepared by mixing methylsulfonylmethane & biotin with *Olea europaea* oil in a vortex mixer at a speed of 500 rpm for 1 minute.
10. The process as claimed in claim 6, wherein the blended *Simmondsia chinensis* oil of step (iii) is prepared by mixing omega-3-fatty acid & vitamin E with *Simmondsia chinensis* oil using a vortex mixer at a speed of 400 rpm for 30-40 seconds.

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To,
The Controller of Patents,
The Patent Office
Mumbai

ABSTRACT

"HERBAL HAIR-CARE COMPOSITION AND THE PROCESS THEREOF"

Disclosed is an herbal hair-care composition comprising of: i. coconut oil-based herbal products of *Eulophia ochreta, Zingiber cassumunar, Acacia concinna, Hibiscus, Cyperus scariosus, Eclipta prostrata, Citrus sinensis, Emblica officinalis, Azadirachta indica, Bacopa monnieri, Solanum anguivi, Glycyrrhiza glabra*, and *Lawsonia inermis*; ii. oils selected from a group consisting of *Trigonella foenum-graecum* oil, *Nigella sativa* oil, *blended Olea europaea* oil, blended *Simmondsia chinensis* oil, *Salvia Rosmarinus* oil and *Lavendula officinalis* oil. Also provided is a process of preparation thereof.