(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :30/04/2023

(21) Application No.202311030904 A
(43) Publication Date : 19/05/2023

(54) Title of the invention : HERBAL HAIR DYE PREPARATION AND USES THEREOF

(51) International classification :A61K 315600, A61P 130800, A61P 430000, A61Q 051000, C09B 610000
(86) International Application No :PCT//
Filing Date :01/01/1900
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
Filing Date :NA

(71)**Name of Applicant :**
1)Dr K Sudheer Kumar
Address of Applicant :Professor, Department of Pharmacognosy, Goenka College of Pharmacy Sikar-Lachhmangarh Road, NH-11, Lachhmangarh (Sikar)-332315 Sikar ---------- ----------
2)Dr. Venkatesan Natarajan
3)Dr. Sreenivasa Charan Archakam
4)Dr. Keerthisikha Palur
5)Dr. T. Karthiyayini
6)Dr. Parameshwar Aleti
7)Dr. Srinivas Chintha
8)Pallavi Karbhari Chede
9)M. Magesh
10)Bharadhan Bose
Name of Applicant : NA
Address of Applicant : NA
(72)**Name of Inventor :**
1)Dr K Sudheer Kumar
Address of Applicant :Professor, Department of Pharmacognosy, Goenka College of Pharmacy Sikar-Lachhmangarh Road, NH-11, Lachhmangarh (Sikar)-332315 Sikar ---------- ----------
2)Dr. Venkatesan Natarajan
Address of Applicant :Professor, Department of Pharmacology, School of Pharmacy, Sri Balaji Vidyapeeth Deemed To Be University, Puducherry, India-607402 Puducherry ---------- ----------
3)Dr. Sreenivasa Charan Archakam
Address of Applicant :Associate Professor, Department of Pharmaceutical Analysis, Sri Padmavathi School of Pharmacy, Mohan Gardens, Vaishnavi Nagar, Tiruchanoor, Andhra Pradesh 517503 Tiruchanoor ---------- ----------
4)Dr. Keerthisikha Palur
Address of Applicant :Associate Professor, Department of Pharmaceutical Analysis, Sri Padmavathi School of Pharmacy, Mohan Gardens, Vaishnavi Nagar, Tiruchanoor, Andhra Pradesh 517503 Tiruchanoor ---------- ----------
5)Dr. T. Karthiyayini
Address of Applicant :Professor, Department of Pharmacognosy, Pannai college of Pharmacy, Trichy - Dindugal Rd, Mullipadi, Tamil Nadu 624005 Trichy ---------- ----------
6)Dr. Parameshwar Aleti
Address of Applicant :Head of Department, Pharmaceutical Analysis, SRR College of Pharmaceutical Sciences, Valbhapur(V), Elakthurthy(M), Hanumakonda-Dist, Telangana-505476 Valbhapur ---------- ----------
7)Dr. Srinivas Chintha
Address of Applicant :Associate Professor & Head, Department of Pharmaceutical Analysis, Vaagdevi Pharmacy College, Bollikunta, Warangal Bollikunta ---------- ----------
8)Pallavi Karbhari Chede
Address of Applicant :Assistant Professor, Kashibai Navale College of Pharmacy, Kondhwa, Pune, Maharashtra Pune ---------- ----------
9)M. Magesh
Address of Applicant :Assistant Professor, Saveetha College of Pharmacy, Saveetha institute of medical and technical sciences, Saveetha Nagar, Thandalam, Chennai-602105 Tamil Nadu, India Thandalam ---------- ----------
10)Bharadhan Bose
Address of Applicant :Associate Professor, Department of Pharmacognosy, Karpagam College of Pharmacy, Coimbatore–641032, Tamil Nadu. India Coimbatore ---------- ----------

(57) Abstract :
Chemical based hair dyes are toxic in nature and many serious problems associated with chemical hair dyes. The present invention provides a herbal hair dye for increased hair colour intensity, comprising of leaves of Aloe vera; leaves of Lawsonia innermis; leaves of Psidium guajava; leaves of Holy basil; leaves of Indigofera tinctoria; fruits of Phyllanthus emblica; seeds of Trigonella foenum graecum; Acacia catechu; and whole herb of Eclipta alba; wherein the combination of herbs in different proportions produces a suitable brown colour for hair colourant. The process for the preparation of herbal hair dye, comprising of collecting fresh leaves of Aloe vera, washing thoroughly and peeling off the outer surface and collecting inner mass with the help of scoop; separately collecting leaves of Lawsonia innermis, leaves of Psidium guajava, leaves of Holy basil, leaves of Indigofera tinctoria, fruits of Phyllanthus emblica and seeds of Trigonella foenum graecum, Acacia catechu and whole herb of Eclipta alba and drying under shade; powdering all plant material and passing through the sieve number 80; weighing all the ingredients according to the formulas and mixing in a non-metallic vessel and keeping for 1 hour for imbibition to obtain hair dye pastes. The herbal hair dye pastes when applied in defined steps on hair sample a wide range of colors can achieved.

No. of Pages : 9 No. of Claims : 6

FORM-2

THE PATENTS ACT, 1970

(39 OF 1970)

&

THE PATENTS RULES, 2003

COMPLETE SPECIFICATION

(SECTION 10, RULE 13)

TITLE OF THE INVENTION

HERBAL HAIR DYE PREPARATION AND USES THEREOF

APPLICANTS

Name: Dr K Sudheer Kumar, Nationality: Indian, **Address:** Professor, Department of Pharmacognosy, Goenka College of Pharmacy Sikar-Lachhmangarh Road, NH-11, Lachhmangarh (Sikar)-332315

Name: Dr. Venkatesan Natarajan, Nationality: Indian, **Address:** Professor, Department of Pharmacology, School of Pharmacy, Sri Balaji Vidyapeeth Deemed To Be University, Puducherry, India-607402

Name: Dr. Sreenivasa Charan Archakam, Nationality: Indian, **Address:** Associate Professor, Department of Pharmaceutical Analysis, Sri Padmavathi School of Pharmacy, Mohan Gardens, Vaishnavi Nagar, Tiruchanoor, Andhra Pradesh 517503

Name: Dr. Keerthisikha Palur, Nationality: Indian, **Address:** Associate Professor, Department of Pharmaceutical Analysis, Sri Padmavathi School of Pharmacy, Mohan Gardens, Vaishnavi Nagar, Tiruchanoor, Andhra Pradesh 517503

Name: Dr. T. Karthiyayini, Nationality: Indian, **Address:** Professor, Department of Pharmacognosy, Pannai college of Pharmacy, Trichy - Dindugal Rd, Mullipadi, Tamil Nadu 624005

Name: Dr. Parameshwar Aleti, Nationality: Indian, **Address:** Head of Department, Pharmaceutical Analysis, SRR College of Pharmaceutical Sciences, Valbhapur(V), Elakthurthy(M), Hanumakonda-Dist, Telangana-505476

Name: Dr. Srinivas Chintha, Nationality: Indian, **Address:** Associate Professor & Head, Department of Pharmaceutical Analysis, Vaagdevi Pharmacy College, Bollikunta, Warangal

Name: Pallavi Karbhari Chede, Nationality: Indian, **Address:** Assistant Professor, Kashibai Navale College of Pharmacy, Kondhwa, Pune, Maharashtra

Name: M. Magesh, Nationality: Indian, **Address:** Assistant Professor, Saveetha College of Pharmacy, Saveetha institute of medical and technical sciences, Saveetha Nagar, Thandalam, Chennai-602105 Tamil Nadu, India

Name: Bharadhan Bose, Nationality: Indian, **Address:** Associate Professor, Department of Pharmacognosy, Karpagam College of Pharmacy, Coimbatore–641032, Tamil Nadu. India

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

Technical Field of the Invention

The present invention relates to herbal hair dye for increased hair colour intensity. The present invention provides a herbal hair dye of *Aloe vera*; *Lawsonia innermis*; *Psidium guajava*; *Holy basil*; *Indigofera tinctoria*; *Phyllanthus emblica*; *Trigonella foenum graecum*; *Acacia catechu*; and *Eclipta alba*. The present invention also provides a process for the preparation of herbal hair dye.

Background of the Invention

Chemical based hair dyes are toxic in nature and risks are associated with the chemicals found in hair dye formulations. There are also many serious problems associated with this type of hair dyes, including hair damage and causes harm to eyes, skin and mucous membranes and hence does not produce desired coloring effect [He, L., Michailidou, F., Gahlon, H.L. and Zeng, W., 2022. Hair dye ingredients and potential health risks from exposure to hair dyeing. Chemical Research in Toxicology, 35(6), pp.901-915]. Plant based hair dyes uses combination of herbal plants in the form of plants extracts to prepare herbal hair dye [CN109330939B]. Desired results for hair colour can be achieved by using combination of plants with appropriate ratios. Although there are several plant based hair dye products are available in the market. Still there is a need for herbal hair dyes which utilizes combination of herbal plants for the preparation of desired hair colourant.

Objects of the Invention

The main object of the present invention is to provide herbal hair dye.

Another object of the present invention is to provide a process for the preparation of herbal hair dye.

Yet another object of the invention is to provide a herbal hair dye for increased hair colour intensity.

Summary of the Invention

The present invention provides a herbal hair dye for increased hair colour intensity.

In an embodiment of the invention, the present invention provides a herbal hair dye, comprising of leaves of *Aloe vera*; leaves of *Lawsonia innermis*; leaves of *Psidium guajava*; leaves of *Holy basil*; leaves of *Indigofera tinctoria*; fruits of *Phyllanthus*

emblica; seeds of *Trigonella foenum graecum*; *Acacia catechu*; and whole herb of *Eclipta alba*; wherein the combination of herbs in different proportions produces a suitable brown colour for hair colourant. The present invention provides a process for the preparation of herbal hair dye. In an embodiment of the invention, the process for the preparation of herbal hair dye, comprising of collecting fresh leaves of *Aloe vera,* washing thoroughly and peeling off the outer surface and collecting inner mass with the help of scoop; separately collecting leaves of *Lawsonia innermis,* leaves of *Psidium guajava,* leaves of *Holy basil,* leaves of *Indigofera tinctoria,* fruits of *Phyllanthus emblica* and seeds of *Trigonella foenum graecum, Acacia catechu* and whole herb of *Eclipta alba* and drying under shade; powdering all plant material and passing through the sieve number 80; weighing all the ingredients according to the formulas and mixing in a non-metallic vessel and keeping for 1 hour for imbibition to obtain hair dye pastes. In an embodiment of the invention, the herbal hair dye, wherein the pH of the herbal hair dye ranges from 6.12 to 6.83. In an embodiment of the invention, the herbal hair dye, wherein hair dye pastes is applied twice in 24 hours on hair samples and washed with tap water after the period of two hours with tap water without aid of shampoo. In an embodiment of the invention, the herbal hair dye, wherein by changing the proportion of *Lawsonia innermis* and *Indigofera tinctoria* a suitable brown colour could be obtained for hair. In an embodiment of the invention, the herbal hair dye, wherein by repeating application of *Lawsonia innermis* and *Indigofera tinctoria* gives increasing hair colour intensity.

Detailed description of the Invention

The present invention provides a herbal hair dye for increased hair colour intensity. The present invention provides a herbal hair dye, comprising of leaves of *Aloe vera*; leaves of *Lawsonia innermis*; leaves of *Psidium guajava*; leaves of *Holy basil*; leaves of *Indigofera tinctoria*; fruits of *Phyllanthus emblica*; seeds of *Trigonella foenum graecum*; *Acacia catechu*; and whole herb of *Eclipta alba*; wherein the combination of herbs in different proportions produces a suitable brown colour for hair colourant. The present invention provides a process for the preparation of herbal hair dye. The present invention provides a process for the preparation of

herbal hair dye, comprising of collecting fresh leaves of *Aloe vera*, washing thoroughly and peeling off the outer surface and collecting inner mass with the help of scoop; separately collecting leaves of *Lawsonia innermis*, leaves of *Psidium guajava*, leaves of *Holy basil*, leaves of *Indigofera tinctoria*, fruits of *Phyllanthus emblica* and seeds of *Trigonella foenum graecum, Acacia catechu* and whole herb of *Eclipta alba* and drying under shade; powdering all plant material and passing through the sieve number 80; weighing all the ingredients according to the formulas and mixing in a non-metallic vessel and keeping for 1 hour for imbibition to obtain hair dye pastes. In an embodiment of the invention, the herbal hair dye, wherein the pH of the herbal hair dye ranges from 6.12 to 6.83. The present invention provides a herbal hair dye, wherein hair dye pastes is applied twice in 24 hours on hair samples and washed with tap water after the period of two hours with tap water without aid of shampoo. The present invention provides a herbal hair dye, wherein by changing the proportion of *Lawsonia innermis* and *Indigofera tinctoria* a suitable brown colour could be obtained for hair. In an embodiment of the invention, the herbal hair dye, wherein by repeating application of *Lawsonia innermis* and *Indigofera tinctoria* gives increasing hair colour intensity.

Method of Preparation

Selection of Herbs:

Fresh leaves of *Aloe vera* are collected, washed thoroughly and the outer surface has been peeled off and inner mass is collected with the help of scoop and leaves of Henna (*Lawsonia innermis*), Guava (*Psidium guajava*),Tulsi (*Holy basil*), Nilika (*Indigofera tinctoria*) were collected and dried under shade, fruits of Amla (*Phyllanthus emblica*), and seeds of Fenugreek (*Trigonella foenum graecum*) were collected and Black catechu (*Acacia catechu*) and whole herb of Bhringraj (*Eclipta alba*), were collected dried under shade and powdered, all powder material passed through the sieve (NO.80), Lohabasma (Herbo mineral) was purchased from local market of Hyderabad and authenticated, for all the above materials were studied for their physical (Ash values) reported in results. Table 1 shows total ash, acid insoluble ash and water-soluble ash of drugs.

S.NO	DRUGS	TOTAL ASH	ACID INSOLUBLE ASH	WATER SOLUBLE ASH
1.	*Lawsonia innermis* (Henna)	14.60%	4.50%	3.0%
2.	*Indigofera tinctoria* (Indigo)	40.0%	15.0%	15.0%
3.	*Aloe vera*	0.16±0.02	2.25%	12.5%
4.	*Eclipta alba* (Bhringraj)	16.1%	8.98%	17.95%
5.	*Holy basil* (Tulsi)	9.2%	5.5%	7.5%
6.	*Acacia catechu* (Black catechu)	1.16-2%	0.2-0.4%	0.09-0.25%
7.	*Psidium guajava* (Guava)	3.29%	0.25%	2.83%
8.	*Trigonella foenum graecum* (Fenugreek)	4	0.5	-
9.	*Phyllanthus emblica* (Amla)	7.5%	8%	2%

Hair Dye preparation

All the ingredients were weighed according to the formulas and mixed in a non-metallic vessel kept for 1 hour for imbibition.

Application of Herbal hair dye

After completion of 1 hour hair dye paste was applied on hair samples, the dyed hair sample was washed with tap water after the period of two hours, a second coat of dye was applied after 24 hours of first application, kept for two hours then washed with tap water without aid of shampoo. Dye when binds with the keratin fibre when the light fall on the dye applied hair the outer layer of the hair shaft shimmers/ reflects the light in such a way to present the hair to be in brownish red colour. Different grades were assigned to colors ranging from jet black to blonde using an experimental colour grade scale and reported in result.

We claim:

1. A herbal hair dye for increased hair colour intensity, comprising:

a) leaves of *Aloe vera*;

b) leaves of *Lawsonia innermis*;

c) leaves of *Psidium guajava*;

d) leaves of *Holy basil*;

e) leaves of *Indigofera tinctoria*;

f) fruits of *Phyllanthus emblica*;

g) seeds of *Trigonella foenum graecum*;

h) *Acacia catechu*;

i) whole herb of *Eclipta alba*; and

j) Herbo mineral;

wherein the combination of herbs in different proportions produces a suitable brown colour for hair colourant.

2. A process for the preparation of herbal hair dye, comprising:

a) collecting fresh leaves of *Aloe vera*, washing thoroughly and peeling off the outer surface and collecting inner mass with the help of scoop;

b) separately collecting leaves of *Lawsonia innermis*, leaves of *Psidium guajava*, leaves of *Holy basil*, leaves of *Indigofera tinctoria*, fruits of *Phyllanthus emblica* and seeds of *Trigonella foenum graecum, Acacia catechu* and whole herb of *Eclipta alba* and drying under shade;

c) powdering all shade dried plant material of step b) and passing through the sieve number 80;

d) weighing all the ingredients of step a) and step c) according to the formulation and mixing in a non-metallic vessel and keeping for 1 hour for imbibition to obtain hair dye pastes.

3. The herbal hair dye as claimed in claim 1, wherein hair dye paste is applied twice in 24 hours on hair samples and washed with tap water after the period of two hours with tap water without aid of shampoo.

4. The herbal hair dye as claimed in claim 1, wherein by changing the proportion of *Lawsonia innermis* and *Indigofera tinctoria* a sutiable brown colour is obtain for hair.

5. The herbal hair dye as claimed in claim 1, wherein by repeating application of *Lawsonia innermis* and *Indigofera tinctoria* gives increasing hair colour intensity.

6. The herbal hair dye as claimed in claim 1, wherein by applying herbal hair dye paste in defined steps a wide range of colors are achieved.

Dated this 30th day of April, 2023

To be signed digitally by

(Sanchita Tewari)

Agent for the Applicant

Patent Agent (IN/PA 2711)

Abstract

HERBAL HAIR DYE PREPARATION AND USES THEREOF

Chemical based hair dyes are toxic in nature and many serious problems associated with chemical hair dyes. The present invention provides a herbal hair dye for increased hair colour intensity, comprising of leaves of *Aloe vera*; leaves of *Lawsonia innermis*; leaves of *Psidium guajava*; leaves of *Holy basil*; leaves of *Indigofera tinctoria*; fruits of *Phyllanthus emblica*; seeds of *Trigonella foenum graecum*; *Acacia catechu*; and whole herb of *Eclipta alba*; wherein the combination of herbs in different proportions produces a suitable brown colour for hair colourant. The process for the preparation of herbal hair dye, comprising of collecting fresh leaves of *Aloe vera*, washing thoroughly and peeling off the outer surface and collecting inner mass with the help of scoop; separately collecting leaves of *Lawsonia innermis*, leaves of *Psidium guajava*, leaves of *Holy basil*, leaves of *Indigofera tinctoria*, fruits of *Phyllanthus emblica* and seeds of *Trigonella foenum graecum*, *Acacia catechu* and whole herb of *Eclipta alba* and drying under shade; powdering all plant material and passing through the sieve number 80; weighing all the ingredients according to the formulas and mixing in a non-metallic vessel and keeping for 1 hour for imbibition to obtain hair dye pastes. The herbal hair dye pastes when applied in defined steps on hair sample a wide range of colors can achieved.

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :30/04/2023

(21) Application No.202311030904 A
(43) Publication Date : 19/05/2023

(54) Title of the invention : HERBAL HAIR DYE PREPARATION AND USES THEREOF

(51) International classification :A61K 315600, A61P 130800, A61P 430000, A61Q 051000, C09B 610000
(86) International Application No :PCT//
Filing Date :01/01/1900
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
Filing Date :NA

(71)**Name of Applicant :**
1)Dr K Sudheer Kumar
Address of Applicant :Professor, Department of Pharmacognosy, Goenka College of Pharmacy Sikar-Lachhmangarh Road, NH-11, Lachhmangarh (Sikar)-332315 Sikar ---------- ----------
2)Dr. Venkatesan Natarajan
3)Dr. Sreenivasa Charan Archakam
4)Dr. Keerthisikha Palur
5)Dr. T. Karthiyayini
6)Dr. Parameshwar Aleti
7)Dr. Srinivas Chintha
8)Pallavi Karbhari Chede
9)M. Magesh
10)Bharadhan Bose
Name of Applicant : NA
Address of Applicant : NA
(72)**Name of Inventor :**
1)Dr K Sudheer Kumar
Address of Applicant :Professor, Department of Pharmacognosy, Goenka College of Pharmacy Sikar-Lachhmangarh Road, NH-11, Lachhmangarh (Sikar)-332315 Sikar ---------- ----------
2)Dr. Venkatesan Natarajan
Address of Applicant :Professor, Department of Pharmacology, School of Pharmacy, Sri Balaji Vidyapeeth Deemed To Be University, Puducherry, India-607402 Puducherry ---------- ----------
3)Dr. Sreenivasa Charan Archakam
Address of Applicant :Associate Professor, Department of Pharmaceutical Analysis, Sri Padmavathi School of Pharmacy, Mohan Gardens, Vaishnavi Nagar, Tiruchanoor, Andhra Pradesh 517503 Tiruchanoor ---------- ----------
4)Dr. Keerthisikha Palur
Address of Applicant :Associate Professor, Department of Pharmaceutical Analysis, Sri Padmavathi School of Pharmacy, Mohan Gardens, Vaishnavi Nagar, Tiruchanoor, Andhra Pradesh 517503 Tiruchanoor ---------- ----------
5)Dr. T. Karthiyayini
Address of Applicant :Professor, Department of Pharmacognosy, Pannai college of Pharmacy, Trichy - Dindugal Rd, Mullipadi, Tamil Nadu 624005 Trichy ---------- ----------
6)Dr. Parameshwar Aleti
Address of Applicant :Head of Department, Pharmaceutical Analysis, SRR College of Pharmaceutical Sciences, Valbhapur(V), Elakthurthy(M), Hanumakonda-Dist, Telangana-505476 Valbhapur ---------- ----------
7)Dr. Srinivas Chintha
Address of Applicant :Associate Professor & Head, Department of Pharmaceutical Analysis, Vaagdevi Pharmacy College, Bollikunta, Warangal Bollikunta ---------- ----------
8)Pallavi Karbhari Chede
Address of Applicant :Assistant Professor, Kashibai Navale College of Pharmacy, Kondhwa, Pune, Maharashtra Pune ---------- ----------
9)M. Magesh
Address of Applicant :Assistant Professor, Saveetha College of Pharmacy, Saveetha institute of medical and technical sciences, Saveetha Nagar, Thandalam, Chennai-602105 Tamil Nadu, India Thandalam ---------- ----------
10)Bharadhan Bose
Address of Applicant :Associate Professor, Department of Pharmacognosy, Karpagam College of Pharmacy, Coimbatore–641032, Tamil Nadu. India Coimbatore ---------- ----------

(57) Abstract :
Chemical based hair dyes are toxic in nature and many serious problems associated with chemical hair dyes. The present invention provides a herbal hair dye for increased hair colour intensity, comprising of leaves of Aloe vera; leaves of Lawsonia innermis; leaves of Psidium guajava; leaves of Holy basil; leaves of Indigofera tinctoria; fruits of Phyllanthus emblica; seeds of Trigonella foenum graecum; Acacia catechu; and whole herb of Eclipta alba; wherein the combination of herbs in different proportions produces a suitable brown colour for hair colourant. The process for the preparation of herbal hair dye, comprising of collecting fresh leaves of Aloe vera, washing thoroughly and peeling off the outer surface and collecting inner mass with the help of scoop; separately collecting leaves of Lawsonia innermis, leaves of Psidium guajava, leaves of Holy basil, leaves of Indigofera tinctoria, fruits of Phyllanthus emblica and seeds of Trigonella foenum graecum, Acacia catechu and whole herb of Eclipta alba and drying under shade; powdering all plant material and passing through the sieve number 80; weighing all the ingredients according to the formulas and mixing in a non-metallic vessel and keeping for 1 hour for imbibition to obtain hair dye pastes. The herbal hair dye pastes when applied in defined steps on hair sample a wide range of colors can achieved.

No. of Pages : 9 No. of Claims : 6

FORM-2

THE PATENTS ACT, 1970

(39 OF 1970)

&

THE PATENTS RULES, 2003

COMPLETE SPECIFICATION

(SECTION 10, RULE 13)

TITLE OF THE INVENTION

HERBAL HAIR DYE PREPARATION AND USES THEREOF

APPLICANTS

Name: Dr K Sudheer Kumar, Nationality: Indian, **Address:** Professor, Department of Pharmacognosy, Goenka College of Pharmacy Sikar-Lachhmangarh Road, NH-11, Lachhmangarh (Sikar)-332315

Name: Dr. Venkatesan Natarajan, Nationality: Indian, **Address:** Professor, Department of Pharmacology, School of Pharmacy, Sri Balaji Vidyapeeth Deemed To Be University, Puducherry, India-607402

Name: Dr. Sreenivasa Charan Archakam, Nationality: Indian, **Address:** Associate Professor, Department of Pharmaceutical Analysis, Sri Padmavathi School of Pharmacy, Mohan Gardens, Vaishnavi Nagar, Tiruchanoor, Andhra Pradesh 517503

Name: Dr. Keerthisikha Palur, Nationality: Indian, **Address:** Associate Professor, Department of Pharmaceutical Analysis, Sri Padmavathi School of Pharmacy, Mohan Gardens, Vaishnavi Nagar, Tiruchanoor, Andhra Pradesh 517503

Name: Dr. T. Karthiyayini, Nationality: Indian, **Address:** Professor, Department of Pharmacognosy, Pannai college of Pharmacy, Trichy - Dindugal Rd, Mullipadi, Tamil Nadu 624005

Name: Dr. Parameshwar Aleti, Nationality: Indian, **Address:** Head of Department, Pharmaceutical Analysis, SRR College of Pharmaceutical Sciences, Valbhapur(V), Elakthurthy(M), Hanumakonda-Dist, Telangana-505476

Name: Dr. Srinivas Chintha, Nationality: Indian, **Address:** Associate Professor & Head, Department of Pharmaceutical Analysis, Vaagdevi Pharmacy College, Bollikunta, Warangal

Name: Pallavi Karbhari Chede, Nationality: Indian, **Address:** Assistant Professor, Kashibai Navale College of Pharmacy, Kondhwa, Pune, Maharashtra

Name: M. Magesh, Nationality: Indian, **Address:** Assistant Professor, Saveetha College of Pharmacy, Saveetha institute of medical and technical sciences, Saveetha Nagar, Thandalam, Chennai-602105 Tamil Nadu, India

Name: Bharadhan Bose, Nationality: Indian, **Address:** Associate Professor, Department of Pharmacognosy, Karpagam College of Pharmacy, Coimbatore–641032, Tamil Nadu. India

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

Technical Field of the Invention

The present invention relates to herbal hair dye for increased hair colour intensity. The present invention provides a herbal hair dye of *Aloe vera*; *Lawsonia innermis*; *Psidium guajava*; *Holy basil*; *Indigofera tinctoria*; *Phyllanthus emblica*; *Trigonella foenum graecum*; *Acacia catechu*; and *Eclipta alba*. The present invention also provides a process for the preparation of herbal hair dye.

Background of the Invention

Chemical based hair dyes are toxic in nature and risks are associated with the chemicals found in hair dye formulations. There are also many serious problems associated with this type of hair dyes, including hair damage and causes harm to eyes, skin and mucous membranes and hence does not produce desired coloring effect [He, L., Michailidou, F., Gahlon, H.L. and Zeng, W., 2022. Hair dye ingredients and potential health risks from exposure to hair dyeing. Chemical Research in Toxicology, 35(6), pp.901-915]. Plant based hair dyes uses combination of herbal plants in the form of plants extracts to prepare herbal hair dye [CN109330939B]. Desired results for hair colour can be achieved by using combination of plants with appropriate ratios. Although there are several plant based hair dye products are available in the market. Still there is a need for herbal hair dyes which utilizes combination of herbal plants for the preparation of desired hair colourant.

Objects of the Invention

The main object of the present invention is to provide herbal hair dye.

Another object of the present invention is to provide a process for the preparation of herbal hair dye.

Yet another object of the invention is to provide a herbal hair dye for increased hair colour intensity.

Summary of the Invention

The present invention provides a herbal hair dye for increased hair colour intensity.

In an embodiment of the invention, the present invention provides a herbal hair dye, comprising of leaves of *Aloe vera*; leaves of *Lawsonia innermis*; leaves of *Psidium guajava*; leaves of *Holy basil*; leaves of *Indigofera tinctoria*; fruits of *Phyllanthus*

emblica; seeds of *Trigonella foenum graecum*; *Acacia catechu*; and whole herb of *Eclipta alba*; wherein the combination of herbs in different proportions produces a suitable brown colour for hair colourant. The present invention provides a process for the preparation of herbal hair dye. In an embodiment of the invention, the process for the preparation of herbal hair dye, comprising of collecting fresh leaves of *Aloe vera,* washing thoroughly and peeling off the outer surface and collecting inner mass with the help of scoop; separately collecting leaves of *Lawsonia innermis,* leaves of *Psidium guajava,* leaves of *Holy basil,* leaves of *Indigofera tinctoria,* fruits of *Phyllanthus emblica* and seeds of *Trigonella foenum graecum, Acacia catechu* and whole herb of *Eclipta alba* and drying under shade; powdering all plant material and passing through the sieve number 80; weighing all the ingredients according to the formulas and mixing in a non-metallic vessel and keeping for 1 hour for imbibition to obtain hair dye pastes. In an embodiment of the invention, the herbal hair dye, wherein the pH of the herbal hair dye ranges from 6.12 to 6.83. In an embodiment of the invention, the herbal hair dye, wherein hair dye pastes is applied twice in 24 hours on hair samples and washed with tap water after the period of two hours with tap water without aid of shampoo. In an embodiment of the invention, the herbal hair dye, wherein by changing the proportion of *Lawsonia innermis* and *Indigofera tinctoria* a suitable brown colour could be obtained for hair. In an embodiment of the invention, the herbal hair dye, wherein by repeating application of *Lawsonia innermis* and *Indigofera tinctoria* gives increasing hair colour intensity.

Detailed description of the Invention

The present invention provides a herbal hair dye for increased hair colour intensity. The present invention provides a herbal hair dye, comprising of leaves of *Aloe vera*; leaves of *Lawsonia innermis*; leaves of *Psidium guajava*; leaves of *Holy basil*; leaves of *Indigofera tinctoria*; fruits of *Phyllanthus emblica*; seeds of *Trigonella foenum graecum*; *Acacia catechu*; and whole herb of *Eclipta alba*; wherein the combination of herbs in different proportions produces a suitable brown colour for hair colourant. The present invention provides a process for the preparation of herbal hair dye. The present invention provides a process for the preparation of

herbal hair dye, comprising of collecting fresh leaves of *Aloe vera*, washing thoroughly and peeling off the outer surface and collecting inner mass with the help of scoop; separately collecting leaves of *Lawsonia innermis*, leaves of *Psidium guajava*, leaves of *Holy basil*, leaves of *Indigofera tinctoria*, fruits of *Phyllanthus emblica* and seeds of *Trigonella foenum graecum, Acacia catechu* and whole herb of *Eclipta alba* and drying under shade; powdering all plant material and passing through the sieve number 80; weighing all the ingredients according to the formulas and mixing in a non-metallic vessel and keeping for 1 hour for imbibition to obtain hair dye pastes. In an embodiment of the invention, the herbal hair dye, wherein the pH of the herbal hair dye ranges from 6.12 to 6.83. The present invention provides a herbal hair dye, wherein hair dye pastes is applied twice in 24 hours on hair samples and washed with tap water after the period of two hours with tap water without aid of shampoo. The present invention provides a herbal hair dye, wherein by changing the proportion of *Lawsonia innermis* and *Indigofera tinctoria* a suitable brown colour could be obtained for hair. In an embodiment of the invention, the herbal hair dye, wherein by repeating application of *Lawsonia innermis* and *Indigofera tinctoria* gives increasing hair colour intensity.

Method of Preparation

Selection of Herbs:

Fresh leaves of *Aloe vera* are collected, washed thoroughly and the outer surface has been peeled off and inner mass is collected with the help of scoop and leaves of Henna (*Lawsonia innermis*), Guava (*Psidium guajava*),Tulsi (*Holy basil*), Nilika (*Indigofera tinctoria*) were collected and dried under shade, fruits of Amla (*Phyllanthus emblica*), and seeds of Fenugreek (*Trigonella foenum graecum*) were collected and Black catechu (*Acacia catechu*) and whole herb of Bhringraj (*Eclipta alba*), were collected dried under shade and powdered, all powder material passed through the sieve (NO.80), Lohabasma (Herbo mineral) was purchased from local market of Hyderabad and authenticated, for all the above materials were studied for their physical (Ash values) reported in results. Table 1 shows total ash, acid insoluble ash and water-soluble ash of drugs.

S.NO	DRUGS	TOTAL ASH	ACID INSOLUBLE ASH	WATER SOLUBLE ASH
1.	*Lawsonia innermis* (Henna)	14.60%	4.50%	3.0%
2.	*Indigofera tinctoria* (Indigo)	40.0%	15.0%	15.0%
3.	*Aloe vera*	0.16±0.02	2.25%	12.5%
4.	*Eclipta alba* (Bhringraj)	16.1%	8.98%	17.95%
5.	*Holy basil* (Tulsi)	9.2%	5.5%	7.5%
6.	*Acacia catechu* (Black catechu)	1.16-2%	0.2-0.4%	0.09-0.25%
7.	*Psidium guajava* (Guava)	3.29%	0.25%	2.83%
8.	*Trigonella foenum graecum* (Fenugreek)	4	0.5	-
9.	*Phyllanthus emblica* (Amla)	7.5%	8%	2%

Hair Dye preparation

All the ingredients were weighed according to the formulas and mixed in a non-metallic vessel kept for 1 hour for imbibition.

Application of Herbal hair dye

After completion of 1 hour hair dye paste was applied on hair samples, the dyed hair sample was washed with tap water after the period of two hours, a second coat of dye was applied after 24 hours of first application, kept for two hours then washed with tap water without aid of shampoo. Dye when binds with the keratin fibre when the light fall on the dye applied hair the outer layer of the hair shaft shimmers/ reflects the light in such a way to present the hair to be in brownish red colour. Different grades were assigned to colors ranging from jet black to blonde using an experimental colour grade scale and reported in result.

We claim:

1. A herbal hair dye for increased hair colour intensity, comprising:

a) leaves of *Aloe vera*;

b) leaves of *Lawsonia innermis*;

c) leaves of *Psidium guajava*;

d) leaves of *Holy basil*;

e) leaves of *Indigofera tinctoria*;

f) fruits of *Phyllanthus emblica*;

g) seeds of *Trigonella foenum graecum*;

h) *Acacia catechu*;

i) whole herb of *Eclipta alba*; and

j) Herbo mineral;

wherein the combination of herbs in different proportions produces a suitable brown colour for hair colourant.

2. A process for the preparation of herbal hair dye, comprising:

a) collecting fresh leaves of *Aloe vera*, washing thoroughly and peeling off the outer surface and collecting inner mass with the help of scoop;

b) separately collecting leaves of *Lawsonia innermis*, leaves of *Psidium guajava*, leaves of *Holy basil*, leaves of *Indigofera tinctoria*, fruits of *Phyllanthus emblica* and seeds of *Trigonella foenum graecum, Acacia catechu* and whole herb of *Eclipta alba* and drying under shade;

c) powdering all shade dried plant material of step b) and passing through the sieve number 80;

d) weighing all the ingredients of step a) and step c) according to the formulation and mixing in a non-metallic vessel and keeping for 1 hour for imbibition to obtain hair dye pastes.

3. The herbal hair dye as claimed in claim 1, wherein hair dye paste is applied twice in 24 hours on hair samples and washed with tap water after the period of two hours with tap water without aid of shampoo.

4. The herbal hair dye as claimed in claim 1, wherein by changing the proportion of *Lawsonia innermis* and *Indigofera tinctoria* a sutiable brown colour is obtain for hair.

5. The herbal hair dye as claimed in claim 1, wherein by repeating application of *Lawsonia innermis* and *Indigofera tinctoria* gives increasing hair colour intensity.

6. The herbal hair dye as claimed in claim 1, wherein by applying herbal hair dye paste in defined steps a wide range of colors are achieved.

Dated this 30th day of April, 2023

To be signed digitally by

(Sanchita Tewari)

Agent for the Applicant

Patent Agent (IN/PA 2711)

Abstract

HERBAL HAIR DYE PREPARATION AND USES THEREOF

Chemical based hair dyes are toxic in nature and many serious problems associated with chemical hair dyes. The present invention provides a herbal hair dye for increased hair colour intensity, comprising of leaves of *Aloe vera*; leaves of *Lawsonia innermis*; leaves of *Psidium guajava*; leaves of *Holy basil*; leaves of *Indigofera tinctoria*; fruits of *Phyllanthus emblica*; seeds of *Trigonella foenum graecum*; *Acacia catechu*; and whole herb of *Eclipta alba*; wherein the combination of herbs in different proportions produces a suitable brown colour for hair colourant. The process for the preparation of herbal hair dye, comprising of collecting fresh leaves of *Aloe vera*, washing thoroughly and peeling off the outer surface and collecting inner mass with the help of scoop; separately collecting leaves of *Lawsonia innermis*, leaves of *Psidium guajava*, leaves of *Holy basil*, leaves of *Indigofera tinctoria*, fruits of *Phyllanthus emblica* and seeds of *Trigonella foenum graecum*, *Acacia catechu* and whole herb of *Eclipta alba* and drying under shade; powdering all plant material and passing through the sieve number 80; weighing all the ingredients according to the formulas and mixing in a non-metallic vessel and keeping for 1 hour for imbibition to obtain hair dye pastes. The herbal hair dye pastes when applied in defined steps on hair sample a wide range of colors can achieved.

Office of the Controller General of Patents, Designs & Trade Marks
Department of Industrial Policy & Promotion,
Ministry of Commerce & Industry,
Government of India

INTELLECTUAL PROPERTY INDIA
PATENTS | DESIGNS | TRADE MARKS
GEOGRAPHICAL INDICATIONS

Application Details	
APPLICATION NUMBER	202341040680
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	14/06/2023
APPLICANT NAME	1 . Dr Kiran Kumar Y 2 . Mannam Mounika 3 . Urooj Fatima Baig 4 . Simin Naaz Md Kaleem 5 . Farhat Fatima 6 . Dimple Pirgal 7 . Mr.Ismail Yusuf Shaikh 8 . Parmeshwar Sudhakar Mane 9 . Dr. Durga Prasad Thammisetty 10 . Dr. V. T. Iswariya 11 . Valikala Viswanath 12 . Dr Vankam Lokeswara Babu
TITLE OF INVENTION	SOLID DISPERSION OF AN ANTIFUNGAL DRUG IN GEL FORMULATION FOR IMPROVING BIOAVAILABILITY
FIELD OF INVENTION	CHEMICAL

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :11/02/2023

(21) Application No.202341009094 A
(43) Publication Date : 17/02/2023

(54) Title of the invention : RP-HPLC METHOD FOR SIMULTANEOUS ESTIMATION OF TELMISARTAN AND NIFEDIPINE IN PHARMACEUTICAL DOSAGE FORM

(51) International classification :G01N0030020000, A61K0031418400, A61K0009200000, A61K0031442200, G01N0030060000
(86) International Application No :PCT//
Filing Date :01/01/1900
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
Filing Date :NA

(71)**Name of Applicant :**
1)Dr. Mahammad Ishaq Beludari
Address of Applicant :Door no: 13-1-846, Revenue Colony, New town, Anantapur-515001 Andhra Pradesh, India ---------- ----------
2)Mrs. D. Jeslin
3)Dr A V Badari Nath
4)S. Prema
5)Dr. Raj Kumar Bolledula
6)Dr. Raju A
7)Rutuja Sonawane
8)Dr. P. N. Balaji
9)Dr. Uttam Prasad Panigrahy
10)Gokul Marimuthu
11)Konatham Teja Kumar Reddy
Name of Applicant : NA
Address of Applicant : NA
(72)**Name of Inventor :**
1)Dr. Mahammad Ishaq Beludari
Address of Applicant :Door no: 13-1-846, Revenue Colony, New town, Anantapur-515001 Andhra Pradesh, India ---------- ----------
2)Mrs. D. Jeslin
Address of Applicant :Department of Pharmaceutics, Faculty of Pharmacy, Sree Balaji Medical College and Hospital Campus, Bharath Institute of Higher Education and Research, Chromepet, Chennai-600044, Tamil Nadu, India ---------- ----------
3)Dr A V Badari Nath
Address of Applicant :Professor & HOD, Department of Pharmaceutics, Santhiram College of Pharmacy, NH 40, Neravada, Nandyala 518112, Andhra Pradesh, India ---------- ----------
4)S. Prema
Address of Applicant :Assistant professor, Crescent School of Pharmacy, B.S. Abdur Rahman Crescent Institute of Science and technology, Vandalur, Chennai 600048, Tamil Nadu, India ---------- ----------
5)Dr. Raj Kumar Bolledula
Address of Applicant :Professor & Vice Principal, Moonray Institute of Pharmaceutical Sciences, Raikal, Shadnagar, Telangana 501512, India ---------- ----------
6)Dr. Raju A
Address of Applicant :Professor, Department of pharmacology, St Joseph's college of pharmacy, Cherthala Alappuzha District, Kerala-688524, India ---------- ----------
7)Rutuja Sonawane
Address of Applicant :Assistant Professor, Pharmaceutical Chemistry department, SCES's Indira College OF Pharmacy, Pune-33, Maharashtra, India ---------- ----------
8)Dr. P. N. Balaji
Address of Applicant :Professor, HoD, Dept. Of Pharmaceutical Analysis, Seven Hills college of Pharmacy, Tirupati, Andhra Pradesh 517561, India ---------- ----------
9)Dr. Uttam Prasad Panigrahy
Address of Applicant :Associate Professor, Department of Pharmaceutical Analysis, Faculty of Pharmaceutical sciences, Assam down town University, Sankar Madhab Path, Gandhi Nagar, Panikhaiti, Guwahati, Assam-781026, India ---------- ----------
10)Gokul Marimuthu
Address of Applicant :Senior Research Fellow, Captain Srinivasa Murthy Central Ayurveda Research Institute, Arumbakkam, chennai- 600106, Tamil Nadu, India ---------- ----------
11)Konatham Teja Kumar Reddy
Address of Applicant :UCT, Osmania University Main Rd, Amberpet, Hyderabad, Telangana, 500007, India ---------- ----------

(57) Abstract :
The present invention provides a simple, accurate and precise method for the simultaneous estimation of telmisartan and nifedipine in pharmaceutical dosage form. The present invention relates to a method for the estimation of telmisartan and nifedipine by RP-HPLC in bulk and tablet dosage forms. A method for simultaneous estimation of telmisartan and nifedipine in pharmaceutical dosage form, comprising of dissolving telmisartan and nifedipine solution using acetonitrile, methanol and water as mobile phase in the ratio of 65:25:10 %v/v to get a concentration of 20µg/ml; running chromatogram through column C18, 5µm, 250mmx4.6mm using mobile phase; optimizing conditions of column at flow rate 1.0ml/min, detection wavelength 255nm, injecting volume 20µl; and column temperature ambient; running the sample for 10 minutes and recording chromatogram from the chromatograph for simultaneous estimation of telmisartan and nifedipine. The developed method is specific for the simultaneous estimation of telmisartan and nifedipine in the bulk and pharmaceutical dosage forms. The RP-HPLC method of present invention has excellent sensitivity, precision and reproducibility.

No. of Pages : 29 No. of Claims : 7