



# Natural Nourishment: Formulation and Evaluation of Herbal Hair Mask

<sup>1</sup>Tejasvi M Kasar, <sup>2</sup>Chaitali B Mahale, <sup>3</sup>Snehal D Mahale, <sup>4</sup>Vaishnavi I More, <sup>5</sup>Rutuja A Solanke, <sup>6</sup>Vijay Shewale

<sup>1</sup>Student (Department of Pharmacognosy), <sup>2</sup>Student (Department of Pharmacognosy), <sup>3</sup>Student (Department of Pharmacognosy), <sup>4</sup>Student (Department of Pharmacognosy), <sup>5</sup>Student (Department of Pharmacognosy), <sup>6</sup>Assistant professor

Divine College of Pharmacy, Satana (Nashik), India.

## Abstract

This study aimed to formulate and evaluate an herbal hair mask utilizing rice powder and neem oil along with other beneficial ingredients such as coconut oil, honey, fenugreek seeds powder, and peppermint oil. Hibiscus, ginger, Tulasi (holy basil), amla (Indian gooseberry), kalonji (black seed), neem, coconut oil, and rose water were meticulously selected for their historical use and documented benefits in hair care.

The formulation process focused on optimizing the combination of these ingredients to create a highly effective hair mask. The hair mask was formulated to promote hair health, strength, and shine while addressing common hair concerns such as dryness, dandruff, and hair fall. The formulation process involved determining suitable proportions of each ingredient to maximize their individual benefits and synergistic effects. The final product was evaluated for its sensory attributes, efficacy, and safety through various tests and assessments.

### Keywords:

Dryness, Dandruff, and Hair fall, Promote hair health, Strength, and shine.

## 1. INTRODUCTION

Hair promotes well-being in people and also protects the scalp from solar radiation and mechanical abrasion. The development of hair care formulations is important to treat and protect the hair fiber from daily external aggressions. The primary functions of hair care formulations improve the physical properties of the hair fiber, such as texture, strength, and combability. The secondary functions improve sensory properties, such as brightness, frizz reduction, and hair film formation.<sup>[1]</sup>

In our quest for healthy, lustrous hair, we often turn to products laden with chemicals and synthetic ingredients, overlooking the natural remedies that have been cherished for generations. One such remedy, gaining increasing popularity in recent times, is the natural hair mask.

Harnessing the power of Mother Nature's bounty, natural hair masks offer a holistic approach to hair care, nourishing the scalp, repairing damage, and promoting overall hair health. From ancient Ayurvedic traditions to modern herbal formulations, these masks are crafted from a myriad of plant-based ingredients known for their potent properties.<sup>[4]</sup>

Unlike commercial hair products that may contain harsh chemicals and additives, natural hair masks are gentle yet effective, suitable for all hair types and free from harmful side effects. Whether you're battling dryness, frizz, or hair loss, there's a natural hair mask tailored to address your specific needs.

In this guide, we'll explore the fascinating world of natural hair masks, delving into their benefits, ingredients, and simple recipes you can whip up in your own kitchen. Say goodbye to dull, lifeless locks, and embrace the nourishing embrace of nature with these rejuvenating hair treatments.

An herbal hair mask is a natural and nourishing treatment for your hair, typically made from a combination of plant-based ingredients known for their beneficial properties. These masks are often used to improve the health and appearance of hair, addressing issues such as dryness, damage, or promoting overall hair growth.

Natural, herbal hair masks have long been cherished for their ability to rejuvenate and nourish hair, providing a holistic approach to hair care. In a world where the beauty industry is increasingly embracing the power of botanicals and natural remedies, herbal hair masks have gained popularity for their potential to address a range of hair concerns while avoiding the use of harsh chemicals. These masks typically combine a variety of plant-based ingredients, each chosen for its unique properties that promote hair health and vitality.[1]

Whether you're aiming to combat dryness, restore shine, strengthen strands, or stimulate hair growth, herbal hair masks offer a customizable and gentle solution. The use of herbs, oils, and other natural elements not only supports the well-being of your hair but also contributes to a sustainable and eco-friendly beauty routine.

In this guide, we will explore the benefits of herbal hair masks, delve into common ingredients and their properties, and provide simple yet effective recipes for creating your personalized herbal hair treatment at home. Discover the richness of nature's bounty and unlock the secrets to healthier, more vibrant hair through the transformative magic of herbal hair masks.

The goal of this study is to develop a natural, biodegradable, and safe herbal hair mask in the form of a fine powder, which is more convenient to apply, which come in the form of powder and require the addition of water to use. The specific herbs used in an herbal hair mask can vary, depending on the desired benefits.

This product is very important for those whose hair is very thin or damaged. If our hair is good, then our personality looks better. There are many types of masks available in the market, but they contain chemicals. Chemicals are bad for our hair. So, we have made a product without chemicals. This mask is very easy to make.

### 1.1. Hair:

Hair is a protein filament that emerges from follicles located in the dermis. Hair stands as one of the distinguishing traits of mammals. The human body, aside from regions of hairless skin, is adorned with follicles that generate dense terminal and delicate vellus hair. While much attention surrounding hair centers on its growth, types, and maintenance, hair also holds significance as a biomaterial predominantly comprised of protein, particularly alpha-keratin.

### 1.2. Physiology of Hair:

The process of hair growth follows a perpetual cycle, with each mature follicle undergoing phases of growth (anagen), regression (catagen), rest (telogen), and shedding (exogen). The duration of these phases varies depending on the hair's location, as well as individual factors such as nutritional intake, hormonal balance, and age. [10,24]



Fig no 01: Hair growth cycle

## 2. INFORMATION OF MATERIAL

### 2.1 Formulation A:

**1. Rice powder:** Rice powder is believed to offer several benefits for hair:

- **Strengthening:** Rice powder contains amino acids, vitamins, and minerals that can strengthen the hair shaft, reducing breakage and split ends. This can contribute to longer, healthier hair over time.
- **Adds Volume:** When applied to the roots, rice powder can help add volume and lift to the hair, making it appear thicker and fuller.
- **Scalp Health:** Rice powder has soothing properties that can help calm irritated or inflamed scalp conditions like dandruff or itchiness.
- **Natural Shine:** It can also add a natural shine to the hair, leaving it looking glossy and healthy.<sup>[5]</sup>

**2. Neem oil:** Neem oil is often used in hair masks for its potential benefits for the hair and scalp. Here are some common uses and benefits:

- **Moisturizing:** Neem oil is rich in fatty acids, which can help moisturize the scalp and hair, reducing dryness and flakiness.
- **Antibacterial and Antifungal Properties:** Neem oil has natural antibacterial and antifungal properties, which can help in treating scalp infections like dandruff and itching.<sup>[7,16]</sup>



**3.Coconut oil:** Coconut oil is a popular ingredient in hair masks due to its numerous benefits for hair and scalp health. Here are some of its uses and benefits:

- **Strengthening:** Coconut oil contains lauric acid, which can penetrate the hair shaft and strengthen hair from within, reducing breakage and split ends.
- **Promoting Hair Growth:** Some studies suggest that coconut oil can help promote hair growth by penetrating the hair follicles and preventing protein loss.<sup>[13,15]</sup>

**4. Honey:** Honey is a popular ingredient in hair masks due to its moisturizing, conditioning, and antibacterial properties. Here's how honey can benefit your hair:

- **Moisturizing:** Honey is a natural humectant, which means it helps attract and retain moisture in the hair, keeping it hydrated and healthy.
- **Conditioning:** Honey helps to soften and smoothen the hair, making it more manageable and less prone to breakage.
- **Antibacterial:** Honey has natural antibacterial properties, which can help to keep the scalp healthy and prevent issues like dandruff and itching.<sup>[20]</sup>

**5. Fenugreek:** Fenugreek, also known as methi, is a popular ingredient in hair masks due to its various benefits for hair and scalp health.

- **Treats Scalp Issues:** Fenugreek has anti-inflammatory and antibacterial properties that can help soothe scalp irritation, reduce dandruff, and prevent scalp infections.
- **Scalp Inflammation:** Fenugreek has anti-inflammatory properties that can help soothe a dry, irritated scalp. It can also help unclog hair follicles, promoting healthier hair growth.<sup>[15,19]</sup>

**6.Peppermint oil:** Peppermint oil is known for its refreshing and invigorating fragrance. It has a strong, minty aroma that is both cooling and uplifting.

- The scent is often described as crisp, clean, and energizing, with a natural sweetness that sets it apart from other mint oils.
- When used in hair care products, peppermint oil can provide a tingling sensation that is refreshing and revitalizing.<sup>[11]</sup>

## 2.2 Formulation B:

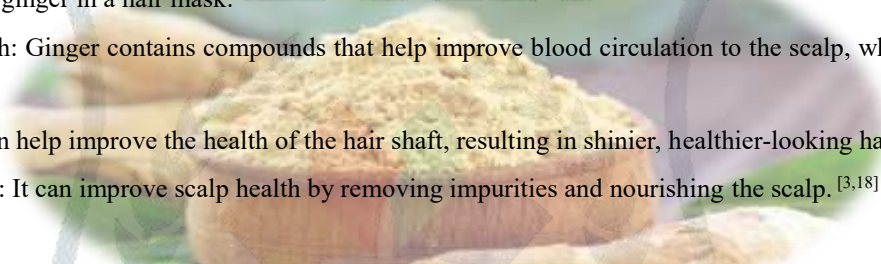
1. **Hibiscus:** Hibiscus is a popular natural ingredient in hair care due to its many benefits for hair health. Here are some of the ways hibiscus can be used in a hair mask.

- Conditions Hair: Hibiscus has natural conditioning properties that help soften the hair, making it more manageable and less prone to frizzy.
- Promotes Hair Growth: Hibiscus is rich in vitamins and antioxidants that nourish the hair follicles, promoting healthy hair growth. <sup>[6]</sup>



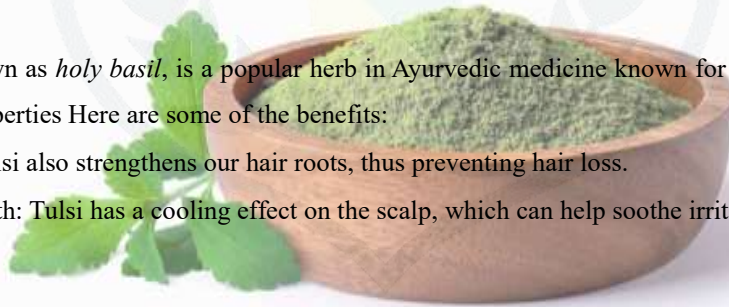
2. **Ginger:** Ginger is a beneficial ingredient in hair masks due to its stimulating properties and rich nutritional content. Here are some benefits of using ginger in a hair mask:

- Stimulates Hair Growth: Ginger contains compounds that help improve blood circulation to the scalp, which can stimulate hair growth.
- Adds Shine: Ginger can help improve the health of the hair shaft, resulting in shinier, healthier-looking hair.
- Improves Scalp Health: It can improve scalp health by removing impurities and nourishing the scalp. <sup>[3,18]</sup>



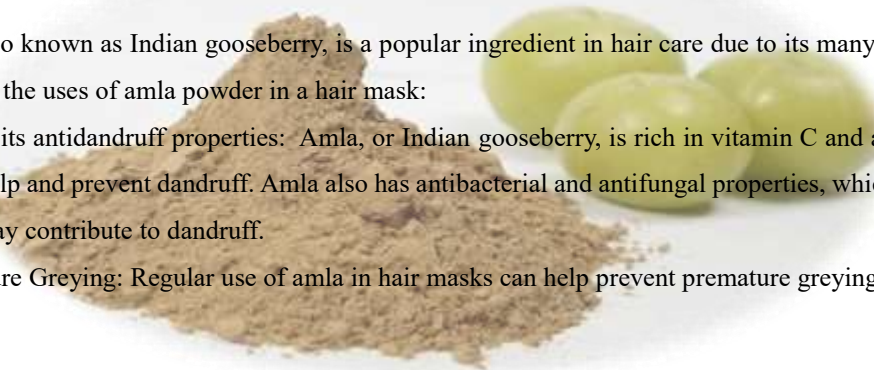
3. **Mint:** Tulsi, also known as *holy basil*, is a popular herb in Ayurvedic medicine known for its antibacterial, antifungal, and anti-inflammatory properties. Here are some of the benefits:

- Reduce hair fall: Tulsi also strengthens our hair roots, thus preventing hair loss.
- Improve Scalp Health: Tulsi has a cooling effect on the scalp, which can help soothe irritation and itchiness. <sup>[9,14]</sup>



4. **Amla:** Amla, also known as Indian gooseberry, is a popular ingredient in hair care due to its many benefits for hair health. Here are some of the uses of amla powder in a hair mask:

- Amla is used for its antidandruff properties: Amla, or Indian gooseberry, is rich in vitamin C and antioxidants, which help to nourish the scalp and prevent dandruff. Amla also has antibacterial and antifungal properties, which can help to treat scalp infections that may contribute to dandruff.
- Prevents Premature Greying: Regular use of amla in hair masks can help prevent premature greying of the hair. <sup>[13,17]</sup>





5. **Kalonji:** Kalonji, or black seed, can be used in hair masks for various benefits. Here are some of its potential uses:
- Promotes Hair Growth: Kalonji oil is rich in nutrients and fatty acids that can nourish the scalp and stimulate hair growth.
  - Prevents Hair Loss: The vitamins and minerals in kalonji help strengthen the hair follicles, reducing hair fall and breakage.<sup>[21]</sup>

6. **Neem:** Neem is a versatile ingredient in hair care due to its numerous benefits for the scalp and hair. Here are some of the uses of neem in a hair mask:

- Treatment for Dandruff: Neem has antifungal and antibacterial properties that can help treat dandruff and soothe an itchy scalp.
- Treats Scalp Infections: Neem’s antimicrobial properties can help treat scalp infections, such as fungal infections or scalp acne.
- Prevents Hair Loss: Neem strengthens hair follicles, reducing hair fall and breakage<sup>[22]</sup>

### 3.COMPOSITION OF HERBAL HAIR MASK

#### 3.1. Composition Of Herbal Hair Mask A:

Sr. No	Constituents Name	Biological Source / Family	Uses	Quantity			
				A1	A2	A3	A4
01	Rice Powder	<i>Oryza sativa</i> (Asian rice)	Promote hair growth. Prevent Dryness.	12.5gm	11gm	10gm	15gm
02	Neen oil	<i>Azadirachta indica</i> (Meliaceae)	Help to treat scalp condition like scalp acne, Itching.	10ml	09ml	10ml	10ml
03	Coconut Oil	<i>Cocos nucifera</i>	Reduced protein loss. Promote hair growth	10ml	11ml	10ml	10ml
04	Honey	<i>Apis mellifera</i>	Prevent scalp by infection. Hair shine and softness	05ml	06ml	05ml	07gm
05	Fenugreek Seeds Powder	<i>Trigonella foenumgraeceum</i> (Leguminosae)	Antifungal, Fight Scalp Problem	08gm	07gm	11gm	08gm
06	Peppermint Oil	<i>Mentha Piperita L.</i> (Lamiaceae)	Soothing effect and good fragrance.	2-3 Drops	2-3 Drops	2-3 Drops	2-3 Drops
07	Water	–	Vehicle	Q.S.	Q.S.	Q.S.	Q.S.

Table No.1: Composition Of Herbal Hair Mask

### 3.2. Composition Of Herbal Hair Mask B:

Sr. No	Constituents Name	Biological Source / Family	Uses	Quantity			
				B1	B2	B3	B4
01	Hibiscus	<i>Hibiscus rosa-sinensis</i> (Malvaceae)	Promote hair growth. Condition the hair.	2.5gm	1.5gm	2gm	1.5gm
02	Ginger	<i>Zingiber officinalis</i> (Zingiberaceae)	Strengthening the hair. Improving hair quality.	1.5gm	1.5gm	1gm	1.5gm
03	Mints (Tulasi)	<i>Ocimum tenuifloium</i> (Lamiaceae)	Reduce hair fall Improve Scalp Health	1gm	1gm	1gm	1gm
04	Amla	<i>Phyllanthus emblica</i> (Phyllanthaceae)	Enhances natural colour hair. Antidandruff.	5gm	5.5gm	5gm	4gm
05	Buttercups (Kalonij)	<i>Nigella sativa</i> (Ranunculaceae)	Promotes hair growth. Prevents premature greying.	1.5gm	1gm	2gm	1gm
06	Neem	<i>Azadirachta indica</i> . (Meliaceae)	Antidandruff and Prevents Hair Loss	7.5gm	8.5gm	7.5gm	10gm
07	Coconut oil	<i>Cocos nucifera</i> (Arecaceae)	Moisturizer And Soften hair	4ml	4ml	4ml	4ml
08	Rose Water	<i>Rosa centifolia</i> (Rosaceae)	Moisturizing and Aromatic benefit.	Q. S	Q. S	Q. S	Q. S

Table No.2: Composition Of Herbal Hair Mask B

## 4.EVALUATIONS OF HERBAL HAIR MASK FORMULATION

- Physical appearance:** The physical characteristics of the mask formulation were assessed, including phase separation, color alteration, odor, and rheological properties.<sup>[2]</sup>
- Homogeneity:** Homogeneity of the formulated mask was determined through visual examination after it was placed in the container. The hair mask was inspected for appearance, and the presence of any aggregates or flocculates.<sup>[23]</sup>
- pH:** The pH of a hair mask can be important because hair has a slightly acidic pH, typically between 4.5 and 5.5. A pH within this range helps to maintain the integrity of the hair cuticle and keeps the hair looking healthy.<sup>[12]</sup>
  - Dip the pH strip: Dip the pH strip into the hair mask to measure the pH. Make sure the strip fully immersed in the mask for an accurate reading.

- Wait for the reading: Allow the pH strip to change color to stabilize and display the pH value. This usually takes a few seconds to a minute, depending on the type of pH testing equipment used.
- Record the pH: Note down the pH value of the hair mask. pH strips will provide a color that corresponds to a pH range,

4. **Washability:** Washability of the formulated hair mask was assessed by applying it to the skin and evaluating the ease and completeness of washing with water.

5. **Skin irritation test:** Apply the herbal hair mask formulation on the skin and observe for irritation, redness or rashes (if any).<sup>[8]</sup>

## 5.RESULT

### 5.1. Herbal Hair Mask A:

Sr.no.	Test	Result			
		A1	A2	A3	A4
1	<b>Physical appearance</b>				
a)	Phase separation	No phase separation	No phase separation	No phase separation	No phase separation
b)	Color	Flax yellow	Cream	Eggnog yellow	Flax yellow
c)	Odor				
2	<b>Homogeneity</b>	Homogeneous	Homogeneous	Homogeneous	Homogeneous
3	<b>pH</b>	4-5	4-5	5-6	5-6
4	<b>Washability</b>	Easily washable	Easily washable	Easily washable	Easily washable
5	<b>Skin irritation</b>	No irritation	No irritation	No irritation	No irritation

Table No.3: Result Of Herbal Hair Mask (A)

### 5.2. Herbal Hair Mask B:

Sr.no.	Test	Result			
		B1	B2	B3	B4
1	<b>Physical appearance</b>				
a)	Phase separation	No phase separation	No phase separation	No phase separation	No phase separation
b)	Color	Olive	Dark green	Olive	Dark Olive Green
c)	Odor	Rose	Rose	Rose	Rose
2	<b>Homogeneity</b>	Homogeneous	Homogeneous	Homogeneous	Homogeneous
3	<b>pH</b>	4-5	4-5	5-6	5-6
4	<b>Washability</b>	Easily washable	Easily washable	Easily washable	Easily washable
5	<b>Skin irritation</b>	No irritation	No irritation	No irritation	No irritation

Table No.4: Result Of Herbal Hair Mask (B)



## 6.CONCLUSION

The formulated herbal hair mask incorporating rice powder and neem oil, along with other natural ingredients, shows great potential as a safe and effective solution for promoting hair health. The synergistic effects of these ingredients are expected to provide comprehensive care, addressing various hair concerns effectively. Among the four formulations i.e. A1, A2, A3, A4 We concluded that A4 is most effective than the others because of high quantity of rice powder and neem oil.

The developed herbal hair mask, comprising a synergistic blend of hibiscus, ginger, Tulasi, amla, kalonji, neem, coconut oil, and rose water, holds great potential as a natural solution for promoting hair health and addressing common hair concerns. Among the four formulations i.e. B1, B2, B3, B4 We concluded that B1 is most effective than the others because of high quantity of Hibiscus, Amla and neem.

The findings of this study will contribute to the development of natural and sustainable solutions for hair care, catering to the growing demand for herbal alternatives in the personal care industry. Further studies are warranted to explore its full therapeutic potential and optimize the formulation for commercialization.

## 7.REFERENCES

1. Jadhav, Miss & Wakale, Miss & Telangi, Mr & Varpe, Miss & Lokhande, Rahul. (2022). Formulation and Evaluation of Herbal Anti Dandruff Hair Mask. International Journal of Scientific Research in Science and Technology. 556-564. 10.32628/IJSRST2293114.
2. Pal, R.S., Saraswat, N., Wal, P., Wal, A. and Pal, Y., 2020. Preparation & assessment of poly-herbal anti-dandruff formulation. The Open Dermatology Journal, 14(1).
3. Gonçalves, S. and Gaivão, I., 2024. Revitalizing the hair ends: Formulation and evaluation of the elderflower (*Sambucus nigra*) hair mask for enhanced hair health. Our Dermatology Online/Nasza Dermatologia Online, 15(1).
4. Kusumawati, A.H., Wulan, I.R. and Ridwanuloh, D., 2020. Formulation and physical evaluation sheet mask from red rice (*Oryza Nivara*) and virgin coconut oil (*Cocos Nucifera* L). International Journal of Health and Medical Sciences, 3(1), pp.60-64.
5. Arpitha, G., Brunda, S., Shubha, D.B., Chinthana, H.B. and Rajani, B.K., 2023. Development and Assessment of Polyherbal Hair Mask. World Journal of Advanced Research and Reviews, 20(3), pp.014-020.
6. Aundhia, C., Rana, D., Parmar, G., Talele, C. and Shah, N., 2023. Fabrication and Evaluation of Herbal Hair Mask. Journal of Coastal Life Medicine, 11, pp.994-1006.
7. Shukla, M.K., Srivastava, S., Srivastava, H., Gupta, N. and Yadav, R., Development and Assessment of An Anti-Dandruff Herbal Hair Mask.
8. Rahane, R.D., Chavhan, M.S.A., Sutar, M.R.S., Rathod, M.P.P., Thete, M.S.B., Kakade, M.P.N. and Rokade, M.T.R., TOPIC: TO FORMULATE AND EVALUATE ANTI DANDRUFF HERBAL HAIR MASK.
9. Badhe, Nanda & Shirode, Lina & Lale, Shivam. (2015). Formulation and Evaluation of Herbal Hair Tonic. Research Journal of Topical and Cosmetic Sciences. 6. 86. 10.5958/2321-5844.2015.00012.6.
10. Sayyad, T.R., Chaudhari, S.S., Nikumbh, P.P. and Bhurat, M.R., EVALUATION, COMPOSITION AND COMPARATIVE STUDY OF HAIR GROWING TONIC.
11. Gonçalves, S. and Gaivão, I., 2024. Revitalizing the hair ends: Formulation and evaluation of the elderflower (*Sambucus nigra*) hair mask for enhanced hair health. Our Dermatology Online/Nasza Dermatologia Online, 15(1).
12. Mishra, P. and Maury, S., 2022. THE REVIEW ON HERBAL HAIR MASK FOR THE PREVENTION OF DANDRUFF.
13. Sumit, K., Vivek, S., Sujata, S. and Ashish, B., 2012. Herbal cosmetics: used for skin and hair. Inven. J, 2012, pp.1-7.
14. Jadhav, A.V., Morale, D., Daunderkar, A., Bhujbal, N. and Kshirsagar, S., 2018. Herbal Hair Cosmetics-An Overview. World Journal of Pharmaceutical Sciences, pp.144-152.

15. Kapoor, V.P., 2005. Herbal cosmetics for skin and hair care.
16. Dasaroju, S. and Gottumukkala, K.M., 2014. Current trends in the research of *Emblica officinalis* (Amla): A pharmacological perspective. *Int J Pharm Sci Rev Res*, 24(2), pp.150-9.
17. Giri, R.P., Gangawane, A.K. and Giri, S.G., 2019. Neem the wonder herb: A short review. *Int. J. Trend Sci. Res. Dev*, 3(3), pp.962-967.
18. Saraf, S., Jharaniya, M., Gupta, A., Jain, V. and Saraf, S., 2014. Herbal hair cosmetics: advancements and recent findings. *World J Pharm Res*, 3(2), pp.3278-94.
19. Sudhir, S.P., Deshmukh, V.O. and Verma, H.N., 2016. *Nigella sativa* seed, a novel beauty care ingredient: A review. *International Journal of Pharmaceutical Sciences and Research*, 7(8), p.3185.
20. Keragala, R.K., Kasunsiri, T.D., Kempitiya, K.S., Kumarapeli, N.N., Kumara, K. and Gunathilaka, S.S., 2020. A study on the extent, aetiology and associated factors of dandruff in a group of medical students and the in vitro effects of antidandruff preparations. *Infect. Dis*, 10, pp.134-145.
21. Bhanu, M.S., Krishna, S.H.S.R., Kumar, K.S., Sri, S.B., Bhanu, S.G. and Sruthi, Y.S.S., 2024. FORMULATION AND EVALUATION OF HERBAL HAIR MASK CONTAINING LINUM USITATISSIMUM.
22. Rahane, R.D., Chavhan, M.S., Sutar, M.R., Rathod, M.P., Thete, M.S., Rokade, M.T. and Kakade, M.P., 2008. ANTI DANDRUFF HERBAL HAIR MASK.

