iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 12 **Issue:** V **Month of publication:** May 2024

DOI: https://doi.org/10.22214/ijraset.2024.61790

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 12 Issue V May 2024- Available at www.ijraset.com

Herbal Hair Serum

Harshratna H. Tupe[1], Lisha M. Moon[2], Kapil A. Vasave[3], Mr. Ganesh Wani[4], Dr. Yuvraj Girbhane[5]
[1, 2, 3]*Students,* [4]*Assistant Professor,* [5]*Principal, Shri Sai Institute of Pharmacy and Research, Chikalthana, Chh. Sambhajinagar*

Abstract: ***Cosmetics have gained significant popularity in the daily lives of many individuals, who often use a variety of products to enhance their beauty and elegance, with the aim of achieving a youthful and charming appearance. It is safe to say that cosmetics play a crucial role in human life. In recent times, herbal cosmetics have become increasingly popular due to the perception that they offer fewer side effects and are a safer option. [1] Hair is a fundamental aspect of an individual's identity, and as such, it is crucial to maintain it through the use of various beauty products. In this regard, it is worth nothing that herbal formulations have demonstrated superior efficacy compared to synthetic ones while exhibiting minimal or no side effects. As such, herbal remedies represent a valuable alternative in hair care, especially for individuals with a proclivity for adverse reactions to conventional hair care products. [2] Promoting hair growth and preventing hair loss is a crucial aspect of hair care. Herbal dyes have been a popular choice among individuals, thanks to their minimal side effects and impeccable safety record. Recently, a study was conducted to develop an herbal hair serum using a variety of sauces for general hair treatment. The resultant oil was subjected to a thorough analysis, including assessments of its organoleptic properties, acid value, saponification value, viscosity, pH, and other parameters. The findings indicated that all criteria were met and fell within the accepted guidelines. [1, 2]***

Keywords: ***Serum, herbal, hibiscus, zinger, hair types, rosemary essential oil***

I. INTRODUCTION

The anatomical structure of hair encompasses a complex framework that manifests distinct physical and chemical properties.[3] It is a thin, flexible thread made of keratin, which has exceptional strength and elasticity.[4] Hair is an epithelial structure that is formed as a result of the keratinization of germinative cells. The growth of hair occurs through follicles that are present on the surface of the skin. This process plays a significant role in the development and maintenance of hair, as the follicles provide the necessary nutrients and support for the growth and maintenance of the hair shaft. The keratinization process involves the transformation of the germinative cells into a hard, durable material known as keratin, which forms the structural foundation of the hair. [5] The scalp is a crucial factor in hair growth, as it is the layer of soft tissue covering the head and cranium where hair develops. Comprised of numerous hair follicles and sebaceous glands, the scalp maintains a pH level of 5.5, while the hair shaft has a pH of 3.67. [5] Cosmetics have a rich history that dates back to ancient times. Initially, they were used in hunting, war, religion, and magic, and later became associated with medicine. Herbal cosmetics refer to beauty products that incorporate natural compounds originating from plants, herbs, and other approved cosmetic ingredients. These compounds have shown promising potential in the development of drugs that could aid in combating challenging illnesses like cancer. Irrespective of one's age, serums, concentrates, and other natural ingredients can effectively enhance the skin's health and aesthetics. Serum is a cosmetic product that is renowned for its high concentration of active ingredients. These ingredients are designed to penetrate the deeper skin layers, thus providing intensive nutrition to the skin. The non-greasy finish of serum makes it a suitable product for all skin types. This cosmetic product is widely used in the beauty industry due to its ability to deliver excellent results.[6] The hair care industry has provided individuals with a diverse range of methods to fortify, revamp, and maintain the health of their hair. Hair care products have the added benefits of augmenting hair quality, facilitating upkeep, and repairing damage. [7]

A. Key Features Of Hair Serum

1) Hair serum is a specialized liquid hair care product that goes beyond styling, as it's also used to address a variety of hair concerns such as dryness, dullness, and unruliness.
2) Unlike water, hair serum has a thicker consistency and is available in different types to cater to various hair goals.
3) Depending on the specific formula, a hair serum can help reduce frizz, add shine, or even straighten hair.
4) Typically, hair serum contains silicone and is designed to leave hair coated with added shine, smoothness, hydration, and protection against humidity and pollution.
5) It's best applied on wet hair for optimal results.[1]

©IJRASET: All Rights are Reserved

B. Hair Serums Are Suitable For Certain Hair Types

1) Straight
2) Wavy
3) Curly
4) Coily[8]

C. Benefits Of Hair Serum

1) Hair serum is an effective hair care product that can smoothen, soften, and make your hair silky.
2) It provides protection to your hair against environmental aggressors.
3) It can be used both as a pre-styling treatment and a finishing product.
4) You can apply it before or after using heat styling tools.
5) Hair serum can control frizz, which is a common problem for weak and damaged hair.
6) Additionally, it can boost the smoothness of your hair.
7) The anti-frizz effect of hair serum also helps to improve the overall smoothness of your hair.
8) Hair serum reduces tangles, promotes shine, and protects against damage while enhancing straightness and curls.[8,9]

D. Some Potential Negative Outcomes Of Using Hair Serum

1) Consistent use or excessive application can result in hair damage and eventual dryness.
2) Using the serum on the scalp may cause inflammation.
3) Long-term exposure to silicones found in the serum can be detrimental to hair health.
4) It's best to steer clear of applying the serum directly to the scalp to avoid oiliness and the potential for inflammation.[10]

II. MATERIALS AND METHODS

The ingredients for the herbal hair serum were procured from a nearby Ayurvedic medical shop, which are as follows:

1) *Hibiscus:* Hibiscus Rosa sinensis, commonly known as Chinese hibiscus, is a plant with an edible appearance. The Chinese hibiscus tea has been found to promote hair growth by stimulating hair follicles and increasing their size. The consumption of Chinese hibiscus tea has been recommended as a natural remedy for hair loss and hair thinning in traditional medicine. The findings of research studies have shown that the active compounds found in Chinese hibiscus tea can help to improve hair texture, thickness, and overall hair health.[11]



FIG 1: Hibiscus [12]

2) *Fenugreek Seeds:* Fenugreek seeds are a notable source of iron and protein, two essential nutrients that are vital for hair growth. These seeds also contain a unique group of plant compounds, including flavonoids and saponins. Due to their anti-fungal and anti-inflammatory properties, these compounds are believed to stimulate hair growth. It is worthy to note that fenugreek has the potential to inhibit DHT's ability to attach to hair follicles, which is one of the primary causes of hair loss. Studies have also shown that using a fenugreek seed extract oil can lead to improved hair thickness and growth. Furthermore, fenugreek is a rich source of protein and amino acids, which aid in repairing hair shaft damage caused by dehydration, heat styling, chemicals, sun damage, or color treatments. The integration of cuticles in the hair shaft is also enhanced by fenugreek, which ultimately results in thicker hair growth.[13]



FIG 2: Fenugreek Seeds [14]

3) *Almond Oil:* Almond oil is nourishing and versatile oil that can help in softening and strengthening your hair. This oil is rich in vitamin B-7, commonly known as biotin, which promotes healthy and strong hair as well as nails. Moreover, almond oil has a natural SPF of 5, which makes it a great choice for safeguarding your hair from sun damage. Additionally, this oil can also be used as a scalp treatment to maintain the health of your hair and scalp.[1]



FIG 3: Almond Oil [15]

4) *Zinger:* Ginger juice can be beneficial for hair by preventing seborrheic dermatitis (dandruff). Dandruff is caused by a yeast infection called malassezia, which results in itchy flakes and redness on the scalp. The growth of this yeast can be reduced with the help of antifungal agents. Ginger, which has potent antifungal properties, has been found to be effective in reducing dandruff. Gingerol, the most abundant active ingredient in ginger, is responsible for its antimicrobial properties. Ginger can also help reduce inflammation and relieve dandruff-related pain due to its anti-inflammatory effects.[16]



FIG 4: Zinger [17]

5) *Vitamin E Capsules:* The application of oil abundant in Vitamin E constitutes an effective strategy to replenish the protective layer of hair, thereby restoring its shine. In addition, oil possesses moisture-sealing properties, which help reduce breakage and safeguard hair against damage.[18]



FIG 5: Vitamin E Capsule [19]

6) *Rosemary Essential Oil:* Rosemary oil is a well-known herb that promotes hair growth. As an essential oil, it can be blended with carrier oils like olive, coconut, or jojoba oil. Rosemary oil has a multitude of advantages, including preventing premature greying, calming the scalp, and relieving issues like dandruff. It paves the way for strong and healthy hair growth.[20]



FIG 6: Rosemary Essential Oil [21]

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 12 Issue V May 2024- Available at www.ijraset.com

III. FORMULATION

The following are the steps to formulate an herbal hair serum that contains hibiscus, fenugreek seeds, almond oil, vitamin E capsule, and rosemary oilZ

1) Preparation Of Ingredients

a) Hibiscus: obtain dried hibiscus flowers or powder.
b) Fenugreek seeds: acquire fenugreek seeds and grind them into a fine powder.
c) Almond oil: use cold-pressed almond oil.
d) Vitamin E capsule: extract the oil from vitamin E capsules
e) Rosemary oil: use pure rosemary essential oil.

2) Infusion Of Hibiscus And Fenugreek

a) Combine hibiscus powder, fenugreek powder, and almond oil in a clean glass jar.
b) Seal the jar and place it in a cool, dark place for 1-2 weeks to allow the herbs to infuse into the oil.
c) Shake the jar occasionally.

3) Straining The Infusion

After the infusion period, strain the oil using a fine mesh strainer or cheesecloth to remove the herbal particles.

4) Addition Of Vitamin E And Rosemary Oil

a) Pierce the vitamin E capsules and squeeze the oil into the strained herbal oil mixture.
b) Add a few drops of rosemary essential oil for its hair-nourishing properties. Stir well to combine.

5) Bottling And Storage

a) Transfer the herbal hair serum into an airtight glass bottle or can using a funnel.
b) To preserve the quality of the serum, it is recommended to store it in a cool and dark area, away from direct sunlight.

6) Labeling

Label the bottle with the name of the product, date of formulation, and a list of ingredients.

7) Usage

a) Apply a small amount of the herbal hair serum to damp or dry hair, focusing on the ends and avoiding the scalp.
b) Gently massage and style as usual.

This herbal hair serum formulation combines the nourishing properties of hibiscus, fenugreek, almond oil, vitamin E, and rosemary oil to promote healthy hair growth, strengthen hair strands, and add shine. A patch test should be performed before using the serum to check for any allergic reactions.

IV. EVALUATION

The following criteria will be used to assess the effectiveness of the herbal hair serum that has been prepared:

1) *Physical Appearance:* The physical appearance of the formulated cosmetic serum was assessed through the observation of its texture, color, and odor.
2) *pH:* To determine the pH of a serum formulation, a Digital pH meter will be used. The meter will be dipped into a sample of the formulation and the pH value will be recorded. It's important for the formulation to have an acidic pH, as the skin's natural pH is around 4-6.[22]
3) *Homogeneity Test:* To conduct the homogeneity test, a sterile and pristine object glass was utilized. The glass was subsequently coated with the hair serum, and a cover glass was securely affixed. The visual appearance was then scrutinized under an illuminating light to identify any coarse particles or inconsistencies. The herbal hair serum underwent a meticulous examination to detect any clumps, flocculates, or aggregates.[23]
4) *Viscosity:* To test the viscosity of the serum formulation, a Brookfield Viscometer is utilized with a spindle type model S6 and 4.5ml of serum at a speed of 100rpm. The spindle is submerged in a sizable container containing the serum for 5 minutes prior to taking the measurement.[24]

©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |

5) *Spreadability:* The spreadability of the formulation was evaluated via interposition between two slides and the application of a suitable weight on top of the plate. Subsequently, the extent of the formulation's spread was measured and recorded for further analysis.
6) *Safety:* It is of utmost importance to ensure the safety of a product, particularly with respect to its suitability for use without causing any adverse reactions, such as scalp irritation or allergies.
7) *Packaging:* It is essential to verify whether the packaging of the herbal serum is capable of preserving the potency of its constituent ingredients, while ensuring ease of use.

V. DISCUSSION

The review provided a comprehensive summary of the formulation technique for herbal hair serum. It included different types of herbs and herbal extracts and excipients, their role in enhancing stability and bioavailability of the active ingredients. It also included the evaluation methods used to access the effectiveness of herbal hair serum.

VI. CONCLUSION

The review summarizes the formulation techniques and evaluation methods used to access the effectiveness of herbal hair serum.

VII. ACKNOWLEDGEMENT

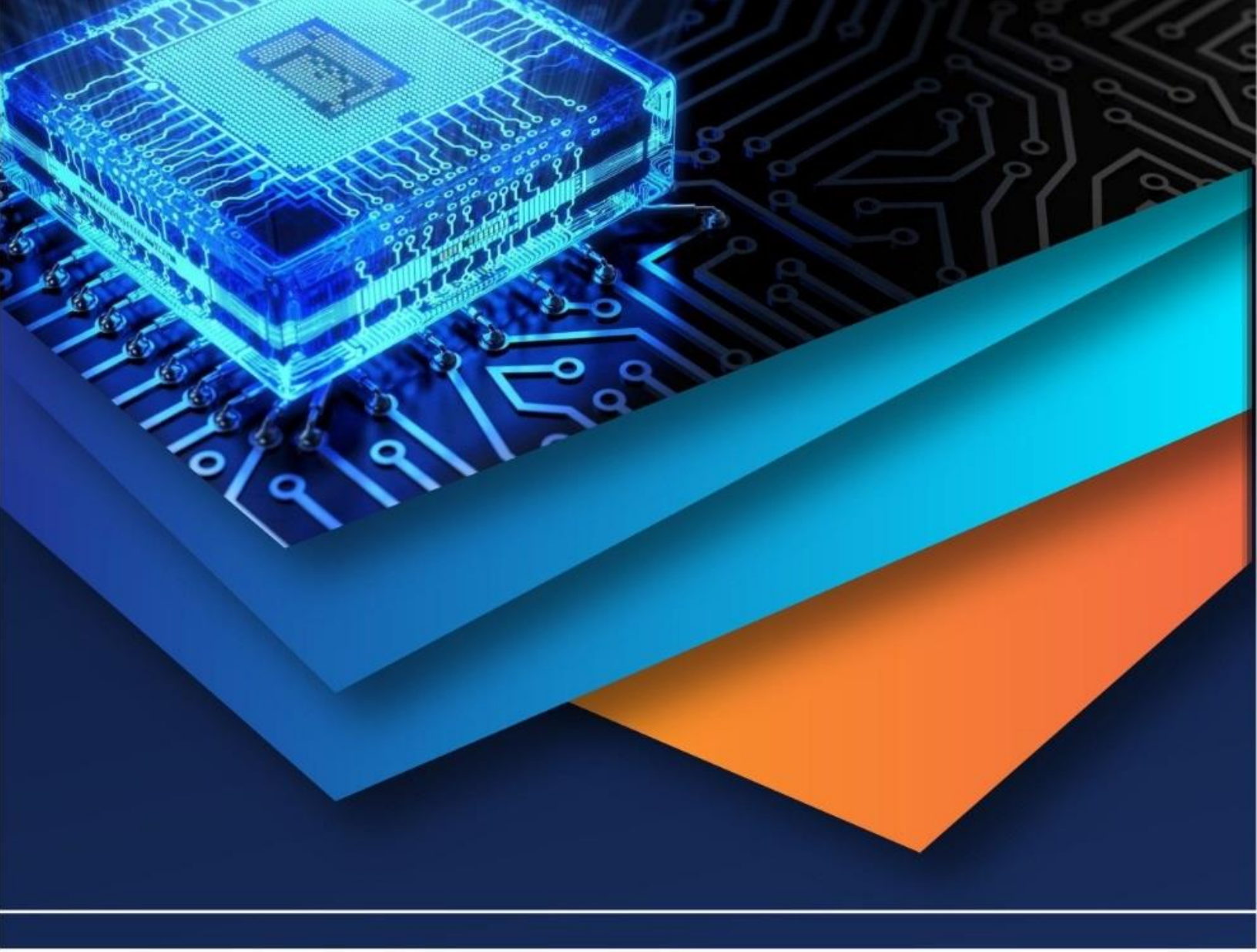
I want to express my sincere gratitude to everyone who has contributed to the successful completion of this project report. First and foremost, I extend my deepest appreciation to our Principal, Dr. Yuvraj Girbhane, at Shri Sai Institute of Pharmacy And Research for their unwavering support, guidance, and valuable insights throughout the entire project.
I also want to thank my team members for their dedication, hard work, and collaborative spirit in making this project a success. I am grateful to Mr. Ganesh Wani, Assistant Professor at Shri Sai Institute of Pharmacy and Research for providing valuable feedback and suggestions that have helped refine the contents of this report.
I would like to express my gratitude to Shri Sai Institute of Pharmacy and Research for their support, cooperation, resources and facilities which have greatly contributed to the success of this project.
Lastly, I want to express my deep appreciation to my family and friends for their understanding, encouragement, and patience throughout this project journey. Their support has helped to keep me going, and I am grateful for it.
The contributions of each of these individuals have played a crucial role in shaping this report and enhancing my learning experience. I am truly grateful for their support.

REFERENCES

[1] Rohan R. Vakhariya, Srushti A. Oza, Chaitanya S. Bhingardeve, Smita J. Patil, Sofiya F. Mujawar, Dr. S. K. (2022) Formulation, Development and Evaluation of Herbal Hair Serum: A Classical Approach to Enhance Hair Quality. Mohite Rajarambapu College of Pharmacy, Kasegaon, Tal. Walwa, Dist. Sangli, Maharashtra, India.(6);100-103.
[2] Vandana Sahani, Shaili Verma, Dr. Shivanand Patil, a Review on Poly Herbal Hair Serum. Shree Dev Bhoomi Institute of Education Science and Technology, Dehradun; c10.
[3] Gavazzzani Dias MF. Hair cosmetics: an overview. In J Trichol. 2015(1):2-15.
[4] Tamilselvan N. Development and evaluation of Medicated scalp serum. IJCRT. 2022(1):311-9.
[5] Ashwini S. Pundkar, Prachi M. Murkute, Snehal Wani, Mohini Tathe. A Review: Herbal Therapy Used In Hair Loss. Pharmaceutical Resonance 2020 Vol.3-Issue 1.
[6] S. Budiasih, I. Masyitah, K. Jiyauddin, M. Kaleemullah, A. D. Samer, A. Mohd Fadli and Eddy Y.,Formulation and Characterization of Cosmetic Serum Containing Argan Oil as Moisturizing Agent, Science and Technology Publications, 2018;297-304.
[7] EleaCarey, February 2019, How to Use Olive Oil for Hair Care, https://www.healthline.com/health/beauty-skin-care/oliveoil-hair-care.
[8] Kirsten Nunez, November 2020, Hair Serum Benefits and How-to Use, https://www.healthline.com/health/how-to-use-Serum-for-hair.
[9] Elea Carey, February 2019, How to Use Olive Oil for Hair Care, https://www.healthline.com/health/beauty-skin-care/olive-Oil-hair-care.
[10] Sneha Kalra, March 2020, Hair care: Advantages, disadvantages and everything you need to know about Hair Serums, https://www.pinkvilla.com/fashion/beauty/hair-care- advantages-disadvantages-and-everything-you-need-know-about-hair-serums-514085.
[11] Manjula D, Josephine JLJ, Kumari P, Banu S. Formulation and evaluation of flaxseed hair gel: A natural Hair tamer. Int J Res Pharm Chem 2018; 8(3): 487-91.
[12] https://m.indiamart.com/proddetail/hibiscus-rosa-sinensis-gudhal-20420094762.html
[13] Kakali Datta, Vishuwajeet Rohil, Anu T Singh, Ashok Mukherjee, Beena Bhat, B.Ramesh, Eclipta alba Extract with potential for reversing chemotherapy-induced alopecia : An experimental study in mice, Ann Natl Acad Med Sci (India). 2012; 48(3&4): 43-64.
[14] https://pharmeasy.in/blog/fenugreek-for-hair-growth-reviewed-and-confirmed-by- effective-studies/
[15] https://m.indiamart.com/proddetail/pure-sweet-almond-oil-24688065512.html

[16] Swanand S Pathak, Monil Yogesh Neena (2018) Gala Evaluation of Hair Growth Potentiation Activity of Hibiscus Rosa Sinensis in Disturbed Circadian Rhythm. International Journal of Current Research 10(3): 67151-67155.
[17] https://traya.health/blogs/hair-care/zingiber-officinale
[18] Rohan R. Vakhariya, Swati Talokar, Archana R. Dhole, Dr. S.K. Mohite, Dr. C.S. Magdum, Comparative Standardization Study of Two Marketed Shatavari Churna Formulation, Asian Journal of Pharmaceutical Analysis, 2019;6(1):1-6.
[19] https://images.app.goo.gl/UeLDcBDj58KjuEuM9
[20] Aruna V, Amruthavalli GV, Gayathri R. Hair root activation by anagen grows- a herbal hair growth serum. Dermatol & Cosmet 2019; 1(3): 56-9.
[21] https://images.app.goo.gl/jWdFVpsxKsUYtBs66
[22] Nikita R. Nikam, Priyanka R. Patil, Rahul P. Jadhav, Rohan R. Vakhariya, Dr. C. S. Magdum, Formulation and Evaluation of Herbal Shampoo: A Comparative Study, Research Journal of Topical and Cosmetic Sciences, 2019;10(2):61-64.
[23] Gautam S, Dwivedi S, Dubey K, Joshi H. Formulation and Evaluation of herbal hair oil. Int J Chem Sci., 2012; 10(1): 349-53.
[24] Shivani J. Patil*, Snehal S. Patil, Rohan R. Vakhariya, Dr. A. R. Chopade, Dr. C. S. Magdum, Formulation and Evaluation of Medicated Herbal Hair Oil- An Effectual and Economical Cosmetic, Pensee International Journal, 2021;51(5):398-405.

©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)