



Research Article

Formulation and Evaluation of Herbal Hair Conditioner

Kaveri H. Sonawane*, Gauri S. Chaure, Balu T. Jagtap

Pres's, College of Pharmacy (For Women), Chincholi, Tal: Sinnar, Dist: Nashik (422103), Maharashtra, India

ARTICLE INFO

Received: 31 May 2023

Accepted: 02 June 2023

Published: 14 June 2023

Keywords:

Flax seed, Aloe, Herbal
Conditioner, Hair Conditioner

DOI:

10.5281/zenodo.8040049

ABSTRACT

An essential component of the human body, hair shields the scalp. Following a shampoo, hair conditioner is a hair care product that is applied to the hair and hair tips to condition the hair before being rinsed out. Hair conditioner is used to make hair easier to manage and to give it a shiny appearance. Main focus to lessen friction between the hairs. Strands to make brushing and combing simpler. The main goal is to create the best hair care product that people will use, and to assess the finished product to see whether it has the desired effect on the user. Three different kinds of hair conditioners were They are called Herbal Hair Conditioner, Synthetic Hair Conditioner, and Ayurvedic Hair Conditioner, respectively. Herbal hair conditioner contains Aloe vera and flaxseed are the primary constituents. Then, based on different organoleptic characteristics and physicochemical criteria like pH, the Dirt Dispersion Test, moisturising time, cleaning action, and stability testing, all of the hair conditioner formulations were assessed and analysed. Nowadays, shampoos and other conditioner products are popular among consumers. Flaxseeds can maintain hair conditioning and stop hair loss. The nutritional powerhouse flaxseeds may also aid with hair repair. Omega-3 fatty acids and vitamin E are abundant in flaxseed. Mucilage if they're utilised to strengthen and smooth hair. A succulent plant with an active component is aloe vera. And elements that help hair grow stronger. Dermatologists many a times encounter questions from patients and even colleagues asking about how to keep their hair looking clean, healthy and beautiful. Therefore, familiarity and a basic knowledge of the available hair care products will help them to guide their patients properly. A shampoo not only provides the cleaning of the scalp skin and hair as its primary function, but in addition also serves to condition and beautify hair and acts as an adjunct in the management of various scalp disorders. To achieve this, various ingredients in the correct proportion are mixed to provide a shampoo which is suitable for individuals having different hair types and hair need. Among the ingredients that go into the making of a shampoo are detergents, conditioners, thickeners, sequestering agents, pH adjusters, preservatives and specialty additives. Hair conditioners are designed to improve hair manageability, decrease hair static electricity and add luster.

*Corresponding Author: Kaveri Sonawane

Address: Pres's, College of Pharmacy (For Women), Chincholi, Tal: Sinnar, Dist: Nashik (422103), Maharashtra, India

Email ✉: sonawaneKaveri745@gmail.com

Relevant conflicts of interest/financial disclosures: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.



They are used in several ways depending upon the state of hair and requirement of the individual. This article attempts to put forward the basic and practical aspects regarding use of these products.

INTRODUCTION

A hair care cosmetic product called a conditioner is used to enhance the feel, texture, look, and manageability of hair. Its primary function is to lessen friction between hair strands to enable gentler brushing or combing, which could otherwise harm the scalp [1].

Flaxseed (also known as linseed) processing yields the conditioner known as flaxseed gel. Magnesium, vitamin E, and omega-3 fatty acids are all abundant in it. It significantly aids in enhancing your skin and hair [2]. According to Ziering, flaxseed promotes the health of the scalp as a whole and soothes rashes, particularly those brought on by eczema or psoriasis. In agreement, Courtney adds that it can help stop dandruff. A natural, affordable hair product that works well on curly or wavy hair is flaxseed hair gel. Your curly hair is defined and moisturized without becoming crunchy or tight. The best part is that it just requires 2 ingredients—flaxseed and water—though you can also include additional ingredients like aloe vera and essential oils [3]. Overall, hair conditioners use moisturizing ingredients to improve hair hydration, manageability, and strength [4]. Conditioners work through the power of cationic surfactants—a.k.a., ingredients with a positive electric charge. Since human hair has a negative charge, it attracts and bonds to the conditioner's positive charge [5]. In short, conditioners are a family of creamy products applied to wet hair to enrich its health, texture, and body. You'll typically find apply-and-rinse types in most bathrooms, but other conditioners have grown popular for their enriching powers [6]. Conditioners are available in a wide range of forms, including viscous liquids, gels, and creams, as well as thinner lotions and sprays. Hair

conditioner is usually used after the hair has been washed with shampoo.

Hair conditioners are products that contain emollients and surfactants that keep your hair moisturized. Some of the advantages of using a hair conditioner include frizz reduction, improved smoothness, and protection of your hair from further damage. Keep in mind that you should select a hair conditioner suitable to your hair type. For example, regular hair conditioners are suitable for straight and wavy hair, while leave-in conditioners are ideal for curly hair. While conditioners are safe for usage, some people may experience adverse reactions due to higher pH levels. Conduct a patch test to be sure.

OBJECTIVES

- 1) In the current study, a herbal conditioner for extra smoothing of hair is created using garden cress seeds, and its physical, chemical, and phytochemical screening qualities are assessed. The main goal is to lessen friction between hair strands to make brushing and combing simpler. Additionally, it is assessed for its ability to clean, stability investigations, and a dirt dispersion test [7].
- 2) Its main purpose is to reduce friction between strands of hair to allow smoother brushing or combing, which might otherwise cause damage to the scalp [8].
- 3) Moisturize and nourish your hair: Hair conditioners contain hydrating and moisturizing ingredients such as humectants, emollients and occlusives that replenish and nourish the hair.
- 4) Protect from towel damage: Wet hair is very prone to breakage and if you are rough with your tresses while drying them with a towel, you could cause some massive breakage. Conditioners assist in protecting against this damage.
- 5) Repairs split ends: Several aggressors like pollution, chemical treatments and hair



colouring can lead to split ends being formed. These make the ends of your hair look unkempt and messy. Hair conditioners gently work to repair these nasty ends.

- 6) Repair and/or prevent damage: While all conditioners offer some protection against damage, certain formulations are designed especially for repairing this damage.

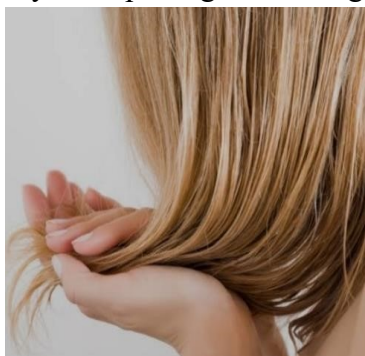


Figure 1: Conditioning

BENEFITS

- 1) Gives bounce to hair: Conditioning your hair after shampooing generally leaves a greasy layer of conditioner on it. This may make your hair appear thin, especially if you have fine hair. Shampooing after conditioning helps get rid of this issue.
- 2) Nourishes the hair: Many conditioners help increase the keratin protein in the hair, adding softness and smoothness to it. Conditioning your hair before shampooing helps you gain the maximum benefit of this.
- 3) Maintains scalp cleanliness for longer: Shampooing after conditioning cleanses the scalp without drying the hair and helps the scalp stay clean for longer.
- 4) Adds shine to hair: Most hair conditioners contain ingredients that add life and luster to the hair. Shampooing your hair after using such conditioners will add shine to the hair without weighing your hair down.
- 5) Reduces scalp oiliness: Conditioning before shampooing is also good for people who tend to have oily scalp or hair as it softens the hair without leaving it extra greasy.



METHODOLOGY

1. Place $\frac{1}{4}$ cup (37 g) flaxseeds in a bowl with water overnight. Measure out your flaxseeds in a container you can cover. Pour in 2 cups (470 mL) of distilled or filtered water. Put the solution in the refrigerator for 8 hours or so.
2. Bring the flaxseeds and water to a rolling boil. Dump the mixture from the container into the pan. Place it on the stove over medium-high heat, letting it come to a rolling boil [9].
3. Simmer for 7-10 minutes, stirring often until the mixture thickens. Once the mixture reaches a rolling boil, turn the heat down to medium-low. As it simmers, stir it frequently so that the flaxseeds don't stick to the bottom and burn. Keep an eye on the pot, as it can overflow if you're not careful.[10] If it looks like it's about to overflow, take it off the heat for a few seconds to let it cool.
4. Take the pot off the heat when you see tan-colored foam and a thicker consistency. After 7-10 minutes, the mixture will start to thicken. It won't be as thick as typical gel while it's still hot, but it will have a gelatinous quality when you pour some off the spoon.[11]
5. Pour the mixture through a strainer lined with cheesecloth or pantyhose. Set the lined strainer over a bowl or glass measuring cup with a spout. Allow the mixture to drain as much as possible while you move the seeds around with a spoon. Once the mixture has

cooled enough to touch, you can gather up the cheesecloth or pantyhose to squeeze out more gel.[12] If you don't have cheesecloth or pantyhose, a fine mesh strainer will suffice to get out most of the flaxseed bits. Rinse the pot immediately, as the gel is difficult to remove once it dries.

6. Add essential oils if desired and pour the gel into a clean container. Stir in 30-35 drops of your favorite essential oil once the mixture has cooled. However, if you don't have any oils, you can leave them out.[13] At this point, you can also add 1 tablespoon (15 mL) of olive oil, shea butter, or aloe vera gel, which will create a thicker consistency.[14]

Tea tree oil or lavender oil are good options, as they can extend the life of the gel from 2 weeks to 1-2 months. When the gel goes bad, it smells rancid. Clove and cinnamon oils may dry out your skin and hair.

STORAGE

- 1) Pour the mixture into an airtight container and store it in the refrigerator. Keep air and bacteria out as much as possible. A jar with a spring-top lid works well, as it is very airtight. Refrigerate this gel for a much longer shelf life.[15] If you make a lot at once, you can store some in the freezer for up to 6 months.
- 2) Portion out a little at a time into a small squeeze bottle. Put a few spoonfuls into a small squeeze bottle to use for a couple of days at a time. It's easier to apply to your hair, and you're not introducing bacteria to the main gel with your hands.[16] Plus, if you forget and leave this jar out, you've only wasted a little gel.
- 3) Smell the gel every time you open it to see if it's gone bad. You should be able to tell easily if the gel isn't good anymore. It will have a bad, off-putting smell that will overpower the essential oils. If it smells rotten, it's time to toss the gel and make more.

- 4) If you find you can't use all the gel before it goes bad, try making it in smaller batches.[17]
- 5) It can last as long as 2 months.

RESULTS AND DISCUSSION

1. **Physical properties:** The organoleptic properties of formulated conditioner were Judged by colour, odour and texture. Prepared formulation was pale yellow in colour. It has pleasant odour and Smooth texture.

Table 1: Physical properties of formulated conditioner

Sr.No.	Parameter	Evaluation
1	Colour	Pale yellow
2	Odour	Pleasant
3	Texture	Smooth



Figure 2: prepared Hair conditioner

2. **Washability:** The conditioner applied on hair was easily removed by washing with Tap water.
3. **PH of The Conditioner:** Naturally, human and sebum have PH level between 4.5 to 5.5. This actually acidic helps prevent growth of bacteria and fungi on scalp keep their cuticle healthy and standard pH of Conditioner is 7-8. The herbal formulation was shown PH 7.0

Table 2: pH of formulated conditioner

Formulation	PH
Hair conditioner	7.0



Figure 3: pH of formulated conditioner

4. **Stability Testing:** When formulation was subjected for long term stability studies, i.e. for about a period of 20 days, it was found that there is no change in properties of conditioner like pH, Colour and odour.
5. **Conditioning Effect Experiment:** In order to test the conditioning effect of conditioner we had to see how it is easy to comb the hair and to do we had to use a comb connected to spring and Scaled page. The scaled page was able to display the rate of hare resistance against combing in this method the incoming force on ergo meter caused by moving the comb between hairs Before and after using conditioner was measured.
6. **Moisturizing Time Determination:** Hair ball was placed on the surface of different dilution. Conditions and the complete sinking of time of the ball hair in conditioner was measured. 10-15 Minute required to sink for silky hairs.

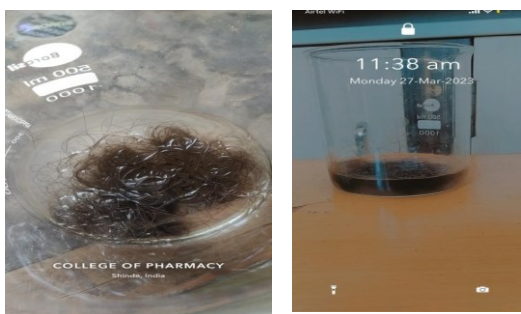


Figure 5: Moisturizing Time Test of formulated conditioner

7. **Dirt Dispersion Test:** In formulated conditioner the amount of ink present in foam was shown as light.

Formulation	Result
Hair conditioner	Light foam



Figure 4: Dirt Dispersion Test of formulated conditioner

SUMMARY

Just like the skin, the hair needs some TLC too and Conditioners are a big part of this. Conditioning is an important and essential part of any hair care routine and adds moisture, makes your hair more manageable and cuts down frizz. Be sure to deep condition your hair and use a hair mask occasionally too.

CONCLUSION

According to research, using a conditioner after shampooing your hair helps stop any dryness and damage from the shampoo. It also shields the surface of the hair fiber. Anti-dandruff shampoo friction can also be avoided using this method.

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HOW TO CITE: Kaveri H. Sonawane*, Gauri S. Chaure, Balu T. Jagtap, Formulation and Evaluation of Herbal Hair Conditioner, *Int. J. in Pharm. Sci.*, 2023, Vol 1, Issue 6, 99-105. <https://doi.org/10.5281/zenodo.8040049>