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Research Article

Preparation and Evaluation of Herbal Hair Mask of Fenugreek Seeds

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ABSTRACT

Herbal hair cosmetics are made with herbs that have antibacterial, anti-inflammatory, and antioxidant properties. To prepare the herbal hair mask, various plant parts were chosen. The herbal ingredients that were utilized to make the hair mask included flax seeds, curry leaves, aloe vera gel, hibiscus powder, amla powder, multani powder, bhringraj oil, coconut oil, and castor oil. Prior to being packed in an airtight container, the ingredients must first be gathered, cleaned, dried, powdered, weighed, and combined with oils and preservatives. A number of factors, including pH, washability, the type of hair after washings, viscosity, ocular irritation, patch test, and so on, were taken into consideration when evaluating the herbal hair mask formulation. were ascertained, and this paper reports the results.

INTRODUCTION

Hair cosmetics can be characterized as preparations intended for cleaning, altering the texture, changing the color, revitalizing stressed hair, nourishing the hair, and giving the hair a healthy appearance. Different people have different varieties of hair; these include dry hair, oily hair, and regular hair. People these days don't have time to consider their physical appearance. issues with hair, split ends, dandruff, white hair, hair falling out, etc. Stress, scalp infections, hormone imbalances, insufficient vitamin, food, and mineral intake, and excessive use of chemical shampoos are the causes of hair problems.[1]

Nowadays, one of the most crucial aspects of one's personal life is having a clean scalp and hair. The most vital component of the body is the hair. Thus, in order to care for them, we developed a hair mask recipe. The benefits of the components used to the herbal hair maskfor hair are known. The purpose of using a hair mask is to cleanse the hair of accumulated debris. The hair mask also contains castor, coconut, and bhringraj oils, which are applied to the hair. Chemicals are not used at all in the process of creating hair masks. It doesn't

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damage your hair because it solely contains natural components. Hair is a sensitive organ and a sign of good health. We can assist hydrate our hair by using an herbal hair mask. They are very helpful for damaged and dry hair. A hair mask can improve the strength of our hair and the condition of our scalp. These hair masks are quite helpful, have no negative effects, and are also manufactured at home. This mask can be made with a variety of substances. For people with really thin hair or badly damaged hair, this product is quite helpful. Good hair enhances the attractiveness of our personalities. There are numerous kinds of masks on the market, however many of them include chemicals. So, we used herbs to create a product. Making this mask is quite simple. Because they are readily available, inexpensive, and safe, herbs are frequently employed as therapeutic agents. The Ayurvedic method was created over 5,000 years ago in India and is still in use today. There are about 700 prescriptions for medicines in the Rig Veda and Atharv Veda. Numerous herbal substances have also been shown to have good antidandruff activity, including pepper extract, basil extract, neem extract, rosemary oil, clove oil, coleus oil, and tea tree oil.[2]

ORIGIN, DISTRIBUTION AND PRODUCTION OF FENUGREEK

The fenugreek plant is a traditional spice plant that has been cultivated centuries across the Indian subcontinent. In addition to South Asia, the crop is also grown there in some parts of North Africa, Middle East, Mediterranean Europe, China, Southeast (SE).Asia, Australia, USA , Argentina and Canada. The use of fenugreek stems from six thousand years ago. Through the findings, archaeologists believe that this spice was used as such as early as 4000 BC when remains of that herb were found at Tell Halal in Iraq. fenugreek it was considered medicinal and was used for this purpose by the ancient Egyptians. The Greek physician Hippocrates used it as a sedative herb. Other ancient Greeks used Fenugreek to treat infections. The ancient Romans used it to treat fever and respiratory problems and intestinal problems. They also used it to heal wounds. Today the world is India the most prominent producer of fenugreek, followed by Nepal, Pakistan, Bangladesh and the Mediterranean region and Argentina. Fenugreek is an ancient and versatile crop in many geographical areas latitudes Fenugreek species have been identified on five continents in Asia, Africa, Europe and Australia; grew mainly in North America, West and South Asia, Australia, Russia, Mixed East, Northwest Africa. Potential areas for fenugreek production takes place in parts of Southeast Asia, Japan, Central Asia (Mongolia), greater Africa and in South America. Fenugreek is also known as a global spice, grown in all major countries on continents (depending on soil and climatic conditions) in various parts of the world, including parts of the globe North Africa, Mediterranean Europe, Russia, Middle East, China, India, Pakistan, Iran, Afghanistan, parts of the Far East and Southeast Asia, Australia, the United States, Canada and Argentina. India ever preserved and still has the largest harvest of fenugreek in the world. Seed and fenugreek green leaves are used in food and medicine an old practice in human history. It was used to add flavour and colour as well change the structure of the food material. Fenugreek seeds have medicinal properties as hypocholesterolemic, promoting lactation, antibacterial, gastric stimulants, anorexia, antidiabetic, galactogogue, hepatoprotective and anticancer. They are useful physiological effects, including antidiabetic and hypocholesterolemic effects of fenugreek mainly due to the natural ingredient of promising fibers nutritional value. It is known for its fibers, gums, other chemical

ingredients and volatile content. Fenugreek seeds have about 25% dietary fiber, which changes its structure food Today, due to its high concentration, it is used as a food stabilizer, glue and emulsifier fiber, protein and gum content.[3]

HISTORY OF FENUGREEK

The use of fenugreek dates back six thousand years then. Through discoveries, archaeologists believe in this spice used as early as 4000 BC as remains of this herb found in Tell Halal, Iraq. Fenugreek was considered medicinal and used by ancient people Egyptians because of it. They believed that fenugreek can heal burns and give birth. They used it too mummification The Greek physician Hippocrates used it as a calming herb. Other ancient Greeks used fenugreek as a name medicine against infections. The ancient Romans used it for treatment fever and respiratory and intestinal problems. They also used it helps wounds heal. During the First Jewish-Roman War Fenugreek was mixed with boiling oil. It was a mix used to prevent intruders from entering the city. Fenugreek is often served as a side dish during Rosh Hashana. Let's believe that eating fenugreek is a symbol that helps increase their blessings in the coming year. Today is India the leading producer of fenugreek in the world, followed by Nepal, Pakistan, Bangladesh, Mediterranean and Argentina.[4]

PHYTOCHEMISTRY OF FENUGREEK

The seeds are a good source of calcium, minerals, iron, β-carotene and several vitamins such as vitamins A and D. It is a rich source of fiber. It consists free amino acids; 4-hydroxyisoleucine, lysine, histidine, and arginine (25.8%), protein (20-30%), moisture (11.76%), fat (6.53%), crude fiber (6.28%), ash content (3.26%) and energy (394.46 Kcal/100 g of seeds). Also, fenugreek seeds contain lecithin, choline, minerals, B. complex, Phosphates and para-aminobenzoic acid (PABA). in in addition, the most important chemical compounds of fenugreek saponins, fenugreek, trigonelline, coumarin, scopoletin, phytic acid and nicotinic acid. In the Important Chemistry section component of fenugreek seeds, including steroid seeds Sapogenins, components of Diosgene, were found the oleaginous germ of fenugreek seeds. There are two arrow keys glycosides, F-cycle open diosgenin precursors with have also been described as hederaging glycosides. The stem of the fenugreek plant, which contains alkaloids such as trigocoumarin, nicotinic acid, trimethyl coumarin and trigonelline They also contain fenugreek seeds 28% vegetable mucilage. The stem of the fenugreek plant contains yellow dye. Lambre seeds also contain 6- Fat 7% and carbohydrates 58%, of which about 25% is food fiber Fenugreek is also a rich source of iron, containing 33 mg/100 g of dry weight. It provides natural fiber and more nutrients needed by the human body.[5]

Role of Fenugreek Seeds[6]

The seeds of fenugreek (Trigonella foenum-graecum) are composed of several chemical components:

Proteins:

Building and repairing hair tissues require a lot of proteins, which fenugreek seeds provide in plenty.

Niacin, or nicotinic acid:

Fenugreek seeds contain nicotinic acid, a kind of vitamin B3, which is believed to enhance scalp blood circulation. Lecithin: Lecithin makes hair softer, smoother, and easier to manage by conditioning and moisturizing it.

Vitamins and Minerals:

Iron, potassium, calcium, vitamin C, and vitamin A are just a few of the vitamins and minerals found in fenugreek seeds. These nutrients are critical for the general health of hair. These nutrients support healthy hair growth, fortify the hair shaft, and nourish the hair follicle.

Antioxidants:

By preserving the hair's health and vigor, antioxidants can help delay the onset of premature aging and hair loss.

Table No.1 Scientific Classification of Fenugreek Seeds

Kingdom	Plantae
Order	Fabales
Clade	Rosids
Family	Fabaceae
Subfamily	Faboideae
Genus	Trigonella
Species	T.Foenum-graecum

MATERIAL AND METHODS

Collection of plant parts: For the training of fenugreek hair oil numerous plant substances have been gathered viz. Fenugreek seeds, Hibiscus, Curry leaves, aloe vera, Castor oil and Coconut oil, etc.

RESULT AND DISCUSSION:

Evaluation test of hair mask: [7,8,9]

pH :

The pH of 10% hair mask solution in distilled water was determined at room temperature 25*C. The pH was measured by using digital pH meter.

Washability:

Formulation was applied on the skin and ease and extend of washing with water were checked manually. Nature of hair after washes Nature of hair after washes can be done by collecting the response of volunteers.

Irritancy:

Mark the area, on the left-hand dorsal surface. Then the masked were applied to the area and the time noted. After interval up to 3hr, it is checked for irritancy effect.

Patch test:

In this procedure, a small amount of moistened formulation is applied to the hand surface and the effect of the formulation on irritancy and itching have been noticed.

Table 2: Evaluation parameters of herbal hair ingredients

Ingredients	Color	Odour	Taste	pH	M.P.	Solubility
Fenugreek Seed	Brown	Pungent	Bitter	12	-	In Soluble in water
Curry leaves powder	Green	Sulfuryl and burnt	Slightly bitter and pungent	5	84*C	In soluble in oil and water
Hibiscus powder	Pink	Pure air	Slightly bitter	6	137*C	Soluble in water
Neem Leaves powder	Green	Sulfur smell	Extremely bitter	7	80*C	Soluble in water
Amla powder	Brownish Black	Acidic astringent smell	Bitter	4	-	Soluble in water
Multani powder	Creamy Colour	Fresh muddy odour	Chalk flavor	8	-	Partially soluble in water
Aloe vera Gel	White	Pungent	Bitter	5	-	Souble in water

CHEMICAL TESTS:

Physico-Chemical Analysis

Moisture Content/ Loss on Drying:

Definition: loss on drying is the loss of weight expressed as percentage w/w resulting from water and volatile matter of any kind that can be driven off under specified conditions.

Procedure:

1. weigh about 1.5 gm of powdered drug into weighed flat and in porcelain dish.
2. Dry in the oven at 105° C, until two consecutive weighing do 1 or differ by more than 0.5 mg.
3. Cool in a desiccator and weigh.
4. The loss in a weight is usually recorded as moisture.

Porcelain Dish weight(W_1): 66.47gm
Powder Drug: 1.5gm
Porcelain Dish Weight + Powder drug(W_2): 67.97gm

Observation table:

Table No 3 : Moisture Content/Loss on Drying

Sr No	Time	Weight
1	0 min	67.97
2	10 min	67.73
3	20 min	65.12
4	30 min	66.18
5	40 min	66.19

Total Ash Value

1. Weigh about 2gm of powdered drug and ignite flat thin porcelain dish or a tared silica crucible.
2. Support the dish on a pipe clay triangle placed on a ring of retort stand.
3. Heat with burner, using a flame about 2 cm high and support the dish about 7cm above the flame, heat with vapour almost ceased to be evolved: then lower the dish and heat more strongly until all the carbon in burnt off.
4. Cool in desiccator.
5. Weigh the ash and calculate the percentage of the total ash with reference to the air- dried sample of the drug.

Fig No 1: Ash Value

Weight of empty dish (x) = 22.50g
Weight of powder (y) = 2 g
Weight of dish with powder = 24.50 g
After incineration weight of dish (z) = 22.56 g
Weight of ash (z-x) = 22.56- 22.50 = 0.06
Total Ash = (100 ×Weight of Ash) / Weight of Powder

= (100 ×0.06) / 2
= 3 % w/w

Alcohol Soluble Extract:

Definition: Alcohol- soluble extractive value is applied for the drug which contain alcohol soluble constituents such as tannins, resin, and alkaloids.

Procedure:

1. Weigh about 4 gm of coarsely powdered drug in a weighing bottle and transfer it to a dry conical flask.
2. Fill a 100 ml graduated flask to the delivery marks with the solvent (90% alcohol).

3. Wash out the weighing bottle and pour the washing, together with the remainder of the solvent into the conical flask.
4. Cork the flask and set aside for 24 hours, shaking frequently.
5. Filter into a 50 ml cylinder.
6. When sufficient filtrate has collected, transfer 25 ml of the filtrate to a weighed, thin porcelain disk as used for the ash values determination.
7. Evaporate to dryness on a water bath and complete the drying in an oven at 105 degrees Celsius for 6 hrs
8. Cool in a desiccator for 30 min and weigh immediately.
9. Calculate the percentage w/w of the extractive with reference to the airdried drug.

Fig No 2: Alcohol Soluble Extract

Weight of porcelain with dried extract = 66.62 g
Weight of dried extract = Weight of porcelain with dried extract - Weight of porcelain

= 66.62 - 66.52
= 0.1 g

25 ml of alcoholic extract gives = 0.1 g of dried extract 100 ml of alcoholic extract gives

= 0.1/25 x 100
= 0.4g

4 g of ai- dried drug gives = 0.4 g of alcoholic soluble extractives 100g of air-dried drug gives

= 0.4/ 4x 100
= 10 g of alcoholic soluble extractives

Water Soluble Extract

Definition: Water soluble extractive value is applied for the drug which contain water soluble constituents such as tannins, sugars , plant acid and mucilage.

Procedure :

1. About 4 gm of coarsely powdered drug in a weighing bottle and transfer it to a dry 250 ml conical flask.
2. Fill a 100ml graduated flask to a delivery mark with the water.
3. Wash out the weighing bottle and pour the washing, together with the remainder of the solvent into the conical flask.
4. Cork the flask and set aside for 24 hours, shaking frequently.
5. Filter into a 50 ml cylinder.
6. When sufficient filtrate has collected, transfer 25 ml of the filtrate to a weighed, thin porcelain dish, as used for the ash values determination.
7. Evaporate to dryness on a water bath and complete the drying in an oven at 105degree Celsius for 6 hours.
8. Cool in a desiccator for 30 min and weight immediately.
9. Calculate the percentage w/w of extractive with reference to the airdried drug.

Fig 3: Water-soluble extractive value

Weight of porcelain = 65.14g
Weight of porcelain with dried extract = 65.25g
Weight of dried extract = Weight of porcelain with dried extract - Weight of porcelain
= 65.25 – 65.14
= 0.09 g
25 ml of aqueous extract gives = 0.09 g of dried extract 100 ml of aqueous extract gives
= 0.09/25 x 100
= 0.36 g
4 g of air -dried drug gives = 0.36 g of water -soluble extractives 100 g of air -dried drug gives
= 0.36/ 4x 100
= 9 g of water- soluble extractives

RESULT:

Sr. No.	Name of Parameters	Value % w/w
1.	Loss on drying	2.6%
2.	Total ash	3%
3.	Alcohol soluble extractives	10%
4.	Water soluble extractives	9%

REFERENCES

1. Namrata k Durgani, Leena S. Borkar, Pratik O Gupta, Shrutika S Zade: Formulation & Evaluation of Herbal Hair Mask, vol no:11.
2. Formulation and evaluation of herbal hair mask Gauri S Jujgar, Priyanka Balasaheb Kale, Vaibhav Haridas Jagdale, Priyanka Appasaheb Kadam, Kanchan Ramdas Jagatap, Gauri Rangnath Jawale and Rupali Sanjay Joshi.
3. B.M mithal and R.N shah,Hand book of cosmetics, 1st edition, Vallabh prakashan, Delhi, 2000;141-142.
4. Vairage Pragati, Sanap.A.S., and Dr.Prachi Udapurkar, 2023 FORMULATION & EVALUATION OF FENUGREEK HAIR OIL IJCRT | 11 (5): 2320-2882
5. Nasroallah Moradi kor 1 , Mohamad Bagher Didarshetaban2 , Hamid Reza Saeid Pour,2013 Fenugreek (Trigonella foenum-graecum L.) As a Valuable Medicinal Plant, ijbbr. 1 (8) : 922-931
6. Sayyad, T. R., Chaudhari, S. S., Nikumbh, P. P., & Bhurat, M. R. (2023). Evaluation, composition and comparative study of hair growing tonic. Pharm Resonance, 6(1), 12.
7. Chaughule A, Zinjad S, Lokhande R. Formulation and evaluation of protective rule of fenugreek seed gel in hair growth, nourishment and anti-dandruff activity. Journal of Emerging Technologies and Innovative Research. 2020;9(6):272-277.
8. Ramakrishna S, Gopikrishna UV. Formulation and evaluation of herbal hair gel. Scholars International Journal of Traditional Complementary Medicine. 022;5(2):28-22.
9. Gautam SA, Dwivedi SU, Dube KU, Joshi HE. Formulation and evaluation of herbal hair oil. International Journal 2021;10(1):349-353.

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