

FLAXSEEDS USED IN HAIR

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ABSTRACT

India is known for traditional medicine. Herbs are the traditional form of Indian medicine which was developed by ancient sages whose astute observations led to the development of constitutional medicine. Herbal cosmetics are the preparations used to enhance the human appearance. The aim of the present research was to formulate and evaluate the herbal gel or oil of flaxseed for the purpose of moisturizing and nourishing the hair. Flaxseed, rich in α linolenic acid, lignans, and fibre, improves circulation and promotes hair growth. Flaxseed (linseed) is full of fatty-acids and anti-oxidants which help to remove toxins and dead cells from the scalp. Demand for cosmetics increases day by day & numerous people use Them regularly. Herbal cosmetics

are substantially used because they've Lower negative effect & give further safe loss problem find the ways to Increase have development & help have loss. Hair serum, gel or oil Humidity the skin and stimulate the growth of new hair more as Compared to old. Flaxseed oil, serum or gel is created from various formulation by using flex seeds. The flexseed oil contains several beneficial active substances, including Omega-3 fatty acids Important minerals, including magnesium and calcium. Vegetable fiber which helps prevent gastrointestinal issues and constipation. Lignans, which are phenolic compounds that may prevent the risk for cancer. B. proteins that can reduce the risk for cardiovascular disease. Human hair growth is very important to our health and well-being. Curry leaves and other herbal Ingredients are known for their potential as hair growth stimulants and conditioners. These products Address hair-related issues like hair loss, thinning, split ends, dandruff, increased sebumproduction, And hair loss. Hair conditioners boost bounce, nourish hair, maintain scalp cleanliness, and add shine.

KEYWORDS: Flaxseeds, Hair Gel, Hair Oil.

INTRODUCTION

Now- a- days, in the whole world there's turned to return towards the use of herbal products and to borrow a more natural way of life. The operation of herbal cosmetics has been increased to numerous crowds in particular care systems and there's a great demand for the herbal cosmetics.^[1] Indian sauces and its significance popular worldwide. Herbal cosmetics demand is growing in world request day by day. The wisdom of Ayurveda has employed numerous sauces and verdures to make cosmetics for beautification and protection from external effects. Herbal cosmetics don't beget large side goods on mortal body.^[2] The most applicable way is to use ultramodern as well as traditional system to look after the health of people.^[1] Scalp is an important part in human hair system. It is made up of layers of soft tissue that cover the Skull and the region of the head where hair grows. The definition of a hair, which is an outgrowth from a follicle on the skin is "improved epithelial structure formed as a result of keratinization of Germinative cell."^[3] Human hair is made up of follicles that are in the Anagen, Catagen, Telogen, and Exogen stages. If hair is left unwashed for a week, fungal infections Become more prevalent due to an oily scalp and poor hygiene. Redness, flaking, and itching Are signs of this chronic scalp condition, which can be treated naturally with herbal hair Products.^[4] Many hair-related issues are being experienced by People nowadays, including hair thinning, split ends, dandruff, increased sebum production, and hair Loss Natural medicines are now used more frequently than ever before because of their safety and minimized effects as compared to items with a chemical base. Herbal preparations are known for its "no side effects" property.^[3] Utilization of herbal components is extending progressively. For keeping Healthy hair, the ancient Indian medical school of Ayurveda advises using flaxseed oil, serum and gel proven To boost hair follicles and nourish the scalp, resulting in thicker, more resilient hair.^[5] Hair cosmetic agents are preparations intended for placing in contact with the hair and scalp, with the Purpose of cleansing, promoting attractiveness, altering appearance, and protecting them to maintain Them in good condition.^[6] An flaxseed oil, gel and serum that fights against dandruff helps to get rid of itchy, greasy, flaky skin on your scalp and gives you a healthy nourished scalp. A flaxseed oil, gel and serum is a type of hair product that deeply hydrates and nourishes hair from the roots to the tips. By decreasing dandruff, herbal antidandruff serum and gel help your hair smooth from itchy, greasy, and flaky scalp, offering you nutritious hair.

Flaxseed

Flax (*Linum usitatissimum*) is a linaceae family annual plant. This plant can reach a height of 60 cm and has slender, fibrous stems, lanceolate leaves with three veins that are up to 4 cm long and 4 mm wide, and bright blue blooms that are up to 3 cm in diameter. Flaxseed or linseed is a seed found in the fruit. Flaxseed has been ingested by humans since the beginning of civilisation. Flaxseed has the greatest Omega 3 fatty acid (alpha-linolenic acid) concentration of any seed. This important fatty acid, which should be taken in a typical diet, accounts for about 48% of all lipids. Flax is a functional food or a source of functional nutrients since it includes alpha-linolenic acid, Lignans, and polysaccharides (other than starch), all of which have anti-inflammatory properties. Despite the fact that scientific data supports flaxseed use, many people are unaware of the benefits of this substance and its potential applications in food production.



Fig. 1: Flaxseed.

FLAXSEED (*Linum usitatissimum*)

Flaxseed is emerging as an important functional food ingredient because of its rich contents of α Linolenic acid, lignans, and Fiber. Flaxseed is full of fatty-acids and antioxidants which help to remove toxins and dead cells from the scalp. Flaxseeds are rich in vitamin E, which is great for both skin and hair health. It helps improve circulation in the head, thus promoting hair growth and slowing down hair breakage. It may also help prevent premature greying of hair.^[7]

FLAXSEED CHEMICAL COMPOSITION

Seed includes roughly 40% lipids, 30% dietary fibre, and 20% protein. The chemical makeup of plants varies greatly between kinds and is also influenced by the environment in which they are cultivated. The seed contains 76 percent of the protein and 75 percent of the lipids

found in the cotyledons. Only 23% of the lipids and 16% of The protein are found in the endosperm. Flaxseed's lipid makeup makes it a good source of Omega 3 fatty acids, Particularly -linolenic acid (ALA), which can account for up to 52% of total fatty acids. Flaxseed is also a good Source of phenolic compounds known as lignans, a colloid gum, and high-quality protein.

Table 1: Composition of flaxseed vitamins, fat soluble and water soluble.^[6]

Fat soluble vitamins		Mcg/100 g	Mg/tbsp./milled flax
Vitamin E	Alpha tocopherol	7	0.10
	Delta-tocopherol	10	0.14
	Gamma-tocopherol	552	7.73
Vitamin K		–	0.3
Water soluble vitamins			
Ascorbic acid (Vit. C)		0.50	0.04
Thiamine (Vit. B ₁)		0.53	0.04
Riboflavin (Vit. B ₂)		0.23	0.02
Niacin acid		3.21	0.26
Pyridoxine (Vit. B ₆)		0.61	0.05
Pantothenic acid		0.57	0.05
		Mcg/100 g	Mcg/100 g
Folic acid		112	9.0
Biotin		6	0.5

Uses

- Flaxseed oil, fibers and flax lignans have potential health benefits such as in reduction of Cdisease, atherosclerosis, diabetes, cancer, arthritis, and osteoporosis, autoimmune And neurological disorders.
- Flaxseed is full of fatty-acids and antioxidants which help to remove toxins and deadcells from the Scalp.
- Flaxseeds are rich in vitamin E, which is great for both skin and hair health.
- It helps improve circulation in the head, thus promoting hair growth and slowing downhair Breakage.
- It may also help prevent premature graying of hair.

Flaxseed Extraction

Flaxseed
↓
Soaked in water.
↓
(1 Day)
Boiled the solution of Flaxseed & water.
↓
Sticky transparent mucilage collected^[4]

Hair gel

Flax seed gel can be used as a moisturiser on the scalp and hair to help encourage hair growth and strengthen Existing hair. Oils, creams, ointments, pastes, and gels are examples of topical formulations. Gels are becoming More popular these days since they are more stable and may provide controlled release than other semisolid Preparations. Gel formulations can improve drug bioavailability by improving absorption properties. Pure Flaxseed Hair Gel will elongate and define curls, no matter what hair type or curl type, and give “wet curly look” while hair is dry. This light weight natural flaxseed gel is created for curly, oily and wavy hair. It is enriched with Flaxseeds and castor oil that provide a natural source of vitamin E. Flaxseed offers a natural remedy for hair Regrowth and helps keep your hair strong, shiny and free from any crunch, frizz or flakes.

Preparation of flaxseed gel: Add flaxseeds, fenugreek, curry leaves and water to a small pan. And simmer on medium heat. Stir flaxseeds often to avoid sticking. Take off from heat after 2–3 minutes until the water gets the gel -like consistency.



Fig 2: Flaxseeds gel.

Benefits of flaxseed gel for hair**For curly hair**

“Flaxseed gel is amazing at creating nice curl clumps to reduce frizz,” says Arnold. “Clumping is an area many struggle with, especially when first embracing their curls. Flaxseed gel helps clumps come together easier than other styling products, and this in turn, greatly reduces frizz.”

The vitamin E present in flaxseed plays a significant role in fending off damage. It’s known to combat free radicals and reduce scalp inflammation. Additionally, it can increase elasticity in the hair while.

For hair growth

Flaxseed contain a powerhouse mix of vitamins, nutrients, and healthy fats, all of which may help to:

- Treat the scalp
- Prevent hair loss
- Promote hair growth

For straight hair



While flaxseed gel is great for defining curls, it can also help keep straight hair smooth and moisturized.

For 4c hair



Some say flaxseed gel works wonders for individuals with 4c hair. The tu gel can be applied to the hair and scalp as a moisturizer and to help stimulate hair growth.

For locs



Since flaxseed gel has hydrating and moisturizing properties, it may help locs feel softer. See below for a flaxseed gel recipe specifically for locs.

For dry or damaged hair



“Flaxseed is rich in vitamin E and omega-3 fatty acids,” Arnold says. “This can nourish dry, damaged hair, and fatty acids have been touted for their ability to provide moisture.”

For wavy hair



Similar to curly hair, flaxseed gel is widely used by people with wavy hair and there is a lot of anecdotal evidence of its benefits.

Hair oil

Flaxseed oil is created from flax seeds that have been ground and pressed to extract their natural oil, also known as flax oil or linseed oil. Omega 3 fatty acid is abundant in One Life Flaxseed Oil. It aids in the improvement of general health. Flaxseed is an anti-inflammatory food. Flaxseed extract nourishes the skin and keeps it supple. It's suitable for all skin types (normal, dry, and oily). Flax seed oil moisturises damaged hair, soothes sensitive scalps, and gives limp, lifeless hair volume.

Extraction of Flaxseed Oil

At present, the most common methods to extract flaxseed oil are mechanical pressing and solvent extraction (Sharma *et al.*, 2019; Shim *et al.*, 2015). Fresh unrefined oil from pressing flaxseed has a nutty flavor and the colour varying from yellow to orange. As other edible oils on the market, it needs to be purified through the process of settling, alkali refining, degumming, bleaching, winterization and deodorization. Sometimes, home-made cold pressed oils can be consumed for cooking directly without further refining processing (Shim *et al.*, 2015). Flaxseed oil extraction can be affected by several factors such as pretreatment of flaxseed, moisture content of flaxseed, cultivars, pressing conditions, etc (Dunford, 2015).

Mechanical pressing for extracting flaxseed oil

Due to the high levels of ALA in flaxseed oil, it is necessary to avoid the high temperature during pressing. Generally, flaxseed oil obtained through cold pressing has high levels of ALA (Kulkarni *et al.*, 2017). Several types of flaxseed oil press have been developed, which are ranged from the simple hydraulic press to the more sophisticated continuous screw press (Bekhit *et al.*, 2018). However, cold pressing can also bring negative impacts on the quality of oil. Due to low pressing temperature, microorganisms may not be killed completely during the pressing, which can decrease the quality of flaxseed oil (Shim *et al.*, 2015). Additionally, due to low mass transfer under cold pressing, the contents of vitamins, phospholipids, phytosterols and antioxidants in oil are lower. These compounds are contributed to the stability of flaxseed oil. So, to prolong the shelf life of flaxseed oil, it is highly suggested that flaxseed oil should be kept in a container with dark color, and incorporated with the antioxidants (Tanska *et al.*, 2018).

To overcome the drawbacks of cold pressing, the ways such as flaxseed pressed under more aggressive conditions, heating or enzyme treatments for flaxseed prior to pressing, have been adopted (Dunford, 2015). Kasote *et al.* (2013) utilized a single screw expeller to extract flaxseed oil. The results showed that the oil yield was improved with the increase of the number of consecutive pressing steps. Compared to the oils from three consecutive pressing steps, the oils with the highest ALA levels were obtained by double pressing. Anwar *et al.* (2013) showed that the oil yield for enzyme-assisted cold pressing flaxseed was higher than that for without-enzyme treated flaxseed. The extraction methods did not affect most of investigated physicochemical properties of flaxseed oils. Furthermore, the oil from enzyme-treated flaxseed showed better oxidative stability compared to that from without-enzyme

treated flaxseed. The authors suggested that enzyme-assisted cold pressing was a good choice for extracting flaxseed oil with high yield and quality.



Fig 3: Flaxseed Oil.

Benefits of flaxseed oil for hair

1. Omega-3 Fatty Acids

Flaxseed is rich in alpha-linolenic acid (ALA), a form of omega-3 fatty acid. Omega-3 fatty acids, found mainly in plant sources, are well-known for encouraging hair growth and contributing to a healthy scalp. They are said to lessen inflammation and shield hair roots, eventually making your hair stronger.

2. Vitamin E

Vitamin E, an antioxidant, is found in flaxseed alongside other plant-based oils and nuts. It's crucial for hair health as it reduces harm caused by free radicals on the scalp, hence encouraging hair growth.

3. B. Vitamins

Flaxseed is a good source of B vitamins. These vitamins are connected to the growth of strong, healthy hair. They support the best working of hair roots and aid the fast, healthy growth of your hair.

4. Protein Content

Protein is the core of hair, and flaxseed is a source filled with high-quality protein. A diet rich in protein helps improve your hair growth, as it carries the required nutrients to keep the hair structure intact and induce healthy hair growth.

5. Balancing pH Levels and Oil Production

Flaxseed may help balance scalp pH levels and control oil production. By modulating these two key factors, flaxseed paves the way for healthy hair growth while warding off excess oil and dandruff.

Although some studies have revealed the beneficial properties of flaxseeds for hair health, further large-scale human research is needed to confirm these benefits.

CONCLUSION

Herbal medicine like Flaxseed Oil and Gel holds immense promise, offering a natural approach to Haircare and Hair Growth. While historically used for centuries, many herbal remedies are now being re-evaluated through a scientific lens. This review explores the Flaxseed are widely used for hair problems, highlighting its potential benefits alongside the need for rigorous research.

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