

# Using Fig Leaves for Hair Treatment

Arjwan M. Al-Zubaidi<sup>1</sup>, Nawal jasem<sup>2</sup>, Maryam Jasim Hasan<sup>3</sup>, Abdul haleem.A.Raheem<sup>4</sup>

<sup>1,2,3,4</sup>Mustansiriya University College of Science, Baghdad, Iraq

Corresponding Email: Argwan.M.94@uomustansiriya.edu.iq

**Abstract**—This study aims to use plant extract, which could be a promising alternative to traditional medicine in treating hair loss. In this research, fig leaves were used instead of harmful chemicals, because these leaves are rich in antioxidants, vitamins, and minerals that are beneficial in nourishing and growing hair, strengthening hair follicles, and reducing hair loss. It is used as a mask, by mashing two figs and placing them on the hair for 20 minutes, then washing it with water, or you can take the leaves, put them in water, boil them, then filter them and use them as a toner on the hair. You can also use oils made from fig leaf extracts, as they strengthen hair and nourish their follicles. Fig leaves (*Ficus carica* Linn) are commonly used in Traditional Arab Medicine. They contain polyphenols, particularly flavonoid compounds, which exhibit antibacterial, antioxidant, and antitumoral properties. Additionally, they are used to treat inflammation.

**Keywords**— Hair, Fig leaves, *Ficus carica* Linn, Causes of hair loss, The benefits of figs.

## I. INTRODUCTION

**F**ig (*Ficus carica* Linn) is one of the oldest fruit trees cultivated fruit trees, consumed worldwide. The fig mentioned in the Holy Qur'an, in the form of a divine oath, in the words of God Almighty: "By the fig and the olive and Mount Sinai," Surat Al-Tin: 1-2. God Almighty has sworn by figs in this noble verse because of their great importance. *Ficus* is part of the family Moraceae and includes 37 genera [1]. *Ficus carica* (syn. *Ficus kopet dagensis* Pachom) is the fig species with the highest commercial value and consists of cultivars with high genetic diversity. Approximately 800 species of the genus *Ficus carica* are grown in warm climates.[2]

Figs, whether fresh or dried, have been highly valued as food and for their health-promoting effects. Additionally, the leaves of *Ficus carica* are used as fodder, and the syrup is used to treat mild constipation. Dairy products also employ fig latex as a coagulating agent. Seasonal fruit from the deciduous shrub *Ficus carica* can be collected twice a year and eaten fresh or dried as juice or jam [3].

Oleic acid is found in dried fig extract, which is used as a moisturizer. Fig extract also contains isoamyl laurate, and is used as a hair conditioner. The presence of tocopherols, particularly alpha-tocopherol, a kind of vitamin E renowned for its potent antioxidant qualities that prevent aging, was also detected in the analysis of fig extract. Because fig leaves are rich in antioxidants, vitamins, and minerals, using them as a hair treatment can strengthen hair, encourage growth, and lessen hair loss. These minerals can strengthen and nourish hair, promoting its resilience [4].

Hair is a vital component of the human body. Because hair is one of the essential components that complete a person's appearance, it must be taken care of. Hair is known as the improvement of the epithelial structure that is formed as a result of the keratinization of the original germ cells. Hair is produced by skin follicles due to their growth [5].

Hair covers the face, scalp, and other parts of the skin. Human hair is a symbol of beauty, and healthy hair growth depends on the scalp. The skin covering the skull and the area

of the head where hair grows is made up of layers of soft tissue. Sebaceous glands and numerous hair follicles make up the scalp. The hair shaft has a pH of 3.67 while the scalp has a pH of 5.5. It is more susceptible to mitotic diseases such as profuse dandruff, tinea capitis, and scalp infections due to the presence of sebaceous glands and periodic changes in the environment. Scalp follicles from psoriasis, head lice, and even baldness [6].

Seo and associates looked at the effects of six distinct herbal extracts on hair growth in a study conducted in 2013. The plants from which these extracts were derived were *P. cocos*, *T. orientalis*, *Espinosilla*, *L. chinense* Mill, *C. lacryma-jobi*, and *P. multiflorum* Thunberg. *T. orientalis* extract, *P. multiflorum* Thunberg extract, and *Espinosilla* extract had notable hair growth-promoting activity, according to the study, which assessed the extracts' effects on hair regrowth and hair follicles in male C57BL/6 mice. When combined with the extracts, MO cubic particles were found to greatly increase hair growth, thereby enhancing the extracts' efficiency. A study was conducted to examine the potential role of essential oil from the seeds of the *Zizyphus jujuba* plant in promoting hair growth in vivo. The study showed that *Z. jujuba* essential oil possesses activity that promotes hair growth [7]

In a recent study by Uronnachi and colleagues (2022), beeswax was effectively used as an organic generator to create essential oils including rosemary and cedarwood oils in order to assess the oils' ability to promote hair development. The formulation with the highest effect on encouraging hair growth was Batch 3, which contained 10% rosemary oil and propylene glycol. This formulation's results were comparable to those of commercial minoxidil [2%]. Still, no synergistic impact was observed when rosemary and cedar wood oil were combined. The effect of essential oil concentration on promoting hair development may be the subject of future studies. It has been discovered that the ethanolic extract obtained from *Carthamus tinctorius* is very successful in blocking 5 $\alpha$ -reductase and stimulating hair growth.

It is even more effective than minoxidil and finasteride, which are often employed for the same reason. The extract also showed a substantial association between the number of hair follicles and 5 $\alpha$ -reductase inhibition, as well as between 5 $\alpha$ -

reductase inhibition and hair growth promotion. These findings suggest that plant extracts could be a promising alternative to traditional medicine in treating hair loss [8].

## 2. Causes of hair loss

Hair loss can take one of the forms of diffuse hair loss, which is hair loss evenly from all parts of the scalp. This type of hair loss includes telogen effluvium, which results from physiological stress [9], as well as alopecia areata. It occurs due to hereditary or acquired disorders, and affects both sexes. However, diffuse hair loss is not a permanent condition [10].

Research shows that about 49% of women will experience hair loss at some point in their lives [11]. The basic element for healthy hair is healthy food, and any increase or decrease causes damage to the hair. Because hair is mainly composed of the protein keratin [12].

Insufficient consumption of protein can result in hair loss, as observed in individuals with Kwashiorkor [13] or anorexia nervosa. Reduced hair diameter, atrophic anagen bulbs, and alterations in hair color and texture are the hallmarks of protein deficiency-related hair loss [14].

Dryness and elasticity loss in hair are possible. [15] Hair loss can result from food pollutants that are harmful to the hair. These pollutants can be divided into three main groups: pharmaceutical, chemical, and metals components [16]. Highly processed or minimally regulated food products are most at risk of contamination [16]. For instance, protein bars, which require significant soy processing, have been recalled due to contamination [1].

The levels of heavy metals found in protein drinks have also been found to be dangerous (2010 reports). Lead, mercury and arsenic have been identified as the main culprits. Prolonged consumption of these drinks can lead to poisoning and consequent hair loss. Additional chemical adulterants detected in protein drinks include of radionuclides, acrylamides, ethyl carbamate, and melamine.

[16]. Hair loss may be brought on by endocrine disorders. Although hyperandrogenemia is frequently linked to male patterns of hair loss, the relationship is less strong in women who exhibit female patterns of hair loss [17].

### Related work

According to Fettweit *et al.* (1988), 38% of women with hair loss had high testosterone levels, and 25% of these patients do not exhibit virilizing symptoms. As people age, androgen-related hair loss becomes more common [18]. According to Ludwig's initial classification of female pattern hair loss, hair loss usually occurs right behind the hairline, although the hairline itself may or may not lose its density [19].

Additionally, hair will become thin and vellus. Other common presentations include early type II androgenetic alopecia, which is characterized by decreased hair diameter and density at the temporalis area, according to later studies. [10]. Hirsutism, acne, and seborrhea are additional dermatological signs that may indicate hyperandrogenemia [1]. Antihypertensives, antiarrhythmics, statins, antimetabolites, psychiatric medicines, anticonvulsants, anticoagulants, antiretrovirals, and H2 blockers are among the medications linked to hair loss[2]. For normal cell growth and function,

vitamins are necessary; if insufficient, they can cause hair loss[3].

Dietary deficiencies, particularly iron deficiency, may be the cause of hair loss in women [4]. Hemoglobin (Hb) is produced in part by iron and helps provide hair follicles with nutrition and oxygen. According to Goniaim *et al.* (2015), insufficient iron causes hair to grow abnormally, which eventually causes hair loss. Tests for hemoglobin (Hb) and ferritin can be used to identify iron deficiency. Reduced iron stores may have a role in hair loss [5]. Micronutrients, minerals (zinc and ferritin), vitamins (vitamin D and B12), and hormones (thyroid hormone) are thought to have a major role in the creation of hair follicles [6].

## 3. *Ficus carica* Linn

*Ficus carica* Linn is the best-known member of the *Ficus* genus, known by more than 135 names. Although it is native to the sub-Himalayan region, Bengal, and central India, it has been widely cultivated all over the world [5]. *Ficus carica* is a temperate species that is native to southwest Asia and the Mediterranean region, extending from Afghanistan to Portugal. It has been widely farmed for its fruit, or figs, since ancient times due to its nutritional benefits [6]. In the tropics, figs are very significant culturally. Both as objects of worship and for their many practical uses. This plant also draws the attention of researchers around the world due to its biological activities. According to Prasad *et al.* (2006), traditional medical systems including Ayurveda, Unani, and Siddha have recognized the medicinal potential of *Ficus carica* [7]. Disorders of the digestive system (ulcers, vomiting), respiratory system (liver disease, asthma, cough), reproductive system (menstrual pain), and infectious diseases (scabies, skin diseases) have all been treated with it [8]

(Gonorrhoea). As this article goes into detail, there is currently ongoing research being done to substantiate its traditional therapeutic applications. This plant's pharmacological properties have been reviewed in the past [9].

### Taxonomy

Kingdom: Plantae  
Division: Magnoliophyta  
Class: Magnoliopsida  
Order: Urticales  
Family: Moraceae  
Genus: *Ficus*  
Species: *carica*.

## 4. Genome Characterization

The common fig is a diploid species with  $2n = 26$  chromosomes [1]. The genome size estimated using flow cytometry is 356 Mbp [1]. The first drafts of the common fig genome sequence were generated by Mori *et al.* (2017) and Barghini *et al.* (2017) using NGS sequencing techniques. Mori *et al.* (2017) DNA sequences of the traditional Japanese cultivar 'Horashi', while Barghini *et al.* (2017). Sequenced the DNA of an ancient Italian cultivar 'Dottato'. Both species are classified as common figs.

## 5. Vitamins and Other Compounds

Numerous studies have indicated that figs are a good source of  $\alpha$ -tocopherol, a form of vitamin E. In an investigation by Konyalüoğlu *et al.* (2005), a significant quantity of  $\alpha$ -tocopherol (57 mg/g of dry leaves) was discovered in the figs' hexane leaf extract. At a ratio of 21.7 to 22.4 mg of ascorbic acid per 100 g of dry weight, the extract also includes ascorbic acid. According to Ghazi *et al.* (2012)

, the amount of vitamin E in leaves changes depending on their size, with larger leaves having somewhat more vitamin E (1.9 mg/100 g dry weight) than younger leaves (1.8 mg/100 g dry weight). Turkish figs are found to contain a number of vitamins, albeit the exact amount varies based on the fruit's portion. Figs were shown to contain  $\gamma$ -tocopherol,  $\delta$ -tocopherol, vitamin D2, vitamin D3,  $\alpha$ -tocopherol,  $\alpha$ -tocopherol acetate (acetate), and vitamin K1. According to Guvenc *et al.* (2009),  $\gamma$ -tocopherol was the most prevalent vitamin, with the maximum concentration detected in the skin and the white part of figs. Furthermore, Soni *et al.* (2014) report that the edible portion of figs included crude alkaloids (9.6 g/100 g DM) and saponins (0.59 g/100 g DM), despite the paucity of information on this subject.

#### 6. The benefits of figs

Figs are referenced in the Holy Quran and have been found to have many health benefits by modern medicine. Because they can help with digestion and have a high dietary fiber level, some dietitians recommend including figs in every meal [2].

Moreover, figs are a good source of minerals and vitamins, particularly vitamin B, which is necessary for triggering the production of red blood cells. It also aids in the metabolism of proteins, makes magnesium absorption easier, controls blood pressure, lowers cholesterol, and relieves constipation. Additionally, figs help prevent colon cancer. Fresh figs, which are typically dark purple in color, are at their finest in taste during the summer and into early fall [3]. The body requires certain minerals in order to be nourished. However, figs are high in calories as well because of their high sugar content. A 100 grams of green figs has 70 calories, but a 100 grams of dried figs has 270 calories [2]. Constipation can be relieved by using figs as a natural laxative. In order to make salivary teas for persistent constipation, they can also be mixed with other herbal treatments like senna and rhubarb [2].

-Eating figs can stimulate and enhance the functioning of the brain, particularly when combined with foods high in phosphorus, such as almonds, pistachios, and nuts, or with fish dishes. Taking an omega-3 supplement on a regular basis is advised during the fig-eating season. Consuming figs can help treat mental disease by promoting nerve health and lowering stress, worry, dread, and frustration in those who suffer from depression or social anxiety [4].

#### 7. The fig leaves

The leaves of the fig arab traditional medicine frequently makes use of fig leaves (*Ficus carica* Linn). They are rich in polyphenols, especially flavonoids, which have antimicrobial, antioxidant, and anticancer effects. They are also utilized in the treatment of inflammation [6]. In a previous study, cream dosage forms containing extracts of fig leaves and sidr leaves

were found to be effective in reducing epidermal thickness, the number of inflammatory cells, and the expression of COX-2 enzymes. However, this form of medication was found to be less comfortable to use [3]. However, because gels are semi-solid preparations made mostly of water without any fluid action, they are more popular with the general population. They are easy to dry and wash, elastic, keep their water-retaining qualities, and provide the skin a cooling sensation. Gels can also distribute medications into the skin in a way that doesn't interfere with hair's natural ability to function [7].

#### 8. Benefits of fig leaves for hair

Fig leaves offer several benefits for hair, including:

1. Reducing hair loss: The high magnesium and vitamin content of fig leaves helps fortify hair strands and follicles at the base of the hair. This promotes hair density and inhibits hair loss without requiring hair transplantation.
2. Encouraging quick and healthy hair growth: Calcium, an essential component of gelatin, is present in fig leaves [1].
3. Moisturizing and softening hair: In addition to the above benefits, fig leaves are also an important natural softener that can moisturize and soften hair continuously.
4. Fig leaves are a good option for treating coarse hair and wrinkles because they help reduce these issues and leaving hair looking smoother and younger.
5. Preserving natural hair color: By halting premature graying, copper, a metal present in fig leaves, helps preserve natural hair color. To sum up, fig leaves are a safe, natural method to enhance the condition and look of hair [2].

## II. MATERIALS AND METHODS

Fig leaves have been used to treat hair in a number of ways. The many nutrients found in figs can strengthen and nourish hair. Hair can be strengthened and nourished with the use of natural hair treatments like anjeer oil [17]. All you have to do is put a few drops of fig oil on your scalp and hair, and let it sit there for a few hours. Mash one or two fresh figs to form a fig-based hair mask, then apply the paste to your hair. After around 20 minutes, remove the mask with a warm water rinse. Additionally, fig extracts are utilized to make wonderful hair conditioners that moisturize the scalp and aid in detangling hair. They hydrate the hair without causing it to become weighed down or heavy [18].

The high vitamin A content of anjeer aids in promoting the production of sebum, an oleaginous material that lubricates the scalp. This may aid in preventing hair loss and encouraging the growth of healthy hair [19].

1-Reduces dandruff:

Anjeer's anti-inflammatory qualities can lessen dandruff and enhance the scalp's general health [10].

2- Conditions the hair:

Anjeer has a lot of vitamins and minerals, like calcium and vitamin K, which helps strengthen and nourish hair.

3-Enhances hair color:

Antioxidants, like those found in anjeer, can help shield hair from damage brought on by free radicals. Premature graying of the hair can be avoided and healthy color retention can be achieved [9].

The following are some methods for adding anjeer to your hair care regimen:

Use shampoos, conditioners, conditioners, and hair treatments, as well as other hair care products that contain fig oil or extract.

A hair mask based on anjeer was used:

Mash up a fig or two and apply the paste to your hair to create a fig-based hair mask. After around 20 minutes, remove the mask with a warm water rinse[12].

*Use Anjeer oil as a hair treatment:*

Anjeer oil is a type of natural hair treatment that is used to strengthen and nourish hair. This is done by placing a few drops of fig oil on your scalp and hair, then leaving it for a few hours or overnight before rinsing it off [13].

*Add anjeer to your diet:*

Fig works on Nourish hair from the inside out by including it permanently in the diet. Fig leaves' inherent nourishing and moisturizing qualities have led to their use in a variety of hair care products. Among the supplies and techniques for hair care made from fig leaves are [16].

1. Fig Leaf Conditioner:

Made with organic botanical components, this conditioner has a hint of fresh fig flavor. It infuses hair with moisture, making it silky and smooth.

2. Fig Leaf Shampoo:

Natural extracts and amino acids are combined with goat milk to create this shampoo. Shea butter and honey, which are added to it, assist to hydrate and protect hair without making it feel heavy. Fresh fig leaves, delectable fig nectar, and rich fig wood are among the scents that are associated with the product[18].

To utilize hair care products derived from fig leaves, just apply them to your hair like you would any other shampoo or conditioner. For instance, use a quarter-sized amount of shampoo on extremely wet hair, massage it into a lather, and then thoroughly rinse. After shampooing, add the conditioner to your hair, let it sit for a few minutes, and then give it a good rinse[10].

*The following are some advantages of treating hair using fig leaves:*

1. Accelerating Hair Growth:

Figs are rich in nutrients that are good for hair, such as magnesium, vitamin C, and vitamin E. These nutrients increase blood flow to the scalp and hasten the growth of hair.

2. Conditioning Hair:

Fig leaf extracts moisturize hair without making it heavy, hydrate the scalp, and aid in detangling hair.

3. Increasing Hair Volume and Strength:

The nutrients in fig leaves have the potential to increase hair strength and volume.

4. Preventing Hair Loss:

The vital nutrients found in fig leaves encourage healthy nutrition, which can aid in the prevention of hair loss [11].

### III. CONCLUSION

Fig leaves can be used as a hair treatment to strengthen and nourish hair, encourage growth, and lessen hair loss, among other advantages. High concentrations of antioxidants,

vitamins, and minerals found in fig leaves can nourish and protect hair, enhancing its strength and resilience. Thus, adding fig leaves to hair care regimens can be a simple and natural approach to keep hair looking and feeling great.

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