

## PREPARATION AND EVALUATION OF POLY HERBAL HAIR OIL

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## ABSTRACT

Pharmacognosy is the branch of drugstore that deals with saucers. This medicinal shops are employed for preparing and manufacturing myriads of drugs. Beside this, saucers are used for beautification of body, medication of cosmetics, flavouring and colouring agent. The main end of present study involves medication and evaluation of poly herbal hair oil painting by using fresh corridor of colorful shops. Herbal hair oil painting are hair care factors enforced to the hair for the treatment of hair diseases. Herbal hair oil painting is a critical part of natural cosmetics. Men and women likewise are veritably concerned about hair loss issues, with fading, dandruff and hair falling being the main issues linked to hair. Comparing herbal hair oil painting to synthetic medicines, which can have adverse goods similar as headaches and dizziness as well as dermatological responses. Hair oil painting is one of the important hair care medication which is used for forestallment, treatment, care and other affections of hair. colorful hair canvases also promotes the luxurious growth of hair. The idea of beauty and cosmetics is as major as humanity and civilization. So, they use colorful beauty wares which has saucers to appearance witching and youthful. Herbal phrasings always have exertion and comparatively lower or no side goods with replicas. mortal uses colorful products known as cosmetics to enhance fineness to look youthful and fascinating. The set herbal hair oilre subordinated to phytochemicals screening, general characterization, physical, chemicals testing. The herbal oil painting were prepared according to Indian pharmacopoeia volume VI first edition. The evaluation of formulated herbal hair oil painting were carried out by colorful parameters similar as pH, acid value, saponification value, specific graveness. It's also tested for skin vexation on forearm. In conclusion, the set herbal hair oil painting is employed to promote hair growth, for supplementation of vitamins and minerals, precluding dandruff, split ends and indispensable choice from dangerous chemicals.

**KEYWORDS:** Herbal hair oil, hair, flavouring, colouring, conclusion.

## INTRODUCTION

Pharmacognosy, the branch of knowledge concerned with the medicinal medicines attained from shops or other natural sources. It deals with the naturally being ingredients which have medicinal conditioning. In Indian systems of drug the medicines may be from factory sources, beast sources or of mineral origin which are used in natural or so called "Crude" form either independently or in combination to make emulsion phrasings. Pharmacognosy has a close relation with Ayurveda, as both deals with the medicinal shops.<sup>[3]</sup>

The term Ayurveda in Sanskrit consists of two words; ayur meaning life, and veda meaning sacred knowledge or wisdom. therefore, Ayurveda is the wisdom of life. In Ayurvedic drug, saucers are used as an integral part of health care system. The synthetic chemical composites have replaced numerous Ayurvedic factory products, the

safety and efficacy of the natural products could n't find suitable match. Herbal medicines attained from shops are believed to be much safer in the treatment of colorful conditions. also, it's also employed in expression of cosmetics, cloth and food diligence.<sup>[2]</sup>

Hair is a protein hair that grows from follicles set up in the dermis. Hair is one of the defining characteristics of mammals. Most common interest in hair is concentrated on hair growth, hair types and hair care, but hair is also an important biomaterial primarily composed of protein, specially alphakeratin. The prominent problems arises with in cosmetics are Dandruff, hair loss, dry hair, spear ends, limp hair, dull hair, heat damaged hair, color damaged hair, slate hair, etc. To overcome these problems there are numerous cosmetics available in requests, similar as hair canvases, hair soaps, hair conditioners, hair serums, hairs gels, hair mask, hair

colorings.

Hair canvases are the cosmetics products which are applied on hair which promotes the luxurious hair growth, treatment of baldness, aggression of hair. Hair oil painting containing herbal medicines are used as hair alcohol. Hair care products are distributed into two main order, hair mixers and hair fixing aids. These are principally the excerpts of medicinal shops in an oil painting base.

Herbal hair oil painting is a natural product formulated using colorful medicinal sauces and factory- grounded canvases. These canvases have been traditionally used in Ayurvedic, Unani, and other natural mending systems for maintaining hair and crown health. Herbal hair canvases generally combine carrier canvases like coconut, sesame, or castor oil painting with herbal excerpts similar as amla, bhringraj, neem, brahmi, hibiscus, and fenugreek.

The primary end of herbal hair oil painting is to nourish the crown, strengthen hair roots, stimulate hair growth, reduce dandruff, and help unseasonable graying. Unlike synthetic chemical- grounded hair products, herbal canvases are known for being gentle, non-toxic, and suitable for long- term use.

They're extensively popular due to their holistic benefits — not just for the hair but also for relaxation and stress relief, thanks to their soothing aroma and cooling goods.

### Classification

#### 1 Based on Function

- \* Hair Growth Oils
  - o Promote hair follicle stimulation and growth
  - o Example: Bhringraj oil, Brahmi oil
- \* Anti-dandruff Oils
  - o Contain antimicrobial herbs to reduce flakes and itching
  - o Example: Neem oil, Tea tree oil
- \* Anti-hair fall Oils
  - o Strengthen roots and reduce hair shedding
  - o Example: Amla oil, Hibiscus oil
- \* Cooling & Relaxation Oils
  - o Soothe the scalp, reduce stress
  - o Example: Brahmi, Jatamansi oil
- \* Conditioning & Shine Oils
  - o Moisturize, soften, and add shine
  - o Example: Coconut oil with aloe vera or hibiscus

#### 2. Based on Base Oil

- \* Coconut Oil-Based – Nourishing and penetrating
- \* Sesame Oil-Based – Traditional Ayurvedic base
- \* Castor Oil-Based – Thick, great for hair growth
- \* Almond or Olive Oil-Based – Rich in vitamins, good for dryness

#### 3. Based on Herbal Ingredients

- \* Single-herb Oils (e.g., pure Bhringraj oil)
- \* Multi-herb Formulations (e.g., oils with amla,

bhringraj, brahmi, and neem)

#### 4. Based on Formulation Type

- \* Cold-infused Herbal Oils – Herbs soaked in oil for weeks
- \* Heat-infused (Traditional method) – Herbs cooked in oil over low heat
- \* Essential Oil Blends – Base oil + essential oils like rosemary or tea tree oil

### Types of Herbal Hair Oil

#### 1) Nourishing Hair Oil

- \* Promotes hair strength, softness, and shine.
- \* Examples: Coconut oil with herbs like Amla, Bhringraj.
- \* Your oil fits here – strengthens roots and nourishes scalp.

#### 2) Anti-hair fall Hair Oil

- \* Targets hair loss, promotes regrowth.
- \* Herbs like Bhringraj, Fenugreek, Amla help reduce hair fall.
- \* Your oil also fits here – due to these ingredients.

#### 3) Medicated Hair Oil

- \* Contains herbs with therapeutic actions (antibacterial, antifungal, anti- inflammatory).
- \* Used for treating dandruff, itching, infections.
- \* Camphor gives your oil cooling and antimicrobial properties.
- \* Your oil qualifies here as well.

#### 4) Cooling Hair Oil

- \* Soothes scalp and relieves stress.
- \* Camphor contributes to this effect.
- \* Your oil has mild cooling properties.

#### 5) Hair Growth Oil

- \* Specifically targets new hair growth.
- \* Bhringraj and Castor oil are known for stimulating hair follicles.
- \* Your oil supports this function Similarity: 29%

8 Powerful Ayurvedic Ingredients For Healthy, Luscious Hair Precautions for Herbal Hair Oil

### Preventives for Herbal Hair oil painting

1. For external use only – Do n't ingest the oil painting.
2. Patch test recommended – Apply a small quantum behind the observance or on the inner elbow to check for any antipathetic response before full use.
3. Avoid contact with eyes – In case of contact, wash completely with water.
4. Store in a cool, dry place – Keep down from direct sun to save the energy of herbal constituents.
5. Keep out of reach of children – To help accidental ingestion or abuse.
6. Use with clean hands – Always use clean, dry hands or an applicator to avoid impurity.
7. Discontinue use if vexation occurs – Seek medical advice if greenishness, itching, or rash appears.

8. Not recommended on open injuries or crown infections – Consult a croaker before use in similar cases.
9. Shake well before use – Herbal excerpts may settle at the bottom.
10. Do n't heat – If warming the oil painting before operation, use gentle heat and do n't boil.

#### Advantages of Herbal Hair oil painting

##### Promotes Natural Hair Growth

Sauces like Amla, Bhringraj, and Fenugreek stimulate hair follicles. Reduces Hair Fall and Breakage Strengthens roots and nourishes crown. Improves Scalp Health Antibacterial and antifungal parcels help treat dandruff, itching, and blankness.

##### Prevents unseasonable Graying

constituents like Amla and Curry leaves help maintain natural hair color. Chemical- Free No harsh complements or synthetic spices (if duly made). Nourishes and Conditions Hair Canvases like coconut and castor add shine and smoothness. Relieves Stress Massaging herbal oil painting (especially with Brahmi or Camphor) calms the mind.

Sagddttdi Bhringraj : Eclipta prostrate



Fig no 1: Bhringraj.

- **Synonyms:** Eclipta Alba
- **Biological Source:** Bhringraj is small, annual herb belonging to the Asteraceae family. It is commonly known as false daisy or ink plant in English
- **Family:** Asteraceae
- **Chemical Constituents:** flavonoids, polypeptide, polyacetylenos, Eclipta
- The Bhringraj is also known as Eclipta alba belong to family Asteraceae.
- It is used to promote hair growth also used in asthma, fever, ulcers, wounds.

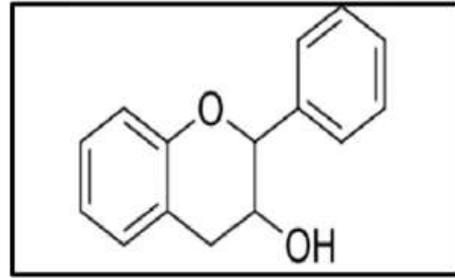


Fig (a) Structure of flavonoids.

#### Fenugreek Seeds: (Trigonellafoenum-graecum)



Fig no 3: Fenugreek Seeds.

- **Synonyms:** Methi, Fenugreek, Chandrika.
- **Biological source:** It is derived from the plant *Trigonellafoenum Graecum*.
- **Family:** Leguminosae.
- **Chemical Constituents:** Alkaloids, Volatile Oil, Sapomins, Flavonoids, Mueilage, Protein, fixed Oil, Vit A, B, C, Mineral.
- The *Trigonellafoenum-graecum* is also known as fenugreek seeds belongs to family **Leguminosae**. It is used as herb, spices and vegetable. Its main extensive use in hair regrowth. It is also used in preparation of pickles and food. Its also used as flavouring agent.<sup>[4]</sup>

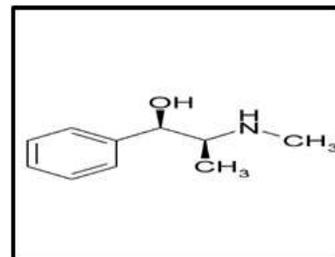


Fig (b) Structure of Alkaloids.

#### Amla : (Phyllanthus emblica)



Fig no 4: Amla.

- **Synonyms:** Emblica, Embelic, Ambala, Amlaki.
- **Biological Source:** It is consist of dried as well as fresh fruits of *Emblica Officinalis*, *Phyllanthus emblica linn.*
- **Family:** *Phyllanthaceae*.
- **Chemical Constituents:** Tannins, Ellagic acid, Gallic acid, Glucose, Pectins & Vit C
- *Phyllanthus emblica* is also known as emlic, emblicmymyrobalan, myrobalan, Indian gooseberry, malacca tree, amla, amalaka belongs to family **Phyllanthaceae**. Amla is excellent source of vitamin C, helps to boost your immunity, metabolism and prevents bacterial and viral ailments, including cold and cough. Also used as anticancer. It strengthen the scalp and hair, reduces premature pigment loss from hair or greying. It als prevent or treat dandruff and dry scalp.<sup>[3,4]</sup>

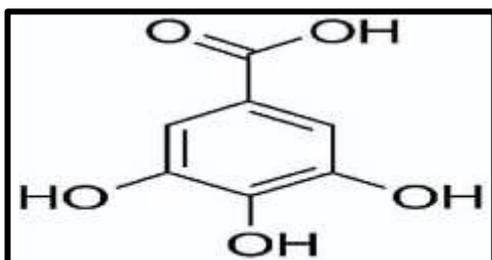


Fig (c) Structure of Gallic acid.

**Camphor : Benzoin**

Fig no 2: Camphor.

- **Synonyms:** benzoin, camphora
- **Biological Source :** It is obtained from camphor tree, cinnamomum camphora
- **Family :** *Laurel*
- **Chemical Constituents**
  - Lin -alool, 1, 8 -cineole, D camphor
- The camphor is also known as camphora belongs to the family **laurel**. It is used to smooths the hair shaft and makes it shinjer also used in cough, pain and itching.

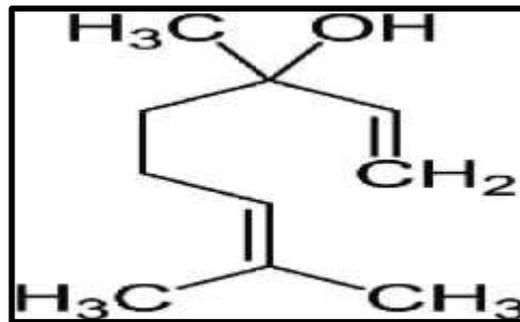


Fig (D) Structure of Lin-alool.

**Oily Material  
Coconut oil**

Fig no 5: Coconut Oil.

- **Synonyms :** Coconut oil, Copra oil.
- **Family :** *Arecaceae*.
- **Chemical Constituents :** Lauric acid, Myristic acid, Caprilic acid.
- *Cocos nucifera* oil is also known as coconut oil, copra oil belongs to family *Arecaceae*. It is used moisturizes the hair, avoid breakage of hair, blood flow and blood circulation, antibacterial agent.<sup>[4]</sup>

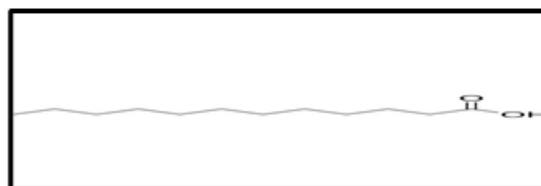


Fig (E) Structure Lauric acid.

**Castor Oil**

Fig no 6: Structure: Castor Oil.

- **Synonyms** : Ricinus oil, Castor Bean oil, Erandel tel.
- **Family** : *Euphorbiaceae*
- **Chemical Constituents**: Ricinoleic acid, Linoleic acid, oleic acid, Stearic acid, Linolenic acid.
- Ricinus communis oil also known as castor oil, castor bean oil belongs to family *Euphorbiaceae*. It is used as hair fall controller, encourage hair regrowth, darkens the hair, thickens the hair, treats dandruff. It is also used as powerful laxative, reduce acne.<sup>[3,4]</sup>

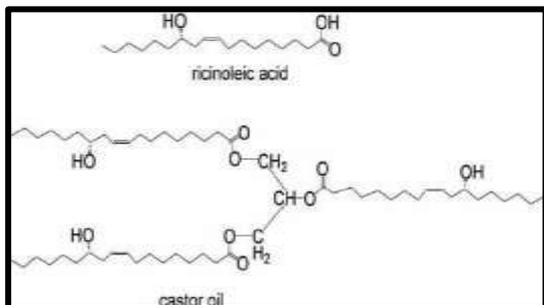


Fig:- (F) Structure castor oil.

### MATERIALS AND METHODS

The herbal hair oil was prepared by collecting and using various plant materials. The leaves of *Eclipta prostrata*, seeds of *Trigonella foenum graecum*, *Phyllanthus emblica*,. All were collected from Agricultural fields. Collected plants were identified by my project guide Miss. Kasar.J.S.

The oils used for herbal hair oils were *Cocos nucifera* oil, *Ricinus communis* oil. This all oils was purchased by Harshad from Shrirampur. All the collected oils were identified by project guide.<sup>[3]</sup>

### Solvents and Chemicals

Solvents used were ethanol, Chemicals were Hydrochloric acid, sulphuric acid, water, phenolphthalein indicator.

The above chemicals and solvent were obtained from department of pharmacognosy s.w.c.o.p.ganegaon.

### Formula

#### BATCH – F1 Fail Excess Use of Camphor

SR.NO	INGREDIENT	AMOUNT FOR 50ML
1	Coconut oil	30ml
2	Castor oil	10ml
3	Bhringraj	2ml
4	Amla	2ml
5	Fenugreek Seed	1ml
6	Camphor	3g

**Reason:** Strong, irritating smell and skin sensitivity due to excess camphor; also caused mild scalp burning sensation.

#### BATCH – F2 Fail Low Oil Content.

SR.NO	INGREDIENT	AMOUNT FOR 50ML
1	Coconut oil	20ml
2	Castor oil	10ml
3	Bhringraj	6ml
4	Amla	6ml
5	Fenugreek Seed	4ml
6	Camphor	1g

**Reason:** Overload of extracts caused phase separation and poor product stability.

#### BATCH – F3 Fail low Extract Content Ineffective results

SR.NO	INGREDIENT	AMOUNT FOR 50ML
1	Coconut oil	25ml
2	Castor oil	15ml
3	Bhringraj	1ml
4	Amla	1ml
5	Fenugreek Seed	0.2ml
6	Camphor	1g

**Reason :** Very low extract content led to reduced efficacy and no noticeable hair benefits.

#### BATCH – F4 Fail Excess Extracts.

SR.NO	INGREDIENT	AMOUNT FOR 50ML
1	Coconut oil	20ml
2	Castor oil	10ml
3	Bhringraj	6ml
4	Amla	6ml
5	Fenugreek Seed	4ml
6	Camphor	1g

**Reason :** very strong herbal odour, sharp and slightly sour due to high amla and fenugreek seed.

#### BATCH – F5 Correct Extract Based Formula

SR.NO	INGREDIENT	AMOUNT FOR 50ML
1	Coconut oil	30ml
2	Castor oil	10ml
3	Bhringraj	2ml
4	Amla	2ml
5	Fenugreek Seed	1ml
6	Camphor	1g

**Reason:** Stable effective with good consistency aroma and no phase separation.

### Procedure

Herbal hair oil was prepared procedure the prescribed herb according to the formula. This process ensures adsorption of the active therapeutic properties of the ingredients used.<sup>[6]</sup>

**METHODOLOGY**

Measure a specific amount of the powdered plant material to be extracted.



place the powdered drug in a clean, dry container.



Add a specified amount of ethanol to it.



seal the container to prevent evaporation of ethanol & protect from air & light.



Allow the mixture to stand for 7 days at room temperature.



shake or stir the mixture daily to improve extraction efficiency.



After 7 days, filter the mixture using filter paper.



Extraction of powdered herbs using maceration process.



**Fig (a) Extraction of Product.**



**Fig (b) Product Kept in Dark Place.**



**Fig (c) Filtration of product.**

**Evaporation of macerated drugs**

It is typically done to remove the Solvent (eg. ethanol) from the macerated mixture, leaving behind the Concentrated extract.

- 1) place the evaporation vessel with the liquid extract on hot plate & Start heating Slowly.
- 2) Once the solvent has evaporated to the desired level, remove the vessel.



**Fig (A) Evaporation of Solvent.**

**Method of Preparation Oil**

- 1) Oil are measured through pipette.
- 2) The oil & the above evaporated extract mixed together in a Vessel.
- 3) The above mixture is then allowed to boil on low flame with Continuous stirring.
- 4) As further heating the oil Starts to form a froth. This is the condition where it starts to Concentrate in oil.
- 5) In the next step, the mixture is filtered through filter paper.
- 6) The collected strain is firial herbal hair oil product.



Fig (a) Extract.



Fig (b) Extract boil on low flame.



Fig (c): Filtration of Product.



Fig (d): Poly herbal hair oil.

#### Evaluation of Herbal Hair Oil Preparation

The prepared herbal hair oil was subjected to phytochemical screening, general characterization, physical and biological evaluation.<sup>[7,9]</sup>

#### Phytochemical screening of herbal hair oil preparation

The prepared herbal oil was subjected to qualitative chemical analysis for identification of various plant chief constituents like saponins by using different methods.

##### 1. Saponin test

Oil mixed with water in a test tube and shake it.

**RESULT** – Form a Stable froth.



Fig (a) Saponin Test.

#### General Characterization

The general characters like colour and odour was evaluated Manually.

- Colour** : Brown to dark green colour (The infusion of Amla and Bhingraj Give it a dark tone)
- Odour** : Characteristic

3. **Consistency** : medium thick (Slightly heavier than pure coconut oil due to the addition of castor oil)

#### Physical evaluation

The physical evaluation parameters were determined are specific gravity, pH, acid value and saponification value.

#### 1 Acid Value

##### Method use

Titration with standard KOH solution (as per pharmacopial standards).

##### Procedure

- 1) Weigh 5 g of oil
- 2) Dissolve in 50 ml ethanol (neutralized with phenolphthalein)
- 3) titrate with 0.1N KOH until pink color persists.

##### Formula

$$\frac{V \times N \times 56.1}{W}$$

V- volume of KOH (in ml) 5ml oil = 5 x 0.92= 4.6g

N- Normality of KOH  $\frac{2.2 \times 0.1 \times 56.1}{4.6}$

W- weight of oil in gram 4.6

12.34

4.6

2.68g/ml

**Result :-** Acid value = 2.68 g/ml



Fig (b) Acid Value.

2. **PH Value** : {normal range 4.5 to 6.5} Method used –

Using PH strip

**Procedure** – Dip the strip into the oil and compare the colour with the chart

**RESULT** – 5

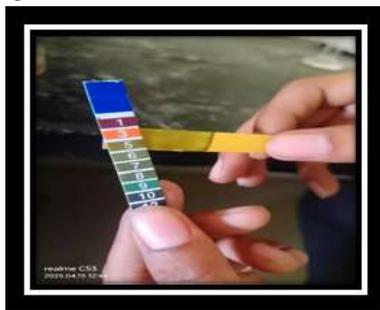


Fig (c) PH Value.

- 3) **Saponification value** {normal range 117.87 to 224.27 mg KOH /g} Method used :- titration with 0.5 N HCL.

##### Procedure

- 1) Reflux 2 g oil with 25 ml of 0.5 N alcoholic KOH for 30 minutes
- 2) titration excess KOH with 0.5 N HCL using phenolphthalein
- 3) blank is run simultaneously

##### Formula

$$SV = \frac{(B-S) \times N \times 56.1}{W}$$

##### Where

B = Volume of HCl used in blank (ml) S = Volume of HCl used in sample (ml) N = Normality of HCl

W = Weight of oil sample (g)

56.1 = Molecular weight of KO

$$SV = \frac{(24.0-12.2) \times 0.5 \times 56.1}{1.68}$$

$$SV = \frac{11.8 \times 0.5 \times 56.1}{1.68}$$

$$\frac{331.295}{1.68}$$

$$= 197.20 \text{ mg KOH/g}$$

**Result :-** 197.20 mg KOH /g

**Result :-** 197.20 mg KOH /g



Fig (d) Saponification value test.

3. **Specific gravity** {normal range 0.900 to 0.940}

Specific gravity of the prepared oil was determined using specific gravity bottle.

##### Procedure

Volume used = 10 ml (for both oil and water) Weight of 10 ml hair oil = 9.12 g

Weight of 10 ml distilled water = 10.00 g

$$\text{Formula - : } SG = \frac{9.12}{10.00}$$

$$= 0.912$$



Fig (e) Specific gravity.

**Antioxidant activity****Primary skin irritation test**

The prepared formulation was assessed for primary skin irritation test on our forearm, little amount was applied on the test site. The test site was observed for 3 to 4 hrs.



Fig (a) Skin before application of oil.



Fig (b) Skin after application of oil.

**RESULTS AND DISCUSSION**

Herbal hair oil is one of the most well recognized hair treatments. Herbal hair oil not only moisturizes scalp but also reverses dry scalp and dry hair condition. It provides numerous essential nutrients required to maintain normal function of sebaceous glands and promotes natural hair growth. The herbal hair oil was prepared from the above

mentioned ingredients and it was subjected to the qualitative chemical analysis for identification of various plant constituents. The various parameters like Colour, Odour, Specific gravity, pH, Saponification value, Acid value of herbal hair oil was evaluated.

Anti-dandruff activity was carried out by measuring the zone of inhibition of herbal hair oil. Hair oil showed good activity.

**Phytochemical Evaluation of Herbal Hair Oil**

Saponin test	Foam gets appeared	Saponin present and confirmed
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**Physical Evaluation of Herbal Hair Oil.**

Parameters	Results
Colour	Brown
Odour	Characteristic
Specific gravity	0.912
PH	5
Acid value	2.68 g/ml
Saponification value	197.20 mg KOH/g
Skin irritation	No irritation

**CONCLUSION**

Overall, the formulated herbal oil provides many nourishing value to hair such as vitamins, minerals, and essential oils. The finished product is within the limits. The combination of selected herbal ingredients provided synergistic effects, contributing to the oils efficacy. Evaluation parameters such as PH, Acid value, Antioxidant activity confirmed the products suitability for regular use. When compared to other 4 formulation, the F5 has shown more effectiveness with good consistency and no phase separation. The study conclude that polyherbal hair oil serve as a safe, natural, beneficial to prevent hair from damage and loss caused by pollution and treat the dandruff and provide an alternative source from hazardous chemicals.

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