A BUCOLIC REMEDY OF FORMULATION AND EVALUATION OF POLYHERBAL HAIR OIL

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ABSTRACT

Objective: The birth of cosmetics forms an incessant narrative throughout the past of man as they developed. The present study aimed to formulate polyherbal hair oil using various efficient herbs.

Methods: Hair oil formulation of Cocos nucifera (oil), Ricinus communis (oil), Brassica juncea (oil), Trigonella foenum-graecum (Seeds), Murraya koenigii (Leaf), Hibiscus rosa-sinensis (Flowers), Nigella sativa (seeds), and Cinnamomum camphora in the form of polyherbal oil using boiling method. These ingredients are rich in various phytochemicals, vitamins, proteins, antioxidants, and so many other constituents which are important for the growth and rejuvenation of the hair cycle. Evaluation of hair oil carries out by various parameters such as sensitivity test, acid value, saponification value, phytochemical screening, pH, specific gravity, viscosity, and irritation test.

Results: All the values of evaluation are within the acceptable limit. As compared to market formulations, this herbal oil having minimal or zero adverse effects.

Conclusion: It is concluded that formulated hair oil boost hair growth, decrease hair fall, dandruff, gray hair, and gives lustrous and shiny hairs.

INTRODUCTION

The phrase cosmetic originated from the Greek term “kosmtikos” senses having the potential and skill in beautifying. Herbal Cosmetics, here noticed as botanomedicine contrived using various permissible cosmetic components to form the suitable base in which one or more herbal ingredients provide defined cosmetic advantages only, shall be called as “Herbal Cosmetics” [1]. When herbs are used for their aromatic and medicinal value in cosmetics, they are known as herbal or green personal care products [2]. Herbal cosmetics are in high demand due to the increasing interest of humanity towards them because they are more effective with nil or minimum after-effects also handy ingredients, etc. Haircare cosmetics are now added with herbs, and they are well-recognized compared with synthetic ones [3]. Herbal cosmetics provide nutrients to applied areas, moreover, they are safe and they combine traditional systems with modern scientific approaches [2]. The advantages of herbal cosmetics are given below Figs. 1 and 2.

METHODS

Collection and authentication of plant part
All the required raw materials were collected from the local market of Akluj, tal. Mahshiras, Dist. Solapur. Moreover, all the ingredients such as coconut oil, castor oil, mustard oil, hibiscus flowers, fenugreek, curry leaves, black cumin, and camphor. Authentications were done by the Department of Pharmacognosy at SPM’s College of Pharmacy Akluj (Table 1).

Drugs and chemicals

Formulation of polyherbal hair oil
A variety of ingredients comprise in the formulation of herbal oil are presented in the Table 2.

Accurately, weigh all the dried and fresh herbs such as Hibiscus flowers, Fenugreek, Curry leaves, and Black cumin were ground in the mixture and were mixed in mustard oil. The above content was boiled for 10 minutes. After that add castor oil and coconut oil boil, this solution for 20 min at last add ground Camphor. Keep this solution overnight in the same container. After 12 hrs, oil was filtered through a muslin cloth. To the filtrate, coconut oil was added to make up the volume 100 mL and labeled it.

Evaluation of herbal hair oil
The formulated polyherbal hair oil was subjected to physical and chemical assessment.

Organoleptic property
Color, odor, skin irritation was determined manually. Oil was applied on hand and exposed to sunlight for 5 mins to check for any irritation over skin mention as per standard books [20-23].

Physical evaluation
The various parameters such as specific gravity (density), pH, viscosity, saponification value, acid value are tested using the standards given in protocols [20-23].

pH
The pH of the herbal oil was detected using a pH meter.

Viscosity
Viscosity was determined using Ostwald’s viscometer.

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

Sensitivity test
The prepared polyherbal hair oil was applied on 1 cm skin surface of the hand and exposed to sunlight for 4-5 min, observed that area if any redness or reaction occurred.
Acid value
The acid value is a comparative measure of rancidity while free acids produced during the decomposition of triglycerides. It is measured as several milligrams of potassium hydroxide (KOH) required to neutralize the free fatty acids present in one gram of fat [23].

Saponification value
The significance of the saponification value is to identify the amount of potassium hydroxide (in mg) is required to saponify 1g fat, the greater the number of saponification, the more short- and medium-chain fatty acids the fat contains. Saponification values were performed as per standards [23].

Phytochemical screening of herbal hair oil preparations
The prepared herbal oils were subjected to qualitative chemical analysis for identification of various plant constituents such as alkaloids, glycosides, flavonoids, tannins, phenols, proteins, amino acids, vitamins, steroids, and saponins using different chemical tests. The chemical test was carried out using standard conventional protocols [20].

RESULTS
The polyherbal hair oil was prepared from the above-mentioned ingredients (Table 2). Numerous physical and analytical parameters such as color, odor, grittiness, specific gravity, pH, viscosity, saponification value, acid value, and irritation test, of this polyherbal hair oil, were evaluated (Table 3). Polyherbal hair oil was analyzed via qualitative chemical analysis to identify the various plant phytoconstituents (Table 4).

Table 1: Crude drugs utilized in polyherbal hair oil

| Synonym       | Biological source and family | Chemical constituents                                                                 | References |
|---------------|------------------------------|---------------------------------------------------------------------------------------|------------|
| Coconut oil   | *Cocos Nucifera* Arecaceae   | High fat content, protein, triglycerides, albumins, vitamin A, vitamin C,             | [4]        |
| Castor oil    | *Ricinus communis* Euphorbiaceae | Saturated and unsaturated fatty acids, Ricinoleic acid, vitamin E, ricinoleic acid. | [5]        |
| Mustard oil   | *Brassica juncea* Brassicaceae | Tocopherols to cotriensols, favonoid                                                   | [6,7]      |
| Hibiscus flower | *Hibiscus rosa-sinensis* Malvaceae | polyphenols, volatile components, β-carotene and ascorbic acid.                      | [8-10]     |
| Fenugreek     | *Trigonella foenum-graecum* Fabaceae | Sapogenins, Diosgenin, trigocoumarin, nicotinic acid, trimethyl coumarin and         | [11,12]    |
|               |                              | trigonelline 28% mucilage, volatile oil, proteins, iron, Quercetin, rutin, vitamin,  |
|               |                              | isovitexin.                                                                           |            |
| Curry leaves  | *Murraya koenigii* Rutaceae   | Ppinjune, P-caryophyllene, P-elemene and O-phellandrene. Cinnamaldehyde,             | [13-15]    |
|               |                              | and numerous carboxazole derivatives.                                                |            |
| Black cumin   | *Nigella sativa* Ranunculaceae | Thymoquinone, tannins, flavonoids, essential fatty acids, essential amino acids,      | [16,17]    |
|               |                              | vitamins, proteins.                                                                  |            |
| Camphor       | *Cinnamomum camphora* Lauraceae | camphor, camphene, cineol, cinnamaldehyde menthol, thymol, phenol, salicylic acid,   | [18,19]    |
|               |                              | ascorbic acid.                                                                        |            |

Table 2: Ingredients used in formulation of herbal hair oil

| Common name | Biological source | % Quantity |
|-------------|-------------------|------------|
| Coconut oil | *Cocos nucifera*  | 35         |
| Castor oil  | *Ricinus communis*| 10         |
| Mustard oil | *Brassica juncea* | 10         |
| Hibiscus flower | *Hibiscus rosa-sinensis* | 10         |
| Fenugreek | *Trigonella foenum-graecum* | 10         |
| Curry leaves | *Murraya koenigii* | 10         |
| Black cumin | *Nigella sativa* | 10         |
| Camphor     | *Cinnamomum camphora* | 5          |

Table 3: Physical evaluation of herbal hair oil

| Parameters                  | Result            |
|-----------------------------|-------------------|
| Color                       | Dark yellow       |
| Odor                        | Characteristic    |
| Grittiness                  | Smooth            |
| pH                          | 5.93              |
| Viscosity at 25°C           | 32.808            |
| Specific gravity            | 0.90              |
| Acid value                  | 1.420             |
| Saponification value        | 196.30            |
| Skin irritation              | No irritation     |

Fig. 1: Benefit's of herbal cosmetics

Fig. 2: Hair problems
Table 4: Phytochemical evaluation of herbal oil

| Name of the test results | Results |
|--------------------------|---------|
| Alkaloids                 | +**     |
| Flavonoids               | +**     |
| Tannins                  | +**     |
| Steroids and terpenoids  | +**     |
| Saponins                 | +**     |
| Glycosides               | +**     |
| Proteins and amino acids | +**     |
| Vitamins                 | +**     |
| Phenols                  | +**     |

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CONCLUSION

As nowadays, it is a fast-developing segment with a massive scope of manifold boost in coming years. The use of bioactive ingredients, phytocomponents in cosmetic formulations has a precious effect on body features and provides nutrients, which are crucial for sustaining healthy, attractive and gorgeous hairs. At last, it concluded that this herbal hair oil formulation has significant quality further standardization and biological screening needed for better understanding.
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