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Formulation and Evaluation of Shampoo Powder

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Abstract: *Available shampoo that is marketed as synthetic has artificial components that harm the skin, irritate the scalp, and damage hair follicles. Customers now pick herbal goods over synthetic ones because they are aware of the harmful impact that synthetic products can have on their skin, hair, and eyes. Herbal products are less likely to cause side effects than synthetic ones. Herbal shampoos are made with herbs and are part of the cosmetic preparation line. They are intended to remove excess oil, grime, and dandruff from the scalp and hair. The primary goal of this study is to create and assess a polyherbal shampoo with ingredients derived from natural sources. Hibiscus flowers (Hibiscus rosea), Neem leaves (Azadirachtaindica), Shikakai fruit (Acacia concinna), Amla (Emblicaofficinalis), Reetha (Sapindusmukorossi),) are among the herbs used in the shampoo preparation process.*

Keywords: UV radiation, sun protection, Hibiscus rosasinensis, sun screen, SP

I. INTRODUCTION

One of the most important bodily components, hair is formed from the ectoderm of the skin. It is a protective appendage and is regarded as an accessory structure of the integument, along with sweat, sebum, and nail glands [1]. Products for hair care can be defined as a preparation meant to remove extra oil, debris, and dandruff from the scalp and hair. Hair care products also hydrate hair and make it seem healthy. The true technique for cleaning hair and scalps began this century with the creation of cake soap and the following development of shampoo products. The world of shampoo originates from the subcontinent of India. Its origins may be traced back to 1762 and is derived from the Hindi word shampoo, which means to massage the head with hair oil. Shampoo is a cosmetic preparation used to cleanse the hair and scalp. Its primary goal is to remove sebum buildup, scalp debris, and residue from hair grooming products from the hair. Shampoos can also be used as conditioners, lubricants, medicines, and for other purposes. The main component used to prepare the shampoo is surfactant, with additional compounds added to increase the product's effectiveness [2].

Anatomy of the Hair:

The hair follicle is a multi-layered, detecting, reacting skin appendage that serves several essential functions. For optimal functioning, it needs a certain molecular environment. Animal skin serves as an insulating covering, but it also helps with survival camouflage and is believed to convey tactile and sensory information about the surroundings. Human hair follicles typically emerge in the first trimester and are created as a result of epidermal-dermal interactions. The process of growing hair is unique and complex, consisting of an ongoing cycle of growth, resorption, rest, and renewal. Due to their constant exposure to the elements, hair follicles commonly sustain direct damage from the sun air and water.

A cross-sectional structure of a hair and hair follicle is shown in figure A,
Depicting the internal structure of hair:

- Sebaceous Glands: By secreting sebum, these glands protect and lubricate the scalp and hair .the hair follicles are where these baceous glands open directly.
- Arrector pili: The autonomic nerve system regulates these involuntary muscles. They run parallel to the hair follicle and are linked to its center. The arrector pilli muscles contract in response to cold or fear, causing the hairs to stand up due to horripilation.

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- Hair Shaft: This is the portion of hair that is located beneath the skin's surface. The hair root is the portion of the hair that is beneath the skin's surface.

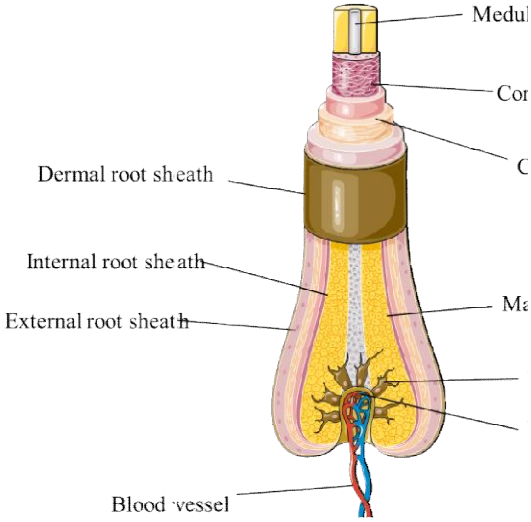

Fig. A Structure of Hair Root

Hair Bulb: The term refers to a structure that resembles a bulb and is found at the end of the hair root. The dermal papilla, a centrally located, vascularized and innervated portion of the hair bulb. The dermal papilla is in charge of generating and growing hair by taking in oxygen and nutrients.Hair cells that develop to make hair produce the hair matrix, just like nail matrix does. Nutrition is absorbed by the hair matrix through the capillaries that enter the dermal papilla. An expanded representation of the hair bulb is shown in Figure B.

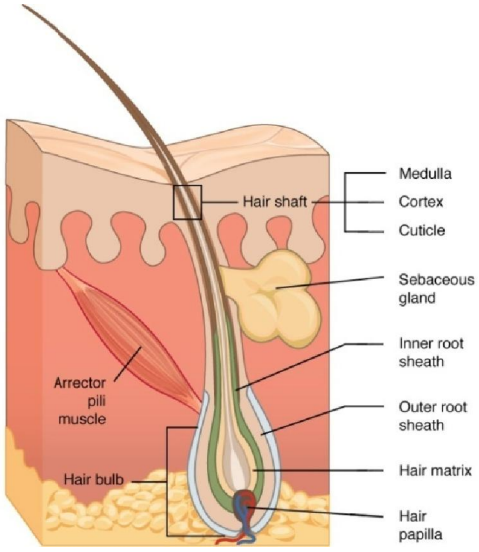

Fig B. Diagram of Hair bulb

Function

• The hair on the head cushions the head, insulates the skull, and shields the scalp from UV rays.The brows shield the eyes from insects and tiny foreign objects. Also, they deflect perspiration from the eyes.

• Vibrissae, the hairs that cover the openings to the external ear canals and nose, filter the air and aid in keeping out tiny insects and unwanted objects.

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Benefits

All hair types can benefit from this product's pure and organic component, side effect-free formula, natural hair shine, reduced hair fall, promoted hair growth,and prevention of dndruff

II. HAIR PROBLEMS

1. Dandruff - This condition is characterized by scaly particles that stick to the hair root and can be brought on by an overly sebum-producing diet, a dry scalp, an illness, or sensitivity to specific products. Hair loss may result from this benign, non-inflammatory skin ailment that affects the scalp. Naturally, because apple cider vinegar has anti-inflammatory and antibacterial qualities, it's a quick treatment for dandruff. Dandruff relief can also be greatly aided by the use of omega-3 fatty acids, coconut oil, and tea tree oil.
2. Loss of hair: Numerous things, including hormonal imbalances, stress, and using the wrong products, can cause hair loss. It is feasible to prevent by eating foods high in protein, switching to use warm oil for massage, use light shampoos, drink enough of water, and work out frequently.(3)

III. MATERIALS AND METHOD

Methods of herbal shampoo powder

I. Drying: Every powder has been ground and is in dry condition. Size reduction: when the coarse ingredients were combined, each ingredient was given a driven mixer to reduce its size.

II. Weighing

After that, a worker weighs out the batch's ingredients. There are some components that the batch needs very little of. However, if a sizable batch is being prepared and a substantial quantity of multiple ingredients are required.

III. Combining

When using a formula that doesn't call for pre-mixing, the ingredients are just combined after being checked and weighed. All of the ingredients are thoroughly combined.

IV. Completing

The completed shampoo powder product batch was placed in the filling section. Next, the weighed balance with the measured amount of shampoo powder.

V. Presentation

The plastic bags are transported to the packaging line from the filling area. The product is fully packaged, and its label provides comprehensive information. Once at the warehouse, the goods are kept until they are distributed. (4 5)

Materials and Method:

Drug's Profile:

REETHA:

Fig 1. Reetha

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Synonyms :soapberry, soapnut
Biological source: sapindus mukorossi
Family: *sapindaceae*
Categories: foaming agent ,antifungal
Geographical source:
That the grows in the lower foothills and midhhills of the Himalayas
At altitudes of up to 1,200 meters (4,000 ft.)
Chemical constituents
Saponins
Sugars
Mucilage
Uses
Cleanses the scalp and hair.
Improves the silkness of hair
Condition and give shine

SHIKAKAI

Fig.2 shikakai

Synonyms : Soap -pod, Acacia concinna
Biological source: Shikakai, is a shrub-like tree native to Central India. Acacia concinna (Leguminosae), a climbing shrub with oblong-shaped dark brown pods, bipinnate leaves, and pink flowers. It is typically found in the Indian subcontinent's tropical woods.
Family: *mimosaceae*
Categories: anti-inflammatory,antifungal
Geographical source:
Acacia concinna (Hindi name - Shikakai) is a climbing shrub native to Asia, common in the warm plains of central and south India. The plants are medium fast growing and which is bushy cum creepe
Chemical constituents
arabin,
L-arabinose,
L-rhamnose,
D-galactose
D-glucuronic acid.

Uses
Cleansing, promote hair growth and reduce Dandruff
For hundreds of years, Shikakai has been used in India for hair treatment.
To nourish and speed up the growth of hair.

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AMLA

Fig 3 amla

Synonyms : Emblica, Indian goose berry, Amla.
Biological source: This consists of dried, as well as fresh fruits of the plant "Emblica officinalis"
Family: *Euphorbiaceae*
Categories: antibactrial
Geographical source:
It is a small or medium-sized tree found in all deciduous forests of India. It is also found in Srilanka and Myanmar.
Chemical constituents
Vitamin C (Ascorbic acid),
Alkaloids (Phyllanthin),
Carbohydrates(Pectin),
Hydrolysable Tannis (Emblicanin A & B).

Uses
Remove your scalp
Promote healthy hair growth.
Reduce dandruff
Reduce hairfall

NEEM

Fig NEEM

Synonyms : Indian lilac, azadirachta indica ,margosa nimtree
Biological source: fresh or dried leaves and seed oil of Azadirachta indica J. Juss (Melia Indica or M. azadirachta Linn.).
Family: *mahogany family, meliaceae*
Categories: anti-inflammatory

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Geographical source:
Some say neem is native to the whole Indian subcontinent; others attribute it to dry forest areas throughout all of South and Southeast Asia, including Pakistan, Sri Lanka, Thailand, Malaysia, and Indonesia. It is in India that the tree is most widely used.

Chemical constituents
Nimbidin
Nimbin
Azadirachtin
mahmoodin

Uses
prevent dandruff and itchy scalp
strengthens hair root
promote hair growth

HIBISCUS (Hibiscus rosa)

Synonyms : Shoeblack plant, Mahagua, Mahoe, Cotton rose, Roselie, Jamaica sorrel, China rose.
Biological source Shoeblack plant, Mahagua, Mahoe, Cotton rose, Roselie, Jamaica sorrel, China rose.
Family: *Malvaceae*
Categories: antioxidant
Geographical source:
The hibiscus plant is Native to tropical Asia, China and Philippines.

Chemical constituents
Ascorbic acid
Thiamine
Citric acid
Glucose
Fructose
Oxalic acid

Uses
Leaves and flowers can be used as a hair growth promoter and to prevent premature graying and to treat scalp disorders. The flowers of "Hibiscus rosa sinensis" can be used to control high blood pressure, stomach pain, liver diseases, etc. Hibiscus rosa sinensis can be used as a diuretic.

Experimental work:
Formulation of Herbal Shampoo Powder:

Sr.no.	Ingredients	Quantity	Uses
1	Reetha	6gm	Make hair strong
2	Shikakai	5gm	Speed up of growth of hair
3	Amla	3gm	To reduce dandruff

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4	Neem	3gm	Dandruff and itchiness control
5	Hibiscuss	3gm	To promote hair growth

Table no. 1 Formulation of herbal shampoo powder

Procedure:

All the powder are in dry form and grinded
↓
Accurately weigh all the powdered ingredients
↓
Such as reetha , shikakai , amla ,neem ,hibiscuss powder was mixed together in large paper
↓
Then the fine powder was passed through sieve no. 80
↓
Then all the ingredient powder mixture by using spatula.
↓
fill in a suitable container.

Evaluation of herbal shampoo powder

Organoleptic Evaluation:

Colour: the herbal shampoo powder is evaluated by its colour and the colour is checked visually.

Odour: herbal shampoo powder is checked by smelling the product

Texture: it is evaluated manually by hands

Appearance: it is evaluated by visually

Sr.No.	Parameter	Formulation
1	Colour	Greenish brown
2	Odour	Slight pleasant
3	Texture	Fine smooth
4	Apperence	Powder

Table no.2 organoleptic evaluation

Patch test evaluation: It is evaluated by manually by apply the powder to the skin twice daily for two days and check irritation, swelling and redness

Sr.no.	Parameters	Results
1	Swelling	Negative
2	Redness	Negative
3	Irritation	Negative

Table no 3 Patch test

Physio-chemical evaluation:

PH: Formulated herbal powder evaluate by taking 5gm of tooth powder placed in 100ml beaker. Allow the 10ml of boiled and then cooled water. stir fastly to make suspension and measured the Ph.

Sr.no.	Parameters	Results
1	pH	5

Table no 4 physio-chemical test

IV. CONCLUSION

A survey of global hair care market trends indicates that consumer use of herbal products has significant increased over the past years. The factors like UV radiations, use of harsh chemical products have direct and indirect impact on the hair. To overcome this problems the present study has the best undertaken to design a herbal shampoo which will not

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only give hair protection but also conditioning effect, shine and manageability. The present work focuses on the potential of herbal extracts from cosmetic purposes. Hence we conclude that the formulation of polyherbal shampoo powder is effective in reducing dandruff without irritation, less adverse effect and better conditioning effect. Present investigations was carried out to formulate the herbal shampoo powder preparations based upon traditional knowledge and to develop fewparameters for quality and purity of herbal powder shampoo. Nowadays there is strong demand for natural therapies, and this is increasing in western countries. The herbs which are a cheapest of phyto constituents are on wheals to attain their role in polyherbal formulation so as to have synergistic role. Hence we conclude that the polyherbal formulation of shampoo is effective in reducing dandruff without irritation, less adverse effect and better conditioning effect. The awareness and need for cosmetics with herbs in on the rise, as it is strongly believed that these products are safe and free from side effects. For the treatment of dandruff we have both synthetic and natural herbal shampoos. But when compared to the chemical based shampoos, herbal based shampoos are more effective in terms of safety and ease of manufacturing and in the economic
point of view they are cheap

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