

DEVELOPMENT OF POLYHERBAL PREPARATION FOR HAIR GROWTH PROMOTING ACTIVITY

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ABSTRACT

Hair loss can be caused due to different reasons, such as genetic tendencies, environmental triggers, exposure to chemicals, medicines, nutritional deficiency, extreme stress or long illness etc. poly herbal formulation were prepared using extract of *Eclipta alba* (Asteraceae), *Tamarindus indica* (seed coat) (Leguminous), extract *Allium cepa* (Amaryllidaceae), and *Sesamum Indicum* Linn. (Pedaliaceae), *Coccoloba nucifera* (L.) (Arecaceae) in methanolic solution to obtain the best formulation. The extract incorporated into oil was applied topically on shaved skin of rats for hair growth as compared to marketed product

(minoxidil). The result of present study showed significant hair growth promoting activity on reading of 10th day test group (85 ± 0.8) was then compared with control group (73 ± 0.6) and almost equal to standard (84 ± 0.4). On 20th day test group (142.1 ± 0.2) was then compared with compared control group (82.4 ± 0.8) and almost equal to standard (169.6 ± 0.9). On 30th day test group (202.3 ± 1.3) was then compared with compared to control group (88.6 ± 1.4) and almost equal to standard (202.3 ± 1.3).

KEYWORDS: Herbal oil, Pedaliaceae.

1. INTRODUCTION

Hair is one of the imperative parts of the body derived from ectoderm of the skin, it is ornament structure along with sebaceous gland. Hair is a dead part with no nerve connections. The hair follicle has the unique ability to regenerate itself.^[1-4] The basic part of hair is bulb (a swelling at the base which originates from the dermis), root (which is the hair lying beneath the skin surface), shaft (which is the hair above the skin surface).^[5] The growth

of hair is cyclic phase divided into following- anagen (growth), catagen (involution) and telogen (rest).^[6] Pigmentation problems (Fading), dandruff and falling of hair (Shedding) are associated problems with hair.^[7] The loss of hair is not life threatening, but has profound impact on social interactions.^[8] There are no concord views on hair loss, it is quit controversial issue.^[9,10] Major causes of hair loss are dihydro testosterone (derivative of testosterone, a male hormone), poor blood flow, sebum emotional strains, stresses and nervous disorders, aging, infections, hormonal imbalance, polluted environment, toxic substances, injury and impairment, radiation.^[10]

Types of hair loss

Androgenetic or androgenic alopecia (baldness)

It is the most common cause of hair loss in men also known as hereditary baldness.¹⁴ In androgenic alopecia hair follicle size is reduced and duration of anagen is diminished while an increase in the percentage of hair follicles in telogen.^[10]

Alopecia areata

In alopecia areata the hair is lost from the scalp (alopecia areata totalis) or from the whole body (alopecia areata universalis).^[10]

Telogen effluvium

Telogen effluvium is characterized by the early entrance of a large no of hairs in to telogen phase at one time.^[10]

MATERIALS AND METHODS

Collection: *Eclipta alba*, *Tarmaindus indica* (coat), *Allium cepa* (juice), *Sesamum Indicum* Linn.(oil), *Cocoa Nucifera*(L.)(oil), are purchased from local market.

Authenticated of Plants: Plants were authenticated by Dr. Sapna Malviya, Head of Department, Modern Institute Of Pharmaceutical Sciences Indore M.P. Herbarium was prepared and submitted.

Extraction of Plants: Crude drug was extracted by maceration processes. The crude was collected, crude drug were shade dried completely. The dried drug was then coarsely powdered. The extract was prepared by maceration method. In maceration process Drug macerated in ethanol for 48 h and filtered. The collected extract was evaporated on water bath to get concentrated extract.^[11,12]

Formulation of Polyherbal hair oil

The various ingredients used in the formulation of herbal oil were presented in Table 1. Accurately weigh all the extract of herbs such as Tamarind seed coat, Bhringaraj, onion juice, Sesame oil and were mixed together and add coconut oil. The above content was boiled for 2hrs and was filtered through muslin cloth. Finally the herbal oil were prepared and transferred it into the suitable container.^[13]

Formula

Each 100ml contain

S.no.	Ingredients	Quantity
1.	Bhringaraj	3gm
2.	Tamarindus seed coat	1gm
3.	Onion juice	3gm
4.	Coconut oil	20ml
5.	Sesame oil	80ml

Experimental study

Three groups were prepared containing 6 rats in each group. Healthy male rats, weighed 200-250g were selected for the study. Each rat was caged individually food and water given during the test period 24hrs prior to the test. The hair from the back of each rat of 1cm² was shaved on the side of the spine to expose sufficiently large test areas, which could accommodate three test sites were cleaned with surgical spirit. Polyherbal oil formulations were applied over the respective test sites of one side of the spine. The test sites were observed for erythema and edema for 48h after application.^[14]

Hair growth activity

Quantitative model developed by Uno¹² for the study of hair growth was followed with slight modification. The rats were divided into 3 groups of 6 rats each 2cm² area of dorsal portion of all the rats shaved area to remove all the hair. Group 1 was kept as control, where there was no drug treatment. Group 2 was treated as standard, where 1mL of (2% Minoxidil ethanolic solution) was applied over the shaved area, once a day. The animals of remaining group were given application of polyherba formulation once a day. This treatment was continued for 30 days. During the course the hair growth pattern was observed qualitatively and recorded.^[15,16]

Evaluation of general characteristics.

Polyherbal oil green in colour with characteristic odour. From the significant quantitative changes shown by various hair oil, were further subjected for hair growth activity and results are shown in Table 4 and 5 respectively.^[12-13]

Qualitative observation of hair growth

Formulation	Number of Rats	Time taken to initiate the growth in d	Time taken for complete growth in d
Control (untreated)	6	11±0.64	24±1.07
Minoxidil (standard)	6	7±0.87	18±1.43
Polyherbal oil	6	9±0.76	19±1.69

Value are mean ± sem, n = 6

*P < 0.05, ** P < 0.01 and *** P < 0.001 significance versus control

Treatment	Percentage of Hair follicles		
	After 10 days	After 20 days	After 30 days
Control	73±0.6	82.4±0.8	88.6±1.4
standard	84±0.4	169.6±0.9	224.4±1.1
Polyherbal oil	85±0.8	142.1±0.2	202.3±1.3

Value are %mean ± SEM

All treatment were topical

**P < 0.05 considered significant

RESULT AND DISCUSSION

The results of hair growth promoting activity of polyherbal oil showed a significant result of test oil. Test Polyherbal oil showed significant Hair growth promoting activity. Hair growth initiation and completion time was significantly reduced upon treatment with herbal extracts. Hair growth initiation on 10th day test group reading (85±0.8) was then compared with control group (73±0.6) and almost equal to standard (84±0.4). On 20th day test group (142.1±0.2) was then compared with compared control group (82.4±0.8) and almost equal to standard (169.6±0.9). On 30th day test group (202.3±1.3) was then compared with compared control group (88.6±1.4) and almost equal to standard (202.3±1.3).

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