

Development and Evaluation of Herbo-Mineral Formulation for Alopecia

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Abstract :- The most common hair disorder is termed as alopecia which is frequently used to express the patterned loss of scalp hair in genetically vulnerable. Alopecia or hair loss usually occurs on the scalp; hair loss elsewhere on the body is less common and less conspicuous. Herbo-mineral cream is formulation indicated for alopecia after hair loss from scalp and from other part of body or entire part of body, baldness, hormonal imbalance and it contains the extract of *Withania somnifera*, *Emblica Officinalis*, *eclipta alba* and extract of *Glycyrrhiza glabra*, and along with zinc supplement (Yashad bhasma). Yashad (Jasad) Bhasma is an ayurvedic mineral-based and immuno-modulatory medicine.

Keywords:- Herbo-Mineral Cream , Alopecia, Hair Loss, Oil Phase, Aqueous Phase.

I. INTRODUCTION

Zinc is an essential, trace element. Both zinc deficiency of the element can lead to hair loss. Herbomineral cream is formulation indicated for alopecia after hair loss from scalp and from other part of body or entire part of body, baldness, hormonal imbalance. Zinc stabilize the cell membranes and helps to remove rapid oxidative radicals to promote the integrity of hair follicle cells. It is ayurvedic zinc supplement used in zinc deficiency.

The most common hair disorder is termed as alopecia which is frequently used to express the patterned loss of scalp hair in genetically vulnerable. Alopecia or hair loss usually occurs on the scalp or elsewhere on the body.

A. Types of Alopecia

➤ Alopecia Areata (Primary Stage)

Alopecia areata is a common autoimmune disease that results in the loss of hair on the scalp and elsewhere. It usually starts with one or more small, round, non-scarring smooth patches.

➤ Mild Transient Alopecia Areata

Patient with repeated transient alopecia areata but never converts into alopecia totalis or universalis.

➤ Transient Alopecia Areata

Patient with Alopecia areata in progressive phase and some of them converts into Alopecia totalis/Alopecia Universalis.

➤ Alopecia Totalis

Loss of hair from entire Scalp.

➤ Diffuse Alopecia

Excessive Loss of hair all over the scalp without creating a patch.

➤ Alopecia Universalis

Loss of hair from scalp and all parts of body including pubic hair.

II. HERBO-MINERAL CREAM

Herbo-mineral cream is formulation indicated for alopecia after hair loss from scalp and from other part of body or entire part of body, baldness, hormonal imbalance and it contains the extract of, *Withania somnifera*, *Emblica Officinalis*, *eclipta alba* and extract of *Glycyrrhiza glabra*, and along with zinc supplement(Yashad bhasma). Yashad (Jasad) Bhasma is an ayurvedic mineral-based and immuno-modulatory medicine. It is ayurvedic zinc supplement is used in zinc deficiency. The herbomineral drug is planned for zinc deficiency in all the age groups but mainly in elderly male and female.

A. Materials Used

All the plant required for formulation were collected from local market and from VMV college of Amravati.

Herb	Amla	Ashwagandha	Bhringraj	Licorice
Part used	Fruit	Root	Aerial part	Root

Table 1

The above herbs were authenticated by Dr. S. N. Malode, Head of Botany Department, Govt. Vidharbha Institute of Science and Humanities, Amravati, Vouchers Specimens and sample material was deposited in the Pharmacognosy and Phytochemistry Laboratory, Govt. college of Pharmacy Amravati. The collected materials were dried in shade for a week and pulverized into powder by a mechanical grinder. Extracted successively in soxhlet apparatus using petroleum ether, methanol respectively.

B. Preparation of Cream Base

➤ Preparation of Oil Phase

Cetyl alcohol, Bees wax, propyl paraben and Glyceryl monostearate were melted in a glass beaker. To this mixture glycerine, Liquid paraffin, were added and allowed to mix. The temperature of oil phase maintained between 65 – 70°C.

➤ Preparation of Aqueous Phase

Water was heated to 65 – 70°C. In this weighed Propyl paraben were added the temperature of the phase was maintained at 65 – 70°C. Extract is introduced into the aqueous phase just prior to addition into the oil phase.

Sr. No	Content	Use
1.	Glyceryl monostearate	Moistening agent
2.	Propylparaben	Preservative
3.	Cetyl alcohol	Emollient,emulsifier
4.	Liquid paraffin	Softening agent
5.	Glycerin	Moisturizing agent
6.	Extract of E.Alba	Eclalbosaponins
7.	Extract of E.Officinalis	Vitamin C
8.	Extract of W. Somnifera	Withanolide A
9.	Extract of G. Glabra	Active ingredient
10.	Yashadbhasma	Zinc containing metal
11.	Water	Additives

Table 2

C. Development of Cream Formulation

Oil portion was then slowly incorporated into the aqueous phase at 65-70°C with continued steering and mixed for 10 to 15 minutes. Then dispersion part was added into the above part slowly when temperature reaches to 40°C. pH of cream kept between 3.5 – 4.5.

D. Physical and Chemical Evaluation

The formulation was prepared and evaluated by using standard method of physical and chemical evaluation. The physical parameter includes Specific gravity, colour, pH, homogeneity consistency and saponification value.

Animals for the test were selected. Male rats of weight 200-250g were used to study the hair growth activity on them. These rats are placed in standard environmental condition. They were placed in cage at temperature 230 +100 C. The rats was fed with standard diet and allow the free access to drinking water for two days. After that the prepared formulation was then tested on these rats.

Sr. No	Parameter	FI	FII	FIII
1	Colour	Yellowish Green	Light green	Light green
2	pH	4.5	5	5
3	Homogeneity	++	+++	+++
4	Consistency(60sec)	5mm	5mm	5mm
5	Skin Irritation	NIL	NIL	NIL

Table 3:- Result of Physical Parameter

E. Hair Growth Activity Test

The rats are selected for hair growth study. The rats were divided into 3 groups. From each group 2cm area of dorsal portion of all the rats were shaved to remove all the hair. Group I was kept as control, to which no drug treatment was applied. Group II was treated as standard with 1ml of 2% Minoxidil ethanolic solution. The solution was applied on the shaved area of rats ones a day. The animals of Group III were treated with prepared cream formulation CF1, CF2, CF3. The cream formulation was applied to the shaved area of rats by dividing it in 3 portion. The treatment was continued for 30 days. During this time period the hair growth was observed on the rats.

III. RESULT

Primary skin irritation test was performed on rats. After application of this formulation on the skin of rats no irritation , odema was seen. The formulation passed the test for skin irritation. It shows that the prepared formulation was non-irritant and safe for use The hair growth activity test performed with prepared herbo-mineral cream shows the maximum hair growth occurs compairing with the standard and control group. From the observation to all the test shows that the herbo-mineral cream is safe and effective formulation to use in treatment of Alopecia.

IV. CONCLUSION

On the basis of findings of present study we may conclude that the developed herbomineral formulation of dried extract of *Emblica Officinalis*, *Withania somnifera*, *Eclipta alba*, *Glycyrrhiza glabra*, and *Yashad bhasma* better formulation for zinc deficiency by balancing hormonal imbalance and increases the rate of hair growth which help to curing alopecia, hair loss (baldness) and hair related problems. However further research is needed to study their activity clinically and to study their precise mechanism of action and efficacy on long term use as zinc supplement to rectify the zinc deficiency.

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