



## Formulation and Evaluation of Polyherbal Vanishing Cream Using Neem Extract.

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**ABSTRACT:** The traditional systems of medicine, evolved over centuries had been responsible for safeguarding healthcare of the world until the advent of allopathic system of medicine. As the latter system used knowledge of modern biology and chemistry, for both discovery and treatment, it found fast acceptability among the users and now it occupies predominant space in the area of health care. In spite of this, the contribution of the traditional preparations, which are normally polyherbal, is increasing because of the general impression that these products are safe; while the single-molecule based modern drugs used in, allopathic system can have severe adverse effects. The value of herbs in the cosmeceutical making has been extensively improved in personal care system and there is a great demand for the herbal cosmetics. Thus, we are using herbal cosmetics as much as possible. The word herbal is a symbol of safety in contrast to the synthetic one which has adverse effects on human health. This herbal vanishing cream consists of various crude drugs such as bud of clove (*Eugenia caryophyllus*, myrtaceae), leaves of tulsi (*Ocimum sanctum*, lamiaceae), fruits of nagarmotha (*Cyperus scariosus*, cyperaceae), fruits of nutmeg (*Myristica fragrans*, myristicaceae), jawas or linseed (*Linum usitatissimum*, linaceae), wheat grains (*Triticum aestivum*, gramineae), cereals of urid and harbhara, leaves of neem (*Azadirachta indica*, meliaceae).

**Keywords:** Traditional system of medicine, Herbs, Adverse effects, Vanishing cream, Safety, Cosmetics.

### I. INTRODUCTION

Now-a-days herbal extracts are used in the cosmetic preparations for augmenting beauty and attractiveness. Herbal cosmetics are classified on the basis of dosage form like- cream, powder, soaps, solutions, etc. and according to part or organ of the body to be applied for like; cosmetics for

skin, hair, nail, teeth and mouth etc. Creams are semisolid emulsions intended for application to the skin or mucous membrane. A low fat moisturizer that disappears into the skin is called as a vanishing cream. It softens skin, leaving nothing behind. Vanishing cream are o/w emulsion based preparations containing aqueous phase and oil phase. Depending on the proportion of water to grease, cream can be water miscible and washed away easily or be thick and sticky. It is perhaps the commonest prescribed topical medicament. As it is less oily, messy and sticky, most patients find it more user-friendly. The traditional systems of medicine, evolved over centuries had been responsible for safeguarding healthcare of the world until the advent of allopathic system of medicine. As the latter system used knowledge of modern biology and chemistry, for both discovery and treatment, it found fast acceptability among the users and now it occupies predominant space in the area of health care. In spite of this, the contribution of the traditional preparations, which are normally polyherbal, is increasing because of the general impression that these products are safe; while the single-molecule based modern drugs used in, allopathic system can have severe adverse effects. The skin is the body's first line of defense for external exposure. The signs of ageing are most visible in the skin. Although, ageing skin is not a threat to a person, it can have a detrimental effect on the psychology of a person. Much of the premature ageing occurs as a direct or indirect result of skin's interaction with the environment. Exposure to sunlight is a recognized as a major factor in the etiology of the progressive unwanted changes in the skin appearance. Photochemoprotective agents are capable of preventing the adverse effects of ultraviolet radiation on the skin, which are caused by excessive generation of reactive oxygen species.<sup>(1)</sup>

The cosmetic products are the best choice to reduce skin disorders such as skin aging, skin wrinkling, hyper pigmentation and rough skin

texture etc. The usage of synthetic products becomes very harmful from long time for the youth as well as our environment. Various synthetic compounds, chemicals, dye and their derivative proved to cause various skin diseases having numerous side effects. The value of herbs in the cosmeceutical making has been extensively improved in personal care system and there is a great demand for the herbal cosmetics. Thus, we are using herbal cosmetics as much as possible. The basic idea of skin care cosmetic lies deep in the Rigveda, Yajurveda, Ayurveda, Unani and Homeopathic system of medicine. These are the products in which herbs are used in crude or extract form. These herbs should have varieties of properties like antioxidant, anti-inflammatory, antiseptic, emollient, antiseborrhetic, antikerolytic activity and antibacterial etc. The word herbal is a symbol of safety in contrast to the synthetic one which has adverse effects on human health.<sup>(2,3)</sup>

Azadirachtaindica, commonly known as neem, nintree or Indian lilac is a tree in the mahogany family Meliaceae. It is one of two species in the genus Azadirachta, and is native to the Indian subcontinent. It is typically grown in tropical and semi-tropical regions. Neem trees also grow in islands located in the southern part of Iran. Its fruits and seeds are the source of neem oil. Neem fruit, seeds, leaves, stems, and bark contain diverse phytochemicals, some of which were first discovered in azadirachta seed extracts, such as azadirachtin established in the 1960s as an insect antifeedant, growth disruptor, and insecticide. In addition to azadirachtin and related limonoids, the seed oil contains glycerides, diverse polyphenols, nimbolide, triterpenes, and beta-sitosterol. The yellow, bitter oil has a garlic-like odor and contains about 2% of limonoid compounds. The leaves contain quercetin, catechins, carotenes and vitamin C.<sup>(4)</sup>

## II. MATERIALS AND METHODS:

Neem leaves were collected from local areas of villupuram. Extraction was done by using soxhlet apparatus and ethanol is used as a solvent for extraction process.

### PREPARATION OF POLYHERBAL NEEM EXTRACT:

Before the extraction the seeds get well cleaned manually all the leaves & dirt to be removed with blower air and heating of the seeds starts with hot air the temperature of the seeds

raises up to 55-60 °C so that the all the moisture can be removed. After the completion of the seed preparation steps, extraction of oil from grinded neem seeds carries. Extraction involved the use of soxhlet extractor (coupled with heating mantle) and extraction solvents. The solvent used in the extraction process is ethanol.<sup>(5)</sup>

### **Formulation of polyherbal vanishing cream:**

First the aqueous phase is prepared and then the oil phase was prepared. Finally, the aqueous phase and oil phase were mixed together to form vanishing cream. The composition of polyherbal vanishing cream was mentioned in Table No.1.

#### **PREPARATION OF OIL PHASE:**

17% stearic acid, 0.5% potassium hydroxide, and 0.5% sodium carbonate was mixed thoroughly into porcelain dish vigorously by melting at 70°C.

#### **PREPARATION OF AQUEOUS PHASE:**

4.5% of ethanolic extract of crude drugs, 6% glycerine and 71% of water were taken into another porcelain dish and heated at 70°C.

#### **ADDITION OF AQUEOUS PHASE TO OIL PHASE:**

The aqueous phase was mixed with the oil phase with constant stirring at 70°C. Once the transfer was done, it was cooled down to room temperature followed by the addition of 0.5 % perfume. The final product was then transferred to a suitable air-tight container.<sup>(6)</sup>

### **Evaluation of polyherbal vanishing cream:**

#### **Analysis of physical parameters:<sup>(7,8)</sup>**

##### **Determination of organoleptic properties:**

The appearance of the cream was judged by its colour, pearlscence and roughness and graded.

##### **DETERMINATION OF pH:**

Accurately weighed 5 g of the sample was dispersed in 45 ml. of water. The pH of the suspension was determined at 27°C using digital pH meter.

##### **DETERMINATION OF HOMOGENEITY:**

The formulation is tested for the homogeneity by visual appearance and by touch.

##### **DETERMINATION OF SPREAD ABILITY:**

Spread ability may be expressed by the extent of the area to which the topical application spreads when applied to the affected parts on the skin. The therapeutic efficiency of the formulation also depends upon its spreading value. Hence, it was found necessary to determine the spread ability of the formulation. For this purpose, Sample (about 3gm) was applied in between two glass slides and they were pressed together to obtain a film of uniform thickness by placing 1000 gm weight for 5

minutes. Thereafter a weight (10gm) was added to the pan and the top plate was subjected to pull with the help of string attached to the hook. The time in which the upper glass slide moves over the lower plate to cover a distance of 10 cm is noted. The spread ability (S) can be calculated using the formula.

$$S = m \times \frac{L}{T}$$

Where,

S – Spread ability

m- Weight tied to upper glass slide.

l- Length moved on a glass slide

t- Time taken.

The determinations were carried out in triplicate and the average of three readings was recorded.

#### **DETERMINATION OF WETNESS:**

It was determined by applying cream on skin surface of human volunteer.

#### **DETERMINATION OF TYPE OF SMEAR:**

It was determined by applying the cream on the skin surface of human volunteer. After application of cream, the type of film or smear formed on the skin were checked.

#### **DETERMINATION OF EMOLLIENCY:**

Emolliency, slipperiness and amount of residue left after the application of fixed amounts of cream was checked.

#### **DETERMINATION OF VISCOSITY:**

The viscosity determinations were carried out using a Brookfield Viscometer using spindle number S-64 at a 20 rpm at a temperature of 25°C. The determinations were carried out in triplicate and the average of three readings was recorded.

#### **SKIN IRRITANCY TEST:**

The study was performed after the approval of the Institutional Animal Ethics Committee for using the rabbit. A region of one square cm was shaved and marked on the thigh surface, and the prepared cream was applied to the predetermined region. Symptoms like irritation, redness, erythema, and oedema were checked for a time period up to 24 hours and reported.

#### **Determination of type of emulsion:**

##### **DILUTION TEST:**

In this test the emulsion is diluted either with oil or water. If the emulsion is o/w type and it is diluted with water, it will remain stable as water is the dispersion medium but if it is diluted with oil, the emulsion will break as oil and water are not

miscible with each other. Oil in water emulsion can easily be diluted with an aqueous solvent, whereas water in oil emulsion can be diluted with an oily liquid.

##### **DYE SOLUBILITY TEST:**

In this test an emulsion is mixed with a water soluble dye (amaranth) and observed under the microscope. If the continuous phase appears red, it means that the emulsion is o/w type as the water is in the external phase and the dye will dissolve in it to give colour. If the scattered globules appear red and continuous phase colourless, then it is w/o type. Similarly, if an oil soluble dye (Scarlet red C or Sudan III) is added to an emulsion and the continuous phase appears red, then it is w/o emulsion.

### **III. RESULTS AND DISCUSSION:**

#### **APPEARANCE:**

The cream prepared was found to be of a yellowish green colour and had pleasant odour.

#### **pH:**

The pH of the prepared Polyherbal vanishing cream was found to be in a range of 5.8 to 6.10, which is superior for every type of skin.

#### **HOMOGENEITY:**

It was found that the cream was homogeneous and smooth and consistent in nature.

#### **SPREAD ABILITY:**

It was found that the cream was easily spreadable and moisturizes the skin surface of human volunteer.

#### **TYPE OF SMEAR:**

It was found that the cream produced non-greasy film on the skin surface.

#### **EMOLLIENCY:**

After observation, it was found that cream not left residue on skin surface after application.

#### **VISCOSITY:**

The viscosity of the prepared Polyherbal vanishing cream was in the range of 1100-1800 cps. This proves that the prepared vanishing cream was easily spreadable by a small amount of shear.

#### **IRRITANCY TEST:**

The prepared Polyherbal vanishing cream was devoid of any symptoms of irritation, redness, inflammation, erythema and oedema as a result of skin irritancy studies. Hence, prepared Polyherbal vanishing cream formulation is safe and protected to use for skin.

#### **TYPE OF EMULSION:**

The type of emulsion was found to be **oil in water** type of emulsion.

The above evaluated parameters observations of prepared polyherbal vanishing cream were mentioned in Table No.2.

#### STABILITY STUDIES:

The stability studies observations of prepared polyherbal vanishing cream were mentioned in Table No.3.

#### IV. CONCLUSION:

The present work focuses on the potential of combining various herbal components to get a multipurpose effect on the skin for cosmetic purposes. The uses of cosmetics have been increased in the personal care system, and the bioactive ingredients in it influence the biological functions of skins. The natural herbs used in the preparation of polyherbal vanishing cream was previously reported to have anti-fungal, anti-microbial, anti-inflammatory, skin-soothing activities for which it retards aging signs and pimple formation reduces wrinkles and protects from sunlight.

The prepared formulation is devoid of any phase separation activity, showed good spread ability and consistency during the entire study period. Various parameters, such as visual appearance, nature, and fragrance of the formulations further elaborated that there was no significant variation during the study period. These studies suggest that the polyherbal composition of extract and base of vanishing cream are stable and safe without side effects due to the presence of many natural compounds. Further studies are required for verifying the synergistic potential of

selected scientifically Polyherbal vanishing cream formulation.

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TABLE 1: COMPOSITION OF POLYHERBAL VANISHING CREAM.

S.No	INGREDIENTS	QUANTITY (%)
1.	Polyherbal extract	4.5
2.	Stearic acid	17
3.	Glycerine	6
4.	Potassium hydroxide	0.5
5.	Sodium carbonate	0.5
6.	Water	71
7.	Perfume	0.5

**TABLE 2: EVALUATION PARAMETERS OF PREPARED POLYHERBAL VANISHING CREAM.**

S. NO.	PARAMETERS	OBSERVATION
1.	Colour	Pale yellow
2.	Odour	Characteristic
3.	Appearance	By visual Homogeneous By Touch Smooth and Consistent
4.	Viscosity	1100-1800 cp
5.	Ph	5.8 - 6.10
6.	Spread ability	13.7 (Good)
7.	Irritation test	No irritation, No redness, No oedema
8.	Type of emulsion	O/W type

**TABLE 3: STABILITY STUDIES OF PREPARED POLYHERBAL VANISHING CREAM.**

S.No	TIME INTERVAL	VISCOSITY	pH	PHYSICAL CHANGES
1.	0 <sup>th</sup> Day	1215	6.10	No change in colour and odour
2.	5 <sup>th</sup> Day	1217	6.0	No change in colour and odour
3.	10 <sup>th</sup> Day	1218	5.9	No change in colour and odour
4.	20 <sup>th</sup> Day	1218	5.8	No change in colour and odour
5.	30 <sup>th</sup> Day	1218	5.8	No change in colour and odour

TABLES:

**TABLE 1: COMPOSITION OF POLYHERBAL VANISHING CREAM.**

**TABLE 2: EVALUATION PARAMETERS OF PREPARED POLYHERBAL VANISHING CREAM.**

**TABLE 3: STABILITY STUDIES OF PREPARED POLYHERBAL VANISHING CREAM.**