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STUDY ON FORMULATION AND EVALUATION OF NOURISHING CREAM FROM LEMONGRASS EXTRACT

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Abstract:

Nourishing cream is a moisturizing cream to Nourish and Replenish your skin. It maximizes the skin's moisture level and makes it look soft, radiant, and smooth. It keeps your skin Nourished and Protected against dryness with a non-greasy and light effect so you can use for long duration. Nourishing cram gets quickly absorbed by the skin and suitable for all skin type especially for dry skin. Nourishing cream is a cosmetic preparation used for Protecting, Moisturizing, and Lubricating the skin. It is the complex mixture of chemical agents often occlusive help hold water in the skin after application, humectants attract moisture and Nourishment help to smooth the skin.The main aim of the work was to formulate and evaluate Nourishing cream of Cymbopogon citratus to analyze its Nourishing activity. Cymbopogon citratus was formulated and tested for Nourishing activity by topical application. Lemongrass is the medicinal plant which is richest source of bioactive compounds used in traditional and modern. The extracts were used in the formulation. After completion of formulations, it was evaluated for its physiochemical parameter like color, odor, PH, spreadability, consistency, solubility, washability, viscosity, the medicinal properties of Cymbopogon citratus since effective and easy which are used in formulation to form cream, ointment, and lotion.

Key words: Nourish, Lubricating, Protecting.

Introduction:

Herbal Formulations

According definition of WHO herb as being fresh or in dried, fragmented or in powdered from plant materials, which can be further used in formulations to become a final product.

Herbal products are plant derived materials and products with therapeutic activity and other health benefits. Herbal formulations are prepared by extracting active constituents from the biological source of herbal plants, herbal preparations are belief to be more potent as well as have very less side effect in compare to any other synthetic chemical preparation and it makes the reason for increase in demands for herbal preparation around

the world.[1]

Now a day's are developed and formulated in different dosage forms by the modern pharmaceutical companies and sod in the pharmaceutical market most widely for curing diseases and promoting human health around the world.[2]

Herbal Creams

Herbal creams are defined as semisolid preparation consists of emulsion type system, prepared usually for application to the skin, herbal creams are semisolid emulsion of oil and water, classified into two types O/W (oil in water) and W/O (water in oil).[3]

Herbal extracts are used in herbal cream preparation to protect skin, to enhance beauty and to cure diseases.[3]

Skin Physiology

Skin is considered to be the single largest organ of the human body, which combines the different many organs like mucosal linings of respiratory organ, digestive organs and urinogenital tract to form compact internal structure which separates it from external environment. Skin is the heaviest organ in the body which is multi-layered organ that is composed of many histological layers. Generally described in the form of main three layers – Epidermis layer, Dermis layer, and Hypodermis layer.[4]

1. **Epidermis**:

Epidermis is classified as the upper most part of the skin which is consist of epithelial cells and does not contain blood vessels; the function of the epidermis cells is to provide protection, homeostasis and absorption of nutrients to the skin.

2. **Dermis**:

Dermis is the intermediate layer of the skin between epidermis and hypodermis which composed of dense irregular connective tissues of collagen and elastin.

3. **Hypodermis:**

Hypodermis is the layer just after the dermis layer helps in connecting the skin to fibrous tissue, it is consisting of loose, areolar connective tissues and adipose tissue functions as insulator and as cushions to the integument.[4,5,6]

Plant description and chemical constituents

Lemongrass:

Figure 1: Lemongrass

Scientific Name: *Cymbopogon citratus*

Synonyms: Cochin grass, Malabar grass, Fever grass.

Family: Poaceae

Chemical Constituents: Neral, Isoneral, Geranial, Geraniol, Limonene, Citral, Citronellol, Citronellal, Elemol, Germacrene- D.

Bees Wax:

Figure 2: Bees Wax

Scientific Name: *Ceraalba*

Synonyms: Yellow wax

Family: Apidae

Chemical Constituents: Myricylpalmitate (80%), Free cerotic acid (15%), Melissic acid.

Castor oil:

Figure 3: Castor oil

Scientific Name: *Ricinus communis*

Synonyms: Ricinus oil

Family: Euphobiaceae

Chemical Constituents: Ricinoleic acid (89.5%), Linoleic acid (4.20%), Oleic acid (3.0%), Stearic acid (1.0%), Palmitic acid (1.0%).

Borax:

Figure 4: Borax

Scientific Name: Sodium tetraborate decahydrate

Synonyms: Sodium borate, Sodium pyroborate.

Chemical Constituents: Sodium borate, Sodium tetraborate.

Glycerin:

Figure 5: Glycerin

Scientific Name: Propane-1,2,3-triol.

Synonyms: Glycerol, glyceryl.

Chemical Constituents: Ethanol (2.8%), Water (9.3%), Diglycerides (1.0%).

Rose Water:

Figure 6: Rose Water

Scientific Name: *Rosa rubiginosa*

Synonyms: Attar of roses, Scented liquid.

Family: Rosaceae

Chemical Constituents: Linalool (1.5-3.3%), Nerol (0.2-4.2%), Geraniol (0.9-0.7%).

Vitamin E:

Figure 7: Vitamin E

Scientific Name: d-alpha-tocopherol

Synonyms: Alpha-tocopherol

Chemical Constituents: Alpha-tocopherol, Gamma-tocopherol.

Formula:

Sr.No	Ingredients	Quantity
1	Lemongrass extract	1.5ml
2	Bees wax	1.7gm
3	Castor oil	2.2ml
4	Borax	0.2gm
5	Glycerin	1ml
6	Rose water	2.4ml
7	Vitamin E	1ml

Table No. 1

Method of Preparation:

All required ingredients are weighed accurately and kept separately by using digital weighing balance.

For preparation of oil phase Bees wax was melted in castor oil by heating on water bath in beaker at temperature 70°C.

At the same time borax was dissolved in rose water with continuous stirring until borax get totally dissolved in another beaker at temperature 70°C and extract of Lemongrass was added in it.

After heating, the aqueous phase was added into the oil (W/O) with continuous stirring. Then add glycerin, vitamin E are added in formulation with stirring.

After cooling the cream formulation was added in the suitable container, evaluated and labelled properly.

Preparation of Oil Phase: For the preparation of oil phase, bees wax was melted in a castor oil in a beaker.

Preparation of Aqueous Phase: for preparation of aqueous phase, borax was dissolved in rose water by heating and then extract was added along with excipients.

Filling and Labelling: The formulation of Cream was filled in a suitable glass container and labelled it properly.

Evaluation:

Phytochemical screening:

Sr.No.	Test	Observation	Inference
1	Detection of Alkaloids	Yellow Precipitate was observed.	Alkaloid was confirmed.
2	Detection of Carbohydrate	Reddish colour was observed.	Carbohydrate was confirmed.
3	Detection of Terpenoid	Yellow color interfere.	Terpenoid was confirmed.
4	Detection of Saponin	Foam was observed.	Saponin was confirmed.
5	Detection of Phenol	Dark green colour was Observed.	Phenol was confirmed.
6	Detection of Quinones	Faint red color was observed.	Quinones was confirmed.

Table No. 2

Figure 8: Phytochemical Screening of Lemongrass

Physicochemical Evaluation:

PH of the Cream: The PH meter was calibrated using standard solution. About 0.5g of the cream was weighed and dissolved in 50 ml of water and its PH was measured. The PH of the Nourishing cream was to be 5.2

Homogeneity: The preparation was tested for homogeneity by visual appearance and touch. It found to be homogenous and uniform.

Type of Smear: After application of cream, the sort of film or smear formed on skin were checked and sort of the cream are not found on the skin.

Irritancy Test:

After application of cream on the skin, the irritation was not found due to cream.

Figure 8: Irritancy test

Washability: The formulation of cream was tested for wash out from skin surface after washed by water. They was found to be easily washed.

Figure 9: Washability

Spreadability: The cream sample was applied between two glass slides and was compressed between the two-glass slide and the ability of cream to spread on skin was checked. The following formula was used for calculation of spreadability, S=M×LT.The spreadability of formulated Nourishing cream was checked by applied on the skin and it is found to be easily spreadable.

Figure 10: Spreadability

Result:

In the presence study, the Nourishing cream of lemongrass (*Cymbopogon citratus*) was formulated, evaluated and submitted successfully by using various excipients. For development of Nourishing cream formulation batch was confirmed because better result was obtained in this batch and prepared emulsion is of water in oil (w/o) type of emulsion. The PH of the formulated cream was found to be in range 4.8 to 6.3 which is nice and recommended PH for the skin. The formulated nourishing cream was evaluated for several physiochemical tests and the result was shown. The sort of smear was not formed on the skin and it was not greasy after the application on the skin. The cream was got rid of after application by washing with water. The formulation was able to produce uniform distribution of extract within the cream. It may be present definite by visual inspection and by touch. The formulated nourishing cream easily spreadable with fingers without any roughness felt to touch. The smell of the cream was found to be pleasant. For prepared nourishing cream whitish color was found and evaluated. After application on skin, the cream shows activities such as nourishes the skin, purifies the skin, restore the moisture; prevent the skin form pigmentation and dryness.

Sr.No	**Parameter**	**Observation**
1	Color and Odor	Whitish and Pleasant
2	Consistency	Semi-solid
3	PH of the cream	5.2
4	Homogeneity	Homogeneous
5	Irritancy Test	No Skin Irritation
6	Washability	Easily Washable
7	Spredability	Easily Spreadable

Table No. 3

Conclusion:

Frequency of intake of allopathic drugs for the treatment results to produce adverse side effects. Recently, herbal remedies are considered as safe as synthetic one and herbal formulations are having growing demand in the global market. We have attempted the same and the evaluation parameter results showed that use of vitamin E in formulation prevent the oxidation of the cream. From above study we make conclude that, the extract of lemongrass contained valuable substances for cosmetics and antimicrobial activity. The extract of lemongrass shows nourishing activity when it was applied on the skin. We recommended that the formulated cream can be successfully used skin nourishment. Thus, this formulation was suitable for the treatment of skin inflammation and nourishes the skin and give advance appearance to the skin. In the present work, formulated herbal cream was physiochemical and microbiologically stable and possessed characteristics of a standard cosmeceutical's formulation for skin care.

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