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FORMULATION AND EVALUATION OF LATHER SHAVING CREAM BY USING MAHUA SEEDS EXTRACT

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ABSTRACT

The Shaving cream is a substance applied to the skin to facilitate removal of hair, it softens the beard and moistens the skin and the hair and it also lubricates the passage of razor over the skin, thus making shaving more comfortable and contributing to smoother skin. In the present investigation an attempt was made to prepare and evaluate lather shaving cream cromprising extracts of seeds of *Madhuka longifolia*. The lather shaving cream namely F1 to F4 were formulated from the extract of mahua seeds. The extraction was done by the Soxhlation process. Formulation of lather shaving cream was Successfully developed that met the relevant pharmaceutical characteristics. The prepared formulations are Then evaluated for parameters like physical properties, pH, viscosity, Spreadability and stability of the formulated cream. The prepared formulations showed good Spreadability, no evidence of phase separation and Good consistency during the study period. Stability parameters like visual appearance, nature, viscosity and pH of the formulations showed that there was no significant variation during the study period.

KEYWORD: Madhuka longifolia, Soxhlat apparatus, lather shaving cream.

1. INTRODUCTION

Madhuca is an important medicinal plant belonging to the Sapotaceae family. There are number of species of the tree such as M. indica, M. latifola, M. Longifolia and M. butyracea, etc.

Mahua oil is extracted from the seeds of mahua plant.

Madhuca longifolia is an Indian tropical tree found largely in the central, southern, north Indian plains and forests, Nepal, Myanmar and shrilanka.

It is commonly known as madhuka, madkam, mahuwa, butter tree, mahua, mahwa, iluppai, Mee or vippa chettu.
It belongs to the family Sapotaceae.

Fatty acid composition: palmitic acid (24.5%), Stearic acid (22.5%), Arachidic acid(1.5%), oleic acid (37%), linoleic acid (14.3%).

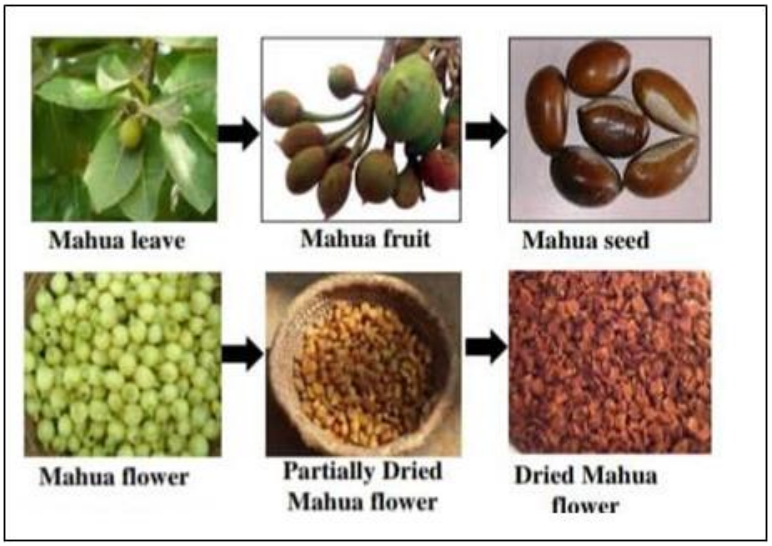

Fig no.: 1.

Properties

Properties	Description
Medicinal properties	Hepatoprotective, wound healing, antiburns, bone healing, emollient, Skin disease, rheumatism, headache, laxative, Antihaemorrhoid, Bronchitis, Anti-ulcer, Astringent, Tonsillitis, Swelling gum, Diabetes, Antisnake bite, increase milk production in lactating women, Diuretic.
Neutraceutical properties	Increase immunity, Facilitate digestion, antioxidant, Tonic, Energetic, Glucose booster**.**
Economical properties	In alcohol production, Jelly, Sweets, Ca ndy, Chocolate, jam, vegetables, Biodiesel, Fuel production, Oil production, Fertilizer, Animal food**.**

Properties

Sr.no.	Parts of plant	Chemical constituents	Medicinal properties
1	Leaves	Xanthophylls, Palmitic acid, Organic matter, Alkaloids, minerals, flavonoids.	Wound healing, antiburns, bone fracture, emollient, skin disease, rheumatism, headache.
2	Bark	Flavonoids, Triterpene, sterol	Ithing, Tonsillitis, fracture.
3	Seeds	Arachidic acid, Linoleic acid, oleic acid, myristic acid, Palmitic acid, stearic acid.	Potent emulsifier in cosmetics, itching, antiseptic, Astringent.
4	Fruit	Protein, carbohydrates, fat, minerals.	Bronchitis, Astringent, Anti-ulcer, acute & chronic tonsillitis, pharyngitis.
5	Flower	Thiamine, folic acid, vit.A, vit.C.	Sweet syrup, expectorant, increase milk production diuretic, anthe lmintic, hepatoprotective.

Physico-chemical attributes of Mahua seeds

Properties	Mean value
Fresh moisture content (% wet basis)	53
Kernel (%)	73.9-83.6
Husk (%)	16.4-26.1
Oil (%)	33-61
Protein (%)	16.9
Fibre (%)	3.2
Carbohydrate (%)	22
Ash (%)	3.4
Saponins (%)	2.5
Tannins (%)	0.5

Properties of seed oil

Properties	Value
Refractive index	1.452
Saponification value	187-197
Ioine value	55-70
Peroxidase value (meq/kg)	0.24
Unsaponifiable matter(%)	1-3
Specific gravity	0.915
Palmitic C 16:0 (%)	24.5
Stearic acid C 18:0 (%)	22.7
Oleic acid C18:0 (%)	37.0
Linoleic acid C18:2(%)	14.3
Total unsaturated	65.9
Total unsaturated	32.7

Lather shaving cream

- Shaving cream is applied to the skin to facilitate removal of hair. Shaving cream softens

and moistens the skin and the hair, thus making shaving more comfortable and contributing to smoother skin. Cutting process; swell keratin and desensitize skin.

- Shaving Cream achieve three effects: lubricate the oils, soaps or surfactants and water. Shaving cream that are in tubes are commonly used with a shaving brush to produce a rich lather.
- Shaving creams are applied prior to shaving to wet and soften the beard. The foam they produce helps to hold the hair erect for cutting. Brushless shaving creams provide lubrication of the beard and, by their consistency, hold the hair erect for shaving.
- Shaving cream preparations of the lathering type are basically soaps composed of sodium and potassium stearates, mixed with water and glycerol to give a creamy soft texture.
- Rushless shaving creams are essentially oil-in-water emulsions.
- They usually consist of mineral oil emulsified in water with a stearate
- Soap containing an excess of stearic acid. They are very similar in Composition to vanishing creams but usually contain more oil and more Emulsifying agent.
- With the growing production and usage of shaving creams in the Country it was considered necessary to formulate this standard speci-fication covering both the lather and brushless types of shaving creams. 0.4 No stipulations have been made in this standard regarding the Composition of shaving creams. However, it is necessary that the raw materials used are such that in the concentrations, in which they are likely to be present in the finished product, after interaction with the other raw materials used in the formulation, are free from any harmful effects. For determining the dermatological safety of a new formulation, or if a new raw material is used in an old formulation, reference may be made to IS: 4011-1967*. It shall be the responsibility of the manu- facturers of shaving cream to satisfy themselves of the dermatological safety of their formulation according to the standard before releasing the product for sale.
- Shaving creams should not segregate or physically deteriorate under normal conditions of storage and use.

Role of soap lather in shaving

- Hastened the process of hair softening by water.
- Do lubrication between the blade and the fiber that is about to be cut.
- Water reservoir for imbibitions of water by the hair.
- Abundant lather that does not dry on face.
- Not too cream per shave.

- Rapid and clean rinsing.
- Soft free from lumps.
- Compatible with razor blade and container.

Characteristics of good shaving product

The main characteristic features of shaving product are,

- To support the beard hair, to soften the Beard, and to lubricate the passage of the blade over the face.
- It should be capable to produce a rich copious lather.
- It should be non-irritant.
- It should exhibit good wetting properties.
- It should be soft, smooth and free from lumps.
- It should easily adhere to both face and brush.
- It should get easily removed from face and blade on rinsing.
- It should exhibit satisfactory consistency and texture, which should be maintained at Normal storage conditions.
- It should assist in removal of shaving debris.
- It should be stable over a range of temperature.

2. MATERIALS AND METHOD

➢ **Oil extraction using Soxhlet**

The fine oven dried kernel powder of seeds was made and used for extraction of oil .

The dried kernel powder packed in thimble and oil was extracted in petroleum ether (Thomas Baker, 60-80°C) for 6h using Soxhlet 8.

After the extraction solvent was apparatus removed in a rotary vacuum evaporate and the yield of oil was calculated from the dry weight of the seeds

The oil was stored in a glass vial and kept at 4°C for further use

Fig. No. 2: Stages of seed braking.

➢ **Basic ingredients of lather shaving cream**

The following are the main ingredients present in the formula of a shaving product:

1) Bases/Saponification agent

Triethanolamine, sodium hydroxide and potassium hydroxide are the example of saponification Agent, which saponify the fatty acids. Softer soap is produced by potassium hydroxide which could be easily loaded on Brush. Mono and diethanolamines are used occasionally because they may cause skin irritation. Triethanolamines soaps creates closer-knit foams than potassium soaps.

2) Mahua seeds extract

Mahua oil obtained from Madhuca longifolia is an potent emulsifier for formulating the lather shaving cream. Mahua Oil is extracted from the seeds of Mahua plant. This Ingredient possesses emollient, and hair fixing properties.

3) Fatty acids

Saturated long-chain fatty acids (12 to 18 carbon atoms) are key ingredients of soap. Lower-molecular weight fatty acid leads to skin irritation. To produce lather with different physical properties, the content of fatty acid is varied accordingly. Stearic acid is an example of fatty acid which is commonly used. If used in high content it gives a stiffer and more stable dense lather.

4) Emollient

These are the ingredients used as moisturizers to soften the skin. They are usually added to relive skin dryness, wrinkling, irritation and scaling of the skin. An example of emollient is

glycerine.

5) Humectants

Glycerine, sorbitol and propylene glycol are polyols which are commonly added to shaving preparations, which renders skin softer. The level of these agents is about 2-3% in preparation.

These agent acts as moisturiser and lubricant. They also help in reducing the tendency of foam to dry out on the face.

6) Preservatives

Methyl paraben and propyl paraben are used as preservatives in lather shaving cream to preserve the cream for long period of time.

7) Perfume

Soap compatible perfumes are generally used in order to avoid any deterioration in the final Product. The level of perfume to be used in the preparation ranges between 0.15 -0.65%. Rose oil is used as perfume.

➢ **PROCEDURE FOR FORMULATION OF CREAM**

- Melt half of the stearic acid with the mahua seed extract over water bath at 80-85°C.
- Dissolve the alkalies in water and add into it by stirring for 40 minute.
- Add the remaining portion of melted stearic acid and glycerin with stirring to form a ceamy paste.
- Heat the remaining quantity of water to about 45 °C and add quickly to the cream with continuous stirring.
- Add the required quantity of preservative and perfume, stir so as to mix thoroughly.

➢ **Formulation**

Ingredients	F1	F2	F3	F4
Stearic acid	22 gm	25gm	27gm	30gm
Seeds Extract	7.0gm	8.0gm	9.0gm	10gm
KOH	4.5gm	5.0gm	6.0gm	7.0gm

Fig. No. 3.

Triethanolamine	**2.0gm**	**2.0gm**	**2.0gm**	**2.0gm**
Glycerine	10gm	10gm	10gm	10gm
Water	q.s	q.s	q.s	q.s
Preservatives & Perfume	q.s	q.s	q.s	q.s

Fig. No.: 4.

3. Evaluation of lather shaving cream

Physical Evaluation

- Colour
- Odour
- Texture

Other Tests

- pH
- Viscosity
- Spread ability
- Thermal stability
- Lathering power

➢ **pH**

The pH meter was calibrated with the help of standard buffer solution. weighed 5 gm of cream in a 100 ml beaker. Added 45 ml of water and disperse the cream in it. Determine the pH of the suspension at 27° C using the pH meter.

➢ **Viscosity**

Viscosity of cream was done by using brook field viscometer at a temperature of 25 ℃ and 2.5 rpm. (Spindle No.64).

➢ **Spread Ability**

The spread ability is express in terms of time in seconds take by two slides to slip off from the cream, placed in between the slides, under certain load. Lesser the time taken for separation of the two slides better the spread ability.

➢ **Lathering(foaming) power**

- About 5 g of the shaving cream was weighed accurately in a 100 – ml glass beaker, 10 ml of water was added, the beaker covered with a watch – glass and allow to stand for 30 minutes. This operation is carried out to disperse the shaving cream.
- Stir the contents of the beaker with a glass rod and transfer the slurry to the 250 – ml graduated cylinder, ensuring that no lather (more than 2ml) is produced and no lumpy paste goes into the cylinder.
- As soon as the temperature of the contents of the cylinder reaches 30°C, stopper the cylinder and give it 12 complete shakes, each shake comprising movements in a vertical plane, upside down and vice versa. After the 12 shakes have been given, allow the cylinder to stand still for 5 minutes and read the volumes of : (a) lather (foam) plus water (V,ml), and (b) water only (V_2 ml).

∴ Foam stability = lathering power, ml= V1-V2

Where,

V1= volume in ml of lather plus water , and V2= volume in ml of water only

➢ **Thermal stability**

With the help of spatula, the cream was inserted into glass bottle and tap it to settle to the bottom. Then two third capacity of bottle was filled and placed inside the humidity chamber at 45°C for 48 hrs.

4. RESULT AND DISCUSSION

Physical properties of cream

Parameters	F1	F2	F3	F4
Colour	White	White	White	White
Odour	Characteristics	Characteristics	Characteristics	Characteristics
Texture	Smooth	Smooth	Smooth	Smooth

1) pH

F1

F2

F3

F4

pH

Sr.no.	Formulation	pH
1	F1	8.21
2	F2	8.39
3	F3	8.90
4	F4	8.84

2) Viscosity

Sr.no.	Formulation	Viscosity (Cps)	rpm
1	F1	14360	2.5
2	F2	15727	2.5
3	F3	14927	2.5
4	F4	18054	2.5

3) Spreadability

F1.

F2.

F3.

F4.

Sr.no.	Formulation	Time (sec)
1	F1	15
2	F2	12
3	F3	12.45
4	F4	11.42

4) Lathering power

Formulations	V1	V2	Foaming Power
F1	12.2ml	9ml	3.2ml
F2	14ml	8.4ml	5.6ml
F3	12.7ml	8ml	4.7ml
F4	10ml	8ml	2ml

5) Thermal stability

Sr.no.	Formulation	Phase separation
1	F1	No Phase separation
2	F2	Phase separation
3	F3	Phase separation
4	F4	No Phase separation

5. CONCLUSION

It is concluded that from experimental data of formulation F1,F2, F3 and F4, The Formulation F4 of lather shaving cream was successfully developed that met the relevant pharmaceutical characteristics.

The prepared formulation showed good physico-chemical characteristics.

From the present study it can be concluded that it is possible to develop Lather Shaving creams containing Mahua seed oil extracts.

For shaving creams tubes, jar, bottle are the commonly used containers. Shaving products can be evaluated For PH, viscosity, spreadability, Thermal stability and lather (foam) Stability.

6. REFERENCES

1. Shaik Rasheed, A. Soumya, S.y. Manjunath. Formulation and evaluation of herbal cream extracts of Murraya Koenegii and cajanus cajan., 2020; 58-63, ISSN: 2582-1997.
2. Mishra Sunita, Padhan Sarojini. Madhuka longifolia (Sapotaceae): A Review of its Traditional uses and Nutritional properties, May 2013; 2(5): 30-36, ISSN:2319-7722.
3. Pragati Khare, Kamal Kishore, Dinesh Kumar Sharma. Medicinal uses, phytochemistry and pharmacological profile of Madhuka longifolia, 2018; 4(5): 570-581.
4. Ujwala N Mahajan, Debarshi Kar Mahapatra, Nilesh M. Mahajan, Fahimuddin S Kazi, Nupoor Baghel. Exploring the role of Mahua Oil as Potent emulsifier in cream for-mulations. IJHM, 2017; 5(3): 93-97.
5. Mohamed Fawzy Ramadan, Asel Abdelrazek Abdelazim Mohdaly, Adel M. A. Assiri, Monier Tadros, Bernd Niemeyer. Functional characteristics, nutritional value and industrial applications of Madhuka longifolia seeds: an overview, May 2016; 53(5): 2149-2157.
6. Jyoti sinha, vinti singh, Jyotsana singh, Rai AK. Phytochemistry, Uses and Ethnomedical Future prospects. Of Mahua (Madhuca longifolia) as a Food: A Review. J Nutr Food sci., 2017; 7: 1.
7. F.M. sahu, S.H. Suthar, H.G. Suthar, S. Jena. Mahua seed- a multipurpose Tree borne oilseeds (TBOs) of India., 2022; 9(11): 536-547. ISSN: 2394-1227.
8. Vikram Jadhav, Dhananjay Tambe, Sainath sonwane, Basad Taha. A Review on cosmetics science preparation and evaluation of shaving cream., 2022; 10. ISSN:2320-2882.
9. Y. c. suryawanshi and D.N. Mokat. GCMS and elemental analysis of Madhuka longifolia Var. Latifolia seeds. IJPSR, 2019; 10(2): 786-789.
10. Farhan J. Ahmad, Javed Ali, Sanjula Baboota, Kamla pathak, shaving products and after shave preparations, 2016.
11. Sk. Uddandle saheb, Aduri Prakash Reddy, K. Rajitha, B. Sravani, B. Vanitha.

Formulation and Evaluation of cream from naturally containing plant extracts, 7(5): 851-862. ISSN: 2278-4357.

12. Bureau of Indian Standards, Skin-Cream specifications (Seconds Revision), IS 2004; 6608.
13. Bureau of Indian Standards, Shaving-Cream specification, IS 9740: 1941.
14. Bhavana patil, Neha Yadav, Gopal Yadav, Shrikesh Yadav, Smita Takarkhede. Formulation & evaluation of multipurpose Herbal cream, 9; JETIR march 2022; ISSN 2349-5162.
15. https://journals.innovareacademics.in/index.php/ijcpr/article/view/38300/22576.