

Formulation and Evaluation of Herbal Cold Cream

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Abstract: Cold Cream was first invented by Galen a famous Greek physician pharmacist in the Roman Empire of First century AD. Cold Cream is an emulsion of water and fat used cosmetically for softening and cleansing the skin. To formulate and evaluate cold cream from natural ingredients such as Borax, Neem oil, Rose water, Honey, Aloe vera, Coconut oil etc. Cream was prepared by using Natural Ingredients which have not side effect on skin. Borax eradicate skin bacteria and remove dead skin cells and excess oil, Beeswax that helps the oil penetrate the skin, Neem oil is used to treat dry skin and wrinkles, Rose water is used as favoring agent, Honey helps in keeping moisturizing skin, Aloevera is used to keep skin soft, Coconut oil to reduce itchiness. Cream was formulated and evaluated by different evaluation parameters such as pH, viscosity, separability physical appearance and irritancy test. Stability testing for prepared formulation was performed by stirring it at different temperature condition for time period 24th for 1 week. To know parameters like odour, pH, smoothness of lotion.

Keywords: Cold Cream

I. INTRODUCTION

The cosmetics word derived from Greek 'kosmeticos' which means to adorn. Cosmetics are products used to beautify skins to purify the skin. The cosmetics, according to the drug and cosmetics act is defined as articles intended to be rubbed, poured, sprinkled or sprayed on, introduced into or otherwise applied to the human body or part there for cleaning beautifying, promoting, attractions or altering the appearance. Cosmetics products used extensively throughout world for maintaining general appearance of face and other body parts. Eg. Skin, eyes, hair, hand etc. herbal cosmetics are preparation which represent cosmetics associated with active bio- ingredients, nutraceuticals and pharmaceutical.

Cold cream is mainly used for skin treatment (such as a facial mask or lip balm), due to its moisturizing properties. It can also be used to and remove makeup as cream. When shaving the temperature drops down, cold and windy weather cream which is generally enriched with vitamin E, natural oils such as jojoba and olive oil, rose petals and various fruit extracts particularly grape seed, protect the face skin from getting dry and provide a glow, softness and fairness. It, therefore becomes necessary for the consumers to keep a face cream in winter cosmetic kitty. Winter care creams are suitable for the three types of weather cream which is generally enriched with vitamin E, natural oils such as jojoba and olive oil, rose petals and various fruit extracts particularly grape seed, protect the face skin from getting dry and provide a glow, softness and fairness. It, therefore becomes necessary for the consumers to keep a face cream in winter cosmetic kitty. Winter care creams are suitable for the three types of face skins, i.e. normal, oily and dry. Many winter care face creams are designed to reduce the signs of peeling and repair fragile face skin due to winter dryness. The strong moisturizing formula in face cream also fulfils the therapeutic purpose of consumers during winters.



Fig.no. 1



What Is Cold Cream...?

Cold cream is an emulsion of water and certain fats, usually including beeswax and various scent agents, designed to smooth skin and remove makeup. Cold cream is an emulsion of water in a larger amount of oil, unlike the oil in water emulsion of vanishing cream, so-called because it seems to disappear when applied on skin. The name "cold cream" derives from the cooling feeling that the cream leaves on the skin. Variations of the product have been used for nearly 2000 years.

Cold cream is an emulsion in which the proportion of fatty and oily material predominates, although when it is applied to the skin a cooling effect is produced due to slow evaporation of the water contained in the emulsion. Cold cream is an example of a Water-in-oil (W/O) emulsion.

In cold cream, the major portion is the oil phase. Simply, the cold cream is an oil-based semisolid preparation. Cold cream is also known as Unguentum or Ceratum Refrigerans. Generally, it contains mineral oil, beeswax, borax, and water. It is a soothing and cleansing cosmetic typically of oily and heavy consistency, used to soothe and cleanse the skin. It can be classified as a form of cleansing cream.

Cold cream is mainly used for skin treatment (such as a facial mask or lip balm), due to its moisturizing properties. It can also be used to remove makeup and as shaving cream.

Ideal Properties of Cold Cream: -

- It should liquefy at body temperature Spread easily on the skin.
- Pleasant in appearance.
- It should be non-toxic.
- It should be non-irritant.
- It should be non-inflammatory.

Advantages Of Cold Cream: -

- Helps to reduce injury scars from the skin.
- Helps individuals to reduce marks.
- It also reduces blemishes from the skin.
- The cream reduces under eye dark circles.
- Acne may be reduced by use.

Use Of Cold Cream: -

- Typically used to cleanse the face off makeup Heavily moisturises dry skin.
- Can also be used as a balm. for dry cracked lips.
- it can also be used as a shaving cream alternative for men.
- this is an herbal formulation that reduce dryness, itchiness, and skin irritation boosting skin hydration.
- using this cream daily can help improve the texture and appearance of the skin.

Aim of the study

Formulation and evaluation of herbal cold cream.

Objective

To formulate and evaluate of herbal cold cream Herbal Cold cream forms a protective barrier on your skin that prevents moisture loss and keeps your skin hydrated and moisturised in winter. It can also make your skin feel more textured. Cold creams with herbal extracts have a cooling and soothing effect because the water in the emulsion slowly evaporates.

LITERATURE REVIEW

1. Mukherjee, P. K. et al.(2002). Quality control of herbal drugs: an approach to evaluation of botanicals.



2. Uddandusaheb", AduriPrakash Reddy, K. Rajitha, B. Sravani, B. Vanitha, et al. (2018). Formulation and Evaluation of Cream from containing plant extracts, World Journal of Pharmacy and Pharmaceutical Sciences, 7(5):851
3. R. Patel, H. U. Momin, R.1.. Dhamal, K, L. Mohite, et al. (2017), Prepara preparation and evaluation of multipurpose herbal cream Adv Pharm Life sei Rex:5(1):27-32.
4. Himaja, N. et al.(2017). Formulation and Evaluation of Herbal Cream from Azadirachtaindica Ethanolic Extract 14 Journals: Int J Res Drug Pharm Sci. 1(1). 23-6.
5. B.S. Kalpesh K. Mehta, Anshu Gupta et al.(2016). Dispensing Pharmacy & Practical Manual (p.p. 389-399).Pharma Med Press.
6. N. Shah. 8.M.Methal ,et al. (2006) A Handbook of Cosmetic. VallabhPrakashan
7. 7. Saraf, S. & Kuir C D ,et al. (2012) formulations. Pharmacognosy reviews.
8. K.Kokane A.P.Purohit, S.B.Gokhale ,et al. (2014) Textbook of Pharmacognosy. NiraliPrakashan 50th edition, p.p. 9.1 & 14.132,
9. S. Khadabadi, SL. Deore, B.A. Baviskar,et al. (2014). Pharmacognosy and Phytochemistry. A Comprehensive Approach, published by PharmaMed Press, Ist edition, p.p.8.4.
10. Panda, H, et al. (2000). Herbal Cosmetics Hand Book. National Institute of Industrial Re Karekar, P., & Yadav, A. V. (2015). Formulation and evaluation of multipurpose herbal cream.
11. Mali. A. S., et al.(2012) International Journal of Science and Research, International Journal of Science and Research, 4(11), 1495- 1498.
12. Susan C. Wivell,et al.(1996) Clear cold cream cosmetic compositions, United States Patent.
13. Remington, Joseph P, and Paul Beringer,et al.(2005) The Science and Practice of Pharmacy. 21" edition. Philadelphia: Lippincott Williams & Wilkia.
14. Poucher, W A. and George M. Howard,et al.(1974) Perfumes, Cosmetics, and Soaps. London: Chapman and Hall.
15. R. Patel, H. U.Momin, R.L.. Dhumal, K. L. Mohite, et al.(2017), Prepara preparation and evaluation of multipurpose herbal cream, Adv Pharm Life sci Res:5(1):27-32.
16. Prasanna A. Datar. et al.(2013) Formulation and evaluation. of polyherbal gel prepare using Carbopol 934 for treating skin disease in comparison with ointment using emulsifying ointment, Research and Reviews: Journal of Pharmaceutics and Nanotechnology, 1(1): 20-21.
17. Uddandu Saheb. Aduri Prakash Reddy, K. Rajitha, B. Sravani, B. Vanitha, et al. (2018). Formulation and Evaluation of Cream from containing plant extracts, World Journal of Pharmacy and Pharmaceutical Sciences, 7(5):851-862.

PLAN OF WORK

- Review of literature
- Selection of Drug
- Preparation of Herbal Cold Cream



- Evaluation of Herbal Cold Cream
- Results and Discussions

ROLE OF INGREDIENTS

BORAX



Fig.no. 2

Borax is used in cosmetic industry to prevent bacterial growth. It is also used to eradicate skin bacteria and remove dead skin cells. emulsifier created by the chemical reaction made the oil and water parts of cold cream less likely to Separate on standing borax were So cold creams made with borax were more stable.

ALMOND OIL



Fig.no. 3

Sweet almond oil contains many nutrients that are good for the skin, including vitamins, minerals, fatty acids, and antioxidants. Using almond oil may help soothe and hydrate your skin and hair. Some people also use almond oil to reduce the appearance of scars, stretch marks, and wrinkles and to treat skin conditions.

HONEY



Fig.no.4



Honey is used in a number of winter face Packs contains honey as an ingredient due to the viscous golden liquid's ability to moisturise the skin effectively.

Honey will not only remedy dry skin but will also prevent dryness during winters.

ALOE VERA



Fig.no.5

Ayur herbals cream with Aloe Vera is a rich concentration of natural lubricants makes a dense layer of moisture the epidermis'shence reduces the rate of water loss from the skin. This mechanism in return prevents ageing.

COCONUT OIL



Fig.no.6

Nature has a number of ointments which are capable of healing body from within and without and coconut oil best of them.

- Help to moisturize the skin.
- Minimizes look of fine lines-
- Protects skin against environmental stressors.



ROSE WATER



Fig.no.7

You can use it directly or mix rose water in your cold cream. Add extra dose of miniaturisation to the skin. It gives healthy glow to the skin. Good for boosting hydration.

Beeswax



Fig.no.8

Beeswax is a product made from the honeycomb of the honeybee and other bees. Beeswax can create a protective layer on the skin. It's also a humectant, which means that it attracts water. Both of these qualities can help the skin stay hydrated. Beeswax is also a natural exfoliator, ideal for sloughing away dead skin cells.

- Moisturizes skin
- Clear Acne Heal dry skin
- Reduces stretch marks
- Anti-inflammatory
- Protects liver.

Described us an emulsion based on Beeswax as emulsifier and thickener. Borax bees wax are used as an emulsifying agent.



DISCRIPTION OF THE INGREDIENT

Sr. No	Drug Name	Synonyms	Biological Source	Family	Uses
1	Coconut Oil	Cocos Nucifera	Coconut oil is the oil expressed from the dried solid part of endosperm of coconut, Cocos nucifera L., belonging to family Palmae.	Areaceae (palm family)	It has a moisturizing effect when applied to the skin.
2	Almond Oil	Prunus Amygdalus Dulcis (Sweet Almond) Oil.	Almond oil is obtained from almond (Prunus amygdalus) nuts,	Rose family (Rosaceae)	Sweet almond oil contains many nutrients that are good for the skin, including vitamins, minerals, fatty acids, and antioxidants.
3	Honey	Sweet	Honey is a natural product formed from nectar of flowers by honeybees	Apidae	honey is used in the treatment of eye diseases, bronchial asthma, throat infections, tuberculosis, thirst, hiccups, fatigue, dizziness, hepatitis.
4	Rose Water	Rose Floral Water	It is a volatile oil obtained by distillation of the fresh flowers of R. damascena.	Rosaceae	Fights Infections. Rose water is an antibacterial. This means that it fights off bacteria that could lead to infections.
5	Aloe Vera	Aloe indica Royle, Aloe perfoliata L.	The biological source of aloe is dried latex of leaves of it.	Asphodelaceae (Liliaceae)	Aloe vera has been traditionally used to treat skin injuries (burns, cuts, insect bites, and eczemas) and digestive problems because its anti-inflammatory, antimicrobial, and wound healing properties
6	Beeswax	Cera Alba	Beeswax is a naturally occurring wax produced in the bee's hives by honeybees A	Apidae	Beeswax is an incredibly versatile substance — it can be mixed into solutions to create a host of medical, cosmetic and home care products, made into candles, eaten, melted and molded into ornaments and used as a sealant.



Method of preparation Extraction processes

Aloe Vera gel

Mature, healthy and fresh aloe Vera leaves were collected and washed with distilled water. Then after proper drying of leaves, the outer part of the leaf was dissected using a sterile knife. Then the aloe Vera gel that is the colorless parenchymatous tissue was removed using the sterile knife. Then it is filtered to remove the fibers and impurities. Then the filtrate or the filter product which is a clear aloe Vera gel was used in the preparation.



Fig.no.9

Formulation Table

Sr.no	Ingredients	Quantity
1	Borax	0.10g
2	Coconut oil	2.0ml
3	Almond oil	51g
4	honey	3 spoon
5	Rose water	2 to
6	Aloe Vera	2 spoon
7	Beeswax	20 gm

Table No.1

Method: -

Preparation can be done by adding natural ingredient

- (1) Melt beeswax in a china dish on hot plate. To this, coconut oil and almond oil is added and heated on a hot plate at 70°C.
- (2) Then in second beaker, borax was dissolved and heated along with rose water on a hot plate at 70°C.
- (3) Both the oily and aqueous phases are heated at the same temperature 70°C and Now borax solution is added gradually to the melted beeswax solution, drop by drop with constant stirring.
- (4) It was stirred continuously until it cools down and a semi solid mass was obtained.
- (5) We can also use honey and aloe Vera in it in small amount. Because natural ingredients are more profitable to skin as a excipient.

EVALUATION OF HERBAL COLD CREAM

a) Color

All the formulated gel-creams were tested for color by visual inspection. They were checked against white background.

b) Odor

The odor of all formulated gel-creams was checked by mixing the gel-cream in water.



c) Consistency

The consistency was checked by applying on skin.

d) Greasiness

The greasiness was assessed by the application on the skin.

e) Water washability

All the formulations were applied on the skin the ease and extent of washing with water were checked manually.

f) Irritancy test

Mark an area on left hand dorsal substance upto (1) Sq cm). The cream was applied to the specified area And time was noted. Irritancy way checked if any up to 24 hrs For regular intervals.

g) Spreadability test

Spread ability is ability of a cream to Spread on Skin. The spread ability was expressed in terms of time in seconds taken 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. Two sets of glass slides of standard dimension were taken. Then one slide of suitable dimension was taken and the cream formulation was placed on that slide. Then other slide was placed on the top of the formulation. Then a weight or certain load was placed on the upper slide so that the cream between the two slides was pressed uniformly to form a thin layer. Then the weight was removed and excess of formulation adhering to the slides was scrapped off. The upper slide was allowed to slip off freely by the force of weight tied to it. The time taken by the upper slide to slip off was noted.

Spread ability = $mx I/t$

m = Standard weight which is ti tied to or placed over the upper slide (30g) l = length of glass slide (5cm)

t = time taken in seconds.

h) Viscosity

Viscosity of the cream was determined with the help of Brookfield viscometer at 100 rpm with the spindle no.

I pH determination

The pH meter was calibrated with the help of standard buffer solution. Weigh 0.5 gm of cream dissolved it in 50.0ml of distilled water and its p H was measured with the help of digital pH meter.

j) Homogeneity test

Homogeneity was tested via the visual appearance and test.

k) Dye test

The scarlet red dye is mixed with the cream. Place a drop of the cream on a microscopic slide then covers it with a cover slip, and examines it under a microscope. If the disperse globules appear red the ground Colourless. The cream is o/w type. The reverse condition occurs in w/o type cream i.e. the disperse globules appear Colourless.

l) Test for microbial growth

Agar media was prepared then the formulated cream was inoculated on the plate's agar media by steak plate method and a controlled is prepared by omitting the cream. The plates were placed in the incubator and are incubated in 37 C for 24 hours. After the incubation period, the plates were taken out and the microbial growth were checked and compared with the control.



Phase separation

Prepared cream was kept in a closed container at a temperature of 25-100 °C away from light. Then phase separation was checked for 24 h.

Sr.no	Formulation	Phase separation
1	A	No phase separation
2	B	No phase separation
3	C	No phase separation

Direction of use

Cold Cream



1 Apply gently to skin.



2 Wipe with wet washcloth.



3 Rinse if desired.

After cleansing apply the cream over hand & body.

Give gentle upward strokes when applying on face & neck.



Precautions

Avoid contact with product gets into eyes, rinse thoroughly with water. If eyes.

Storage: -

- store in a cool and dry place.
- prevent it from direct sunlight.
- for external use only.
- do not freeze in freezer.
- store in a well closed container at a temperature not exceeds 25°C.

Labeling information

1. The label information should contain:
2. Manufacture and expiration date
3. Conditions under which the it should be stored,
4. Where applicable,
5. Name of any added antimicrobial preservative.

RESULT

The preparation was pale Yellow in color and pleasant odour and smooth texture.

Physical appearance

Sr.No	Parameter	Evaluation
1	Colour	Pale Yellow
2	Odour	Pleasant
3	Texture	smooth

Table no. 3

ORGANOLEPTIC PROPERTIES OF HERBAL COLD CREAM

Washability: The cream applied on skin was easily removed by washing with tap water.

pH of the cream: The pH of the cream was found to be in range of 5.6 to 6.8 which is good for skin pH. The herbal formulation was shown pH nearer to skin required i.e pH 6.8.

Viscosity: Viscosity of formulated cream was determined by brook field viscometer at 20 rpm using spindle no. LV-4(64). The viscosity of cream was in the range of 499990 to 30000cp which indicates that the cream is easily spreadable by small amount of shear. The formulated cream shows the viscosity within range i.e. 48890cp.

Spread ability test: The spread ability test showed that the formulated cream has good spreadable property.

Irritancy test: The formulated cream shows no redness, edema, irritation and inflammation during studies. The formulated cream is safe to use.

Test for microbial growth: There was no signs of microbial growth after 24 hrs. of incubation at 37°C and it was comparable with the control.

Homogeneity: The homogeneity of the formulated cream was judged by the visual appearance and touch. The appearance and touch of the cream were good.

Dye test: The scarlet red dye is mixed with the cream. Place a drop of the cream on a microscopic slide covers it with a cover slip, and examines it under a microscope. The disperse globules appears colorless in the red ground i.e. w/o type cream.



II. CONCLUSION

By using Honey, Aloe Vera, coconut oil cream showed a multipurpose effect and all these herbal ingredients showed significant different activities.

Based on results and discussion it can be safely used on skin. From the above results it is concluded that the formulated cream showed good consistency and spread ability, homogeneity, pH, non-greasy and there is no phase separation during study period of research. From the above study it can be concluded that the polyherbal cold cream is safe to use as it is developed from herbal extract. Natural remedies are more acceptable in the belief that they are safer with fewer side effects than the synthetic ones. So, the values of herbs in the cosmeceutical has been extensively improved in personal care system and there is a great demand for the herbal cosmetics nowadays. An herbal cream which is non-toxic, safe, effective and improves patient compliance by the utilization of herbal extracts would be highly acceptable than synthetic ones.

REFERENCES

1. N. Shah, B.M.Methal, (2006) A Handbook of Cosmetic, VallabhPrakashan.
2. Saraf, S., & Kaur, C. D. (2010). Phytoconstituents as photoprotective novel cosmetic formulations. *Pharmacognosy reviews*, 4(7), 1.
3. B.S., Kalpesh K. Mehta, Anshu Gupta (2016). *Dispensing Pharmacy A Practical Manual* (p.p. 389-399). Pharma MedPress.
4. K.Kokate,A.P.Purohit, S.B.Gokhale (2014) *Textbook of Pharmacognosy*. NiraliPrakashan 50th edition, p.p. 9.1 & 14.132.
5. S. Khadabadi, S.L. Deore, B.A. Baviskar. (2014), *Pharmacognosy and Phytochemistry, A Comprehensive Approach*, published by Pharma Med Press, 1st edition, p.p.8.4
6. Panda, H. (2000). *Herbal Cosmetics Hand Book*. National Institute of Industrial Re.
7. Mali, A. S., Karekar, P., & Yadav, A. V. (2015). Formulation and evaluation of multipurpose herbal cream. *International Journal of Science and Research*, 4(11), 1495-1498.
8. Prasanna A. Datar. (2013) Formulation and evaluation of polyherbal gel prepare using Carbopol 934 for treating skin disease in comparison with ointment using emulsifying ointment, *Research and Reviews: Journal of Pharmaceutics and Nanotechnology*, 1(1): 20-21.
9. UddanduSaheb*, Aduri Prakash Reddy, K. Rajitha, B. Sravani, B. Vanitha,(2018). Formulation and Evaluation of Cream from containing plant extracts, *World Journal of Pharmacy and Pharmaceutical Sciences*, 7(5):851-862.
10. R. Patel, H. U.Momin, R.L. Dhumal, K. L. Mohite, (2017), Prepara preparation and evaluation of multipurpose herbal cream, *Adv Pharm Life sci Res*;5(1):27-32.
11. Himaja, N. (2017). Formulation and Evaluation of Herbal Cream from AzadirachtaindicaEthanollic Extract. *Journals: Int J ResDrug Pharm Sci*, 1(1), 23-6.
12. Mukherjee, P. K. (2002). Quality control of herbal drugs: an approach to evaluation of botanicals. *Business Horizons*.
13. N. Shah, B.M.Methal, (2006) A Handbook of Cosmetic, VallabhPrakashan.
14. Saraf, S., & Kaur, C. D. (2010). Phytoconstituents as photoprotective novel cosmetic formulations. *Pharmacognosy reviews*,4(7), 1.
15. B.S., Kalpesh K. Mehta, Anshu Gupta (2016). *Dispensing Pharmacy A Pract Manual* (p.p. 389-399).
16. Shah RN, Methal BM. A Hand book of Cosmetics Page No.1
17. Myers D, *Surfactant Science and Technology*, VCH Publishers: 1992, Pp. 209-247
18. Remington, Joseph P, and Paul Beringer. Remington: The Science and Practice of Pharmacy. 21st edition. Philadelphia: Lippincott Williams & Wilkins; 2005.
19. Davinder Kumar, Gajendra Rajora, Om Parkash, Himanshu, Mamta Antil, Virender Kumar, et al. An overview, *International Journal of Advanced Scientific Research* 2016;1(4):36-41
20. S. Vikas & Company- Medical Publishers, 29, 30, 31.



22. Tejswini Devidas Navgire, Madhuri Baburao Pawar Formulation And Evaluation Of Cream Volume 9, Issue 9 September 2021 | ISSN: 2320-2882
23. Abhay Prakash Mishra, Sarla Saklani, Luigi Milella, Priyanka Tiwari. Formulation valuation of herbal antioxidant face cream of Nardostachys jatamansi collected from Indian Himalayan region: published by Asian Pacific Journal of tropical biomedicine 2016;3(21):113
24. N. Shah, B.M.Methal, (2006) A Handbook of Cosmetic, Vallabh Prakashan.
25. Saraf, S., & Kaur, C. D. (2010). Phytoconstituents as photoprotective novel cosmetic formulations. Pharmacognosy reviews, 4(7), 1.
26. B.S., Kalpesh K. Mehta, Anshu Gupta (2016). Dispensing Pharmacy A Practical Manual (p.p. 389-399).
27. Shah RN, Methal BM, A Hand book of Cosmetics Page No.1
28. Myers D, Surfactant Science and Technology, VCH Publishers: 1992, Pp. 209 - 247
29. Susan C. Wivell, Clear cold cream cosmetic compositions, United States Patent. 1996.
30. Remington, Joseph P, and Paul Beringer. Remington: The Science and Practice of Pharmacy. 21" edition. Philadelphia: Lippincott Williams & Wilkins; 2005.
31. Poucher, W A. and George M. Howard. Perfumes, Cosmetics, and Soaps. London: Chapman and Hall, 1974.
32. British Pharmacopoeia Commission. Pharmacopoeia 2021. London: TSO. British
33. The United States pharmacopoeia The National formulary. Rockville, Md.: United States Pharmacopoeial Convention, Inc. (USP 21-NF 16)
34. Lachman, Lieberman, H.A. and Kanig, J.L... The Theory and Practice of Industrial Pharmacy, Lea and Febiger, New York, 15th edition; 2013.
35. Prasanna A. Datar. (2013) Formulation and evaluation. of polyherbal gel prepare using Carbopol 934 for treating skin disease in comparison with ointment using emulsifying ointment, Research and Reviews: Journal of Pharmaceutics and Nanotechnology, 1(1): 20-21.
36. Uddandu Saheb. Aduri Prakash Reddy, K. Rajitha, B. Sravani, B. Vanitha, (2018). Formulation and Evaluation of Cream from containing plant extracts, World Journal of Pharmacy and Pharmaceutical Sciences, 7(5):851-862.
37. R. Patel, H. U.Momin, R.L.. Dhupal, K. L. Mohite, (2017), Prepara preparation and evaluation of multipurpose herbal cream, Adv Pharm Life sci Res:5(1):27-32.
38. Jansen LH. Hojyo-Tomoko MT, Kligman AM. Improved fluorescence staining technique for estimating turnover of the human stratum corneum. Br J Dermatol. 1974;90:9-12.
39. Akash S. Mali. Karekar P. Dr. Yadav AV, Formulation and Evaluation of Multipurpose Hertsal Cream, International Journal of Science and Research (USR) Volume 4 Issue 11, November 2015.
40. N. Shah, B.M
41. Akhtar N. Khan BA. Khan MS, Mahmood T. Khan HMS, Iqbal M and Bashir S. Formulation Development and Moisturizing Effects of a Topical Cream of Aloe vera Extract, World Academy of Science, Engineering and Technology 75 2011.
42. Sai Lakshmi Jyothirmal Kala and SupriyaPalaparthi, FORMULATION AND INVITRO EVALUATION OF POLY HERBAL ANTI AGING FACE CREAM. World Journal of Pharmaceutical Research Volume.
43. Sujith S Nair, Molly Mathew and Sreena K. Formulation and Evaluation of Herbal Cream containing Curcuma longa, International Journal Of Pharmachetical And Chemical Sciences Vol. 1 (4) Oct-Dec 2012

