



INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

“Formulation and Evaluation of Herbal Lipstick”

Miss. Kolekar Aparna Sandipan

Dr. HINGANE L.D.

M.Pharma, Ph.D (Pharmacology)

Principal and HOD Pharmacology

APC. Beed

ADITYA PHARMACY COLLEGE, BEED 431122

• INTRODUCTION •

Cosmetics are the substances to enhance or protect the beauty of the human body dates back to vedic and puranic period. Earlier human race of tribal era used animal parts, vegetable leaves, flowers, color stones, shells, etc. to adorn their bodies. As per FD&C Act cosmetics are defined as "articles intended to be rubbed, poured, sprinkled, or sprayed on, introduced into, or otherwise applied to the human body for cleansing, beautifying, promoting attractiveness, or altering the appearance." Cosmetic include skin care, creams, lotions, powders, perfumes, lipsticks, finger nail polishes, eye and facial makeup, hair colors, deodorants, baby products, bath oils, and many other types of products. It does not include soap.

Cosmeceuticals are cosmetic pharmaceutical products intended to improve the health and beauty of the skin by improve the health and beauty of the skin by providing a specific result, ranging from acne-control and anti-wrinkle effects, to sun protection. The concept discovered by Dr. Albert Klingman states that the Cosmeceuticals are topical agents that are distributed across broad spectrum of materials, laying somewhere between pure cosmetics (lipstick and rouge) and pure drug (antibiotics, corticosteroids). Cosmeceuticals, are the combination of biologically active ingredients which have medicinal or drug-like benefits and cosmetics which helps for beautification of the skin. Cosmeceuticals are topical formulation containing active ingredients that affects the biological function of the skin. External factors like air pollution, exposure to radiation from the sun and normal process of

aging causes damages to integral components of skin like DNA, collagen and cellular membranes. Most of Cosmeceuticals uses vitamin, herbs, various oils and botanical extract. Desirable features of cosmeceutical agents are efficacy, safety, formulation stability and novelty.

Cosmetic have become an integral part of every woman`s life. Herbal cosmetics are products which are formulated using various permissible cosmetic ingredients in which one or more herbal ingredients are used to provide distinct cosmetic benefits^[1-4]. They are also called as herbal cosmetics. Herbal cosmetics are the latest trend in the filed of beauty and fashion. The herbal cosmetics industry is experiencing a rising graph for its market and products which are being sold the world over.

Cosmetics with natural ingredients are believed to be safer than chemical-based cosmetics; in addition, natural cosmetics have the ability to protect the skin from ultra violet rays^[1-2]. One of the widely used cosmetics nowadays is lip color in the form of crayon or better known as lipsticks^[3]-which can also serve as both natural and chemical.

Recently there has been revival of the growing interest on the application of non-toxic and eco-friendly natural dyes on natural fibres due to worldwide environmental consciousness.

Coloring lips in an ancient practice date back to prehistoric period. Now-a-days the use of herbal product has increased and choice of shades of color, textures, luster, have been changed and become wider. This can observed from the facts that lipstick is marketed in hundred of sheds of colors to satisfy latest demand of the women. The dyes that contribute to the color of the lipstick are very harmful to humans on consumption. Coal tars are the basic ingredients form which synthetic dyes are formed can cause allergy, nausea, dermatitis, and drying of the lips.

In recent times lipstick has been under the scanner of many health watchers. Lipsticks are often eaten away by the user, and hence are imperative that health regulators have a microscopic look at the ingredients that go into the lipstick. Due to various adverse effects of available synthetic preparation, the present work was conceived by us to formulate an herbal lipstick having minimal or no side effects, which will extensively use by the women of our communities with great surety and satisfaction^[4-7]. Lipsticks are the cosmetic product containing pigments, oils, waxes, and emollients that apply color, texture, and protection to the lipsticks. Many colors and types of lipsticks exist. As with most other types of makeup, lipsticks are typically but not exclusively worn by women. Some lipsticks are also used as lip balms, to add color along with hydration properties^[8-9].

The herbs used in cosmetic preparation have varieties of properties like antioxidant, anti-inflammatory, antiseptic, and antibacterial. These herbal products claim to have no side effects that are commonly seen with products containing synthetic agents. The literature in Ayurveda, especially Charaka Samitha, stated numerous medicinal plants^[10-13]. Among the popular functional natural ingredients, several antioxidants used in cosmetics are scientifically proven to offer additional benefits in supporting skin texture appearance and tone. The ideal characteristics of lipsticks are that it should be non-irritating and non-toxic, should be stable both physically and chemically, should be free from gritty particles, should maintain lip color for a more prolonged period after its application^[14].

KEYWORDS: Natural ingredients, Herbal lipstick, Formulation and Evaluation.

AIM AND SCOPE OF PRESENT WORK:

The present work was designed on basis of different approaches of guided study on herbal lipstick. The list of ingredients was made. Then the literature review was done. The materials were collected and method of preparation was studied and the identification tests for coloring matter was performed of various herbal lipsticks were formulated. The prepared formulations were evaluated for various properties and results were tabulated.

OBJECTIVES:

- Herbal colours are non-toxic, highly lipophilic, antioxidant and anti-microbial anti-inflammatory and are used in leucoderma more particularly of lips.
- Colorant has different original shades of colours from purplish red, ruby red, beetroot purple, dark violet, pastel red, pale red, purplish red, rose red, deep majenta, dark purple, orange, deep violet.
- From these colours, by different combinations, further shades can be obtained.
- Colour may be changed to different shades with organic and inorganic acids and bases.

Herbal Lipstick:

Rational of the present study was to formulate the lipstick formulation for treatment of fungal lips infection such as angular cheilitis. Formulation prepared by using natural antifungal agent and coloring agent such as curcumin and pomegranate arils extract. Curcumin having yellow color and pomegranate arils extract having faint pink color, hence, combination of both gives dark color formulation. It gives moisturizer effect on lips and these possibly reduce side effects & cost of lipstick. The aim of the work was to formulate and evaluate a herbal lipstick containing natural antifungal natural agent (Curcumin) To evaluate the lipstick for various parameters. To minimize adverse effects, drug interaction and increased patient compliance. Lipstick formulations are most widely used to enhance the beauty of lips and to add glamour touch to the makeup. Lipsticks are cosmetic formulations for the modification or accentuation of lip color and are prepared by molding a dispersion of colors in a waxy base, in the form of stick/crayon. Any preparations used in beauty treatments for lip make-up also known as sticks or more commonly known in beauty treatments by the name of lipsticks. When these preparations contain herbal ingredients, they are also known as herbal lipsticks.

Different Lip Problems:

Lip problems include lip dryness, cracking, pain, numbness, sores and swelling. There are many causes of lip symptoms; they range from mild to serious. The duration and course of lip symptoms vary widely, depending on the cause. Lip Problems occurs as a result of injury, such as biting lips, burning them with hot food. Even a common infection can cause lip symptoms. Diseases or conditions that affect the nerves and muscles, including nerve damage or neuropathy, can be associated with symptoms that involve the lips. Lip symptoms may also be the result of cold and dry weather, infection, nutritional deficiencies, or medication side effects. Suitable drug candidates for medicated lipsticks are locally acting on the lips, soothing, anti-irritant agent, skin protectant, keratolytic agent, steroids, antibiotics, and anti-inflammatory agent.

TABLE NO : 1 PLAN OF WORK

SR.NO	MONTH	WORK
1	December 2019	
2	January 2020	
3	January 2020	
4	February 2020	
5	Februry 2020	
6	March 2020	
7	March 2020	

LITERATURE SURVEY:

Meher Dipali , et.al.(2011)

Herbal cosmetics have growing demand in the world market and are an individual gift of nature. There are a wide range satisfy your beauty regime, adding herbal in cosmetics is very safe for skin. Human being have been herbs for different purpose like food, medicine, beautifying with advancement of science and technology use of natural things including plant has been reduced except for food, vegetarian takes plants and plants only. However there is resurgence of use of herbs both of drug and cosmetics.

Pooja Mishra et.al(2012)

Colouring lips in an ancient practice date back to prehistoric period. In present day's the use of product has increased and choice of Shades of colour, texture , lustrous , have been changed and become wider. This can be observed from facts that lipstick is marked in 100 shades of colour to satisfy the demands for the women. Which will be extensively use by women of communities with grate surety and satisfaction.

Rautela Sunil et.al(2013)

Cosmetics include skin-care creams, lotions, powder, perfume, lipstick, fingernail, eye and facial makeup. Permanent waves, coloured contact lenses,

hair colour , hair spray and gels, deodorant , baby product are in great demand in both developing and developed countries. The presen investigating was done to formulate herbal lipstick, since lipstick are one of the key cosmetics to be used by the women. Due to various adverse effect of available **synthetic preparation on** the present work was conceived by us to formulate lipstick having minimal or side effect

Swati Deshmukh et.al (2013)

Now a day's, in the whole world there is turn to return towards the use of herbal products and to adopt more natural way of life. People prefer natural food, herbal cosmetics, medicine and natural curing practice for healthy life, there is much craze for the vegetable products cultivated organic forming without using synthetic fertilizer and pesticides. The use of herbal cosmetics has been increased to many folds in personal care system and there

is a grate demands for the herbal cosmetics. Natural products have been used for folk medicine purposes throughout the world for thousands of years.

Farida Hayati, et.al.(2016)

Cosmetics with natural ingredients are believed to be safe than chemical based cosmetics; in additional, natural cosmetics have the ability to protect the skin from ultra-violet rays. One of the widely used cosmetics nowadays is lip colour in the form of better known as lipstick, which can also serves as both natural and chemical . The development of natural cosmetics ingredients must be accompanied by effort to improve the quality of raw materials use in extract.

MATERIAL AND METHOD :

EXCIPIENT PROFILE :

WAXES :

The function of waxes are to give structure to the lipsticks and it solid, even in warm climates. Glossy and hardness of lipstick aer largely depend on the characteristics and quantity of the waxes used.

BEES WAX :

A useful material to bind oils and higher melting point waxes. Higher concentration give a dull waxy appearance and cause the stick to crumble during use bees wax the traditionl stiffing agent for lipstick and extensively used. Melting point of 62-64 degree celcius. It is used as only wax the lipstick will lack gloss and will tend to drug on application. Bees wax is the substance that forms the structure of a honeycomb. These wax convert nector into wax, building honeycomb to store their honey. Ten pounds of honey product are pound of wax. It has a honey –like aroma and can be distillated into fragrance.



COCONUT OIL :

Used cosmetically or topically in general, Coconut oil can penetrate the skin easily, due to the small size of its molecules, which are almost as small as essential oil molecules and which allows essential oils to be readily absorbed into the skin when combined with Coconut oil. Without clogging pores, coconut oil offers excellent emollience to dry, itchy skin and hair, remaining suitable for sensitive, inflamed and irritated skin. In providing hydration, it creates a protective barrier on the skin's surface, locking in moisture to soften, lubricate and cool skin such as those affected by the discomforts of condition like Athlete's foot, psoriasis, and warts. It effectively soothes sunburn and blisters, remove dead skin, and promotes the growth of newer, healthier skin for a glowing complexion.

moisture to soften, lubricate and cool skin such as those affected by the discomforts of condition like Athlete's foot, psoriasis, and warts. It effectively soothes sunburn and blisters, remove dead skin, and promotes the growth of newer, healthier skin for a glowing complexion.



Olive oil :

Olive oil is cracked ,dry , chapped lips are regular part of life for many people , especially during dry weather. Many drugstores have a whole aisle devoted to different types of lip balm , ranging from medicated brands to specialty balms made with organic ingredients.

Although a store-bought lip balm might have a terrific scent and come packaged in a cute little container , you could also try using ingredients you already have at your house , such as olive oil , to keep your lips soft and supple. Olive oil might make you think more of pizza and roasted garlic than a lip balm , but it's an excellent moisturizer and is a popular ingredient in many skin conditioning products.



Castor oil :

It also might be good to know that , chances are , you're already using it. Castor oil is commonly added to shampoo , moisturizer , lipstick , the Balm Dotcom , you name it –to provide genital hydration without adverse reaction . (Castor oil is not known to cause allergic reactions and deemed safe by the International journal of Toxicology.)

In pure , bottle form it's thick , cough syrup-like , and perfect to smear on lips and cuticles as an all-natural solution for anything chapped. It's also said to promote hair growth, and as such , I've been using a little on my brows daily.



Cocoa powder :

Few things are worse than dry , cracked lips. Not only are they unsightly , craxed lips can be exceedingly painful as well as – especially during the winter months when the weather is harsh. If you find yourself facing in a wide –range of skincare products , may be your ticket to smooth , soft lips.

Because lips lack the protective outer layer and oil glands the rest of our skin has , they're more susceptible to the elements. Cold , wind and dry air all wreak havoc on lips 'thin skin. Cocoa powder , a rich fat derived

from the same beans as chocolate , helps alleviate this problem.The emollient properties of cocoa powder act as a protective barrier by supplying and retaining moisture in the lips and skin.Cocoa powder also contains antioxidant vitamins A,C and E, which can help slow the signs of aging. Pamper your pucker with a cocoa powder lip balm daily to keep lips well-moisturized and soft no matter what mother nature has in store.



Vanilla essence :

Vanilla is a flavoring derived from orchids of the genus *Vanilla* , primarily from the Mexican species , flat – leaved vanilla (*V.planifolia*). The word vanilla , derived from vanilla , the diminutive of the Spanish word vaina , is translated simply as “little pod”.

Pollination is required to get the vanilla fruit from which the flavoring is derived. The method proved financially unworkable and was not deployed commercially

Rose essence :

Rose oil is the essential oil extracted from the petals of various types of rose. Rose otto is extracted through steam distillation, while rose

absolute are obtained through solvent extraction, the absolute being used more commonly in perfumery. Even with their high price & the advent of organic synthesis, rose oils are still perhaps the most widely used essential oil in perfumery.

The key flavor compounds that contribute to the distinctive scent of rose oil, however, are beta-damascenone, beta-damascone, beta-ionone & rose oxide. Beta-damascenone's presence & quantity is considered as the marker for the quality of rose oil.



Lemon juice :

Soft & pink lips are something we all desire. Not only does it improve your appearance, but also is a sign that your lips are healthy. Chapped lips are unsightly and can cause bleeding in severe cases. Chapped or dark pigmented lips are a concern to many, but with simple remedies, you can easily lighten your lips, make them soft and pink.



Cocoa :

This is the raw bean that comes from the Theobroma Cacao tree. It's actually in a large pod with a hard outer shell. Inside the pod , each bean is surrounded by a mushy , sticky ,fleshy white substance. This pure form of chocolate is actually quite bitter & is definitely different from taste of a candy bar

SYNONYMS : Amber, Bay, Buff, Bister.

BOTANICAL NAME : Theobroma cacao

KINGDOM: Plantae

CLADE: Rosids

GENIOUS: Theobroma

ORDER : Malvales

FAMILY: Malvaceae

SPECIES : T. cacao



TABLE 2 : Excipients of lipstick

SR.NO	NAME OF INGREDIENTS	NAME OF SUPPLIER
1	Bees Wax	College lab
2	Coconut oil	College lab
3	Olive oil	College lab
4	Castor oil	College lab
5	Cocoa powder	Purchasing & prepared in college lab
6	Vanilla essence	Purchasing & prepared in college lab
7	Rose essence	College lab
8	Lemon juice	Purchasing & prepared in college lab

A. Formulation of Herbal Lipstick

1. The herbal lipstick was formulated as per general method of lipstick formulation.
2. In this formulation, white bees wax, butter, coconut oil, olive oil, were melted in porcelain dish on water bath with decreasing order of their melting point.
3. Edible coloring matter like Cinnamon bark powder, turmeric powder, cocoa powder mixed with Castor oil and heated. Both phases were mixed at same temperature.
4. Vanilla & rose essence and lemon juice were added at 35°C. Then mixture was poured into lipstick mould in excess amount and mould was kept on ice bath.

5. After solidification surplus amount was scrapped with blade. Lipsticks were removed from mould and flamed.

6. Prepared Lipsticks were fitted in Lipstick container and used for further evaluation.

7. Composition and importance of different ingredients used for preparation of herbal lipstick



Fig: Lipstick Formulated and evaluated in practical lab

Formulation of Herbal Lipstick

The herbal lipstick was formulated as per method described. The ingredients of lipstick are :

- Coconut oil
- Bees wax
- Olive oil
- Castor oil
- Cocoa powder
- Vanilla essence

- Rose essence
- Lemon juice

Composition & Importance Of Different Ingredients Used For Preparation Of Herbal Lipstick

SR.NO	INGREDIENTS	QUANTITY TAKEN	IMPORTANCE OF INGREDIENT
1	Bees Wax	1gm	Hard Wax(Hardness)
2	Coconut oil	1.5ml	Hard Wax(Hardness)
3	Olive oil	1ml	Soft Wax(Glossy)
4	Castor oil	1ml	Blending agent
5	Cocoa powder	2 gm	Coloring agent
6	Vanilla essence	5-6 drops	Flavoring agent
7	Rose essence	3 drops	Flavoring agent
8	Lemon juice	2 ml	Anti-oxidant

Colour pest was prepared by using olive oil and Cocoa powder color. All the waxes like a bees wax were arranged in the increasing order of their melting point. Waxes were melted and the color pests along with the were added in the method melted wax melting point. After lowering the temperature perfume were added in the mixture. This molten mass was poured in prelubricated mold and kept in the refrigerator for 15 minutes lipstick were removed from the moulds and fixed in to container

EVALUATION OF HERBAL LIPSTICK :

It is very essential to maintain uniform standard for herbal lipstick, keeping these view in mind the herbal lipstick was evaluated on the parameter such as melting point, breaking point force of application surface anomalies etc.

MELTING POINT:

Determination of melting point is important as it is unindication of the limit of safe storage. The melting point formulated lipstick was determine by capillary tube method, the capillary was filled and keep in the capillary apparatus and firstly observed the product was slowly slowly milted. After some time observed product was completely melted. The above procedure was done in 3 times and melting point ratio was observed in all formulation

BREAKING POINT:

Breaking point was done to determine the strength of lipstick. The lipstick was held horizontally in a socket inch away from the edge of support. The weight was gradually increased by a specific value (10gm) at specific interval of 30 second and weight at which breaks was considered as the breaking point.

FORCE OF APPLICATION:

It is for comparative measurement of the force to be applied for application. A piece of coarse brown paper kept on shadow graph balance and lipstick was applied at 45°C angle to cover a 1 sq. Inch area until fully covered. The pressure reading is an indication of force of application.

SURFACE ANOMALIES:

This was studied for the surface defects, such as no formation crystals on surface, no contamination by molds, fungi etc.

AGING STABILITY:

The product was stored in 40°C for 1 hrs. Various parameters such as bleeding, crystallization of on surface and ease of application were observed.

SKIN IRRITATION TEST:

It is carried out by applying product on the skin for 10 mi.

PERFUME STABILITY:

The formulation herbal lipstick was tested after 30 days, to record fragrance



Result :**TABLE 3: Evaluation of Herbal Lipstick**

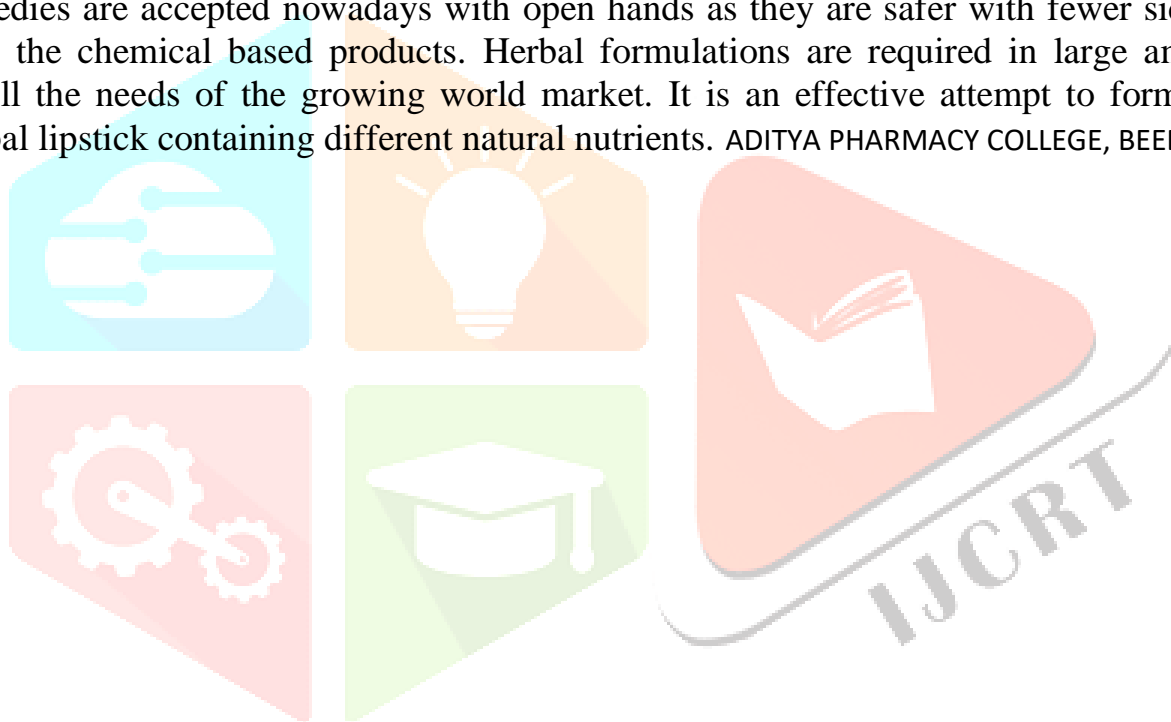
SR.NO	PARAMETER	F-1	F-2	F-3
1	COLOR	FAINT BROWN	FAINT BROWN	DARK BROWN
2	PH	6.3	6.6	6.4
3	SKIN IRRITATION TEST	NO	NO	NO
4	MELTING POINT	60-64	60-64	60-66
5	BREAKING POINT	27gm	30gm	27gm
6	FORCE APPLICATION	EASY	EASY	GOOD
7	PERFUME STABILITY	++	+++	+++
8	SURFACE ANOMALIES	NO DEFECTS	NO DEFECTS	NO DEFECTS
9	AGING STABILITY	SMOOTH	SMOOTH	SMOOTH
10	SOLUBILITY TEST	CHLOROFORM	CHLOROFORM	CHLOROFORM

Discussion:

The present work formulation and evaluation of herbal lipstick was aimed to formulate a lipstick using herbal ingredients with a hope to minimize the side effects as produced by the available synthetic ones. Herbal lipstick has been tremendous boost in use of cosmetic by women. It also help the medicinal that softening, reduce inflammation, moisturizing the lip.

Conclusion:

An herbal lipstick is used to rejuvenate the lips muscles maintain the elasticity of the skin, remove adhered dirt particles and improve the blood circulation. The benefits of Herbal based cosmetics are their nontoxic nature. It nourishes the lip skin. This lipstick supplies vital nourishment to the lip. It helps in the elimination of wrinkles, cracking, dryness and folds on lips. Lipstick exfoliates little and provides a soothing, calming and cooling effect on the lip. They restore the natural shine of lip in the optimum time period. Frequent Uses of natural lip improve lip texture and Attractive color. Pollution and harsh climates badly affect the lip and these effects can be countered by the regular usage of Herbal lipstick. They help to retain the elasticity of lip cells, thereby controlling premature aging of the lips. Wrinkles, Fine lines, can be effectively controlled by using natural lips. In this work, we found excellent properties of the herbal lipstick and further studies are needed to be performed to ascertain more useful benefits of herbal lipstick as cosmetics. Natural remedies are accepted nowadays with open hands as they are safer with fewer side effects than the chemical based products. Herbal formulations are required in large amounts to fulfill the needs of the growing world market. It is an effective attempt to formulate the herbal lipstick containing different natural nutrients. ADITYA PHARMACY COLLEGE, BEED



REFERENCES :

- [1] Bharat, V., et.al, , Formulation and evaluation of a herbal lipstick, Int.J. Of Drugdiscovery herbal Research, 2011; 1(1): 18-19.
- [2] .Benett, W. et.al, Cosmetic formulary, Edn-II, Chemical publishing company, NewYork, 1983: 90-100.
- [3] .Nadkarni A.K. Indian Materia Medica, 3rd ed, vol. II. Popular Prakashan, Mumbai..1975.
- [4] .Sharma P.P. Cosmetics- formulation and Quality Control, 3rd ed. Vandana Publication. 2005:35-54.
- [5] . Jain S.K. & Sharma N.K. A Text Book of Pharmaceutics. Vallabh Prakashan. 2005;127-72.
- [6] . Mittal B.M. and Saha R.N. Handbook of Cosmetics 1st Ed. A Vallabh Prakashan. 2003:132-56
- [7]. Kaul, S., Dwivedi,S. et.al. Indigenous ayurvedic knowledge of some species in the treatment of Human disease and disorders, Int. J. of Pharmacy & Life sciences,2010; 1(1): 44-49
- [8]. Kokate CK, Purohit AP, Gokhale SB. Textbook of Pharmacognosy. 49th ed. Pune: Nirali Prakashan 2014.
- [9]. Tadimalla TR. 23 benefits of chickpea flour/gram flour/besan for skin, hair & health, Available from <http://www.stylecraze.com/articles/benefits-of-besangram-flour-for-skin-and-hair/#gref>. cited 19 June 2017.
- [10] Sinha NK. Beauty And Skin Benefits Of Milk Powder: Milk Powder Home Made Facial Mask Recipes, available from <http://nutankumarisinha.expertscolumn.com/article/10-beauty-and-skin-benefits-milk-powder-milk-powder-home-made-facial-mask-r>. 2017.<http://nutankumarisinha.expertscolumn.com/article/10-beauty-and-skin-benefits-milk-powder-milk-powder-home-made-facial-mask-r> Cited 20 June. Basic tests for pharmaceutical dosage forms Second edition. AITBS publisher 1998.
- [11] Baby AR, Zague V, Maciel CP. Kaneko TM, Consiglieri VO, Velasco MVR. Development of Cosmetic Mask Formulations. J Rev Bras Cienc Farm. 2004; 40(1):159-
- [12]. Wilkinson JB, Moore RJ. Harry's Cosmetology 7 th Edition. London: Longman Group, 1982.

- [13]. Kumar KK, Sasikanth K, Sabareesh M. NDorababu. Formulation and Evaluation of Diacerein Cream. Asian J Pharm Clinical Research. 2011; 4(2):93-8
- [14] Rajapet M. Amazing Benefits Of Multani Mitti For Face, Skin, And Health Cited on Dec 2016.
- [15]. . Mieloch M, Witulska M. Evaluation of Skin Colouring Properties of Curcuma Longa Extract. Int. J Pharm Sci. 2014; 76(4):374-8
- [16] Bhat KV, Balasundaran M, Balagopalan M. Identification of Santalum album and *Osyris lanceolata* through morphological and biochemical characteristics and molecular markers to check adulteration (Final Report of the project KFRI 509/06)
- [17] Saraf S, Kaur CD. Phytoconstituents as photo protective novel cosmetic formulations, Pharmacogn. Rev. 2010; 4(7):1-11. 12
- [18]. . Lachman L, Lieberman HA, Kanig JL. The Theory and practice of Industrial pharmacy. 3rd ed. Mumbai: Varghese Publishing House, 1987.
- [19]. Alton ME. Pharmaceutics, The science of dosage forms design. 2nd ed. New Delhi: Churchill Livingstone 2002
- [20]. . Khandelwal KR. Practical Pharmacognosy. 12th ed. Pune: Nirali Prakashan, 2004.
- [21]. Mandeep S, Shalini S, Sukhbir LK, Ram KS, Rajendra J. Preparation and Evaluation of Herbal Cosmetic Cream. Pharmacology online 2011, 125864
- [22]. Bennett, W. (1983). Bennett's Cosmetic Formulary, II ed. Chemical Publishing Company, New York, 90-100.
- [23]. Chattopadhyay A.K. (1975). Indian Materia Medica, 3rd Ed, vol. II. Popular Prakashan, Mumbai.