

**INTERNATIONAL JOURNAL OF UNIVERSAL
PHARMACY AND BIO SCIENCES****IMPACT FACTOR 4.018*******ICV 6.16*******Pharmaceutical Sciences****REVIEW ARTICLE.....!!!****A REVIEW ON HERBAL FACE PACK USING DIFFERENT NATURAL SOURCES****Shireen Ansari*, Yogita Tyagi, N G Raghavendra Rao**

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KEYWORDS:Herbal face pack, Preparation,
Evaluation, Skin, Cosmetic.**FOR CORRESPONDENCE:****Shireen Ansari*****ADDRESS:**Department of
Pharmacy GRD (PG)
IMT, Rajpur Road
Dehradun -248001,
Uttarakhand, India.**ABSTRACT**

The objective of this work is to prepare and evaluate a herbal face pack for cosmetic purpose by using different natural sources like calcium bentonite, turmeric, *Aloe vera*, gram flour, neem powder, rose petal powder, sandal wood powder, lemon peel powder were obtained from retailer in the form of dried powder, all powdered organic ingredients were weighed accurately then passed through sieve using #120 mesh mixed accurately and then evaluated for parameters including organoleptic properties, physicochemical, physical, phytochemical evaluation, irritancy, microbial assay along with stability examination. Herbal face-pack are used to stimulate blood circulation, rejuvenates the muscles and help to maintain the elasticity of the skin and remove dirt from skin pores. This review focuses on research till now done on herbal face-pack and detailed study over it.

INTRODUCTION:

The word cosmetic was derived from the Greek word “kosm tikos” meaning having the power, arrange, skill in decorating (1). Cosmetics are defined as the products used for the purposes of cleansing, beautifying, promoting, attractiveness or alternating the appearance (2). Herbs are a conventional way to cure various problems in the body. These have benefits for most of the body parts both externally and internally. There are various herbs at our disposal that can be brought into day to day life for their numerous uses and advantages. From the ancient time, different herbs are used for cleanup and adorn the face. Face skin is the major part of the body, which indicates the health of an individual. In Ayurveda, the herbal paste is called as “mukha lepa” used for as a facial therapy. This herbal paste smeared on face to treat acne, pimple, scars, marks and pigmentations (3). We can derive the maximum benefits of herbal face-pack by using according to our skin type. Benefits of herbs may include: Detoxification, aid in sleeping, increase stamina and reduce fatigue, strengthen the immune system.

Definition of cosmetic

“The cosmetics, according to the Drugs 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 any part for cleansing, beautifying, promoting attractiveness or altering the appearance. The cosmetic does not come under the preview of drug license” (4).

Definition of herbal face pack

“Face pack is the smooth powder which is used for facial application and a good herbal face-pack must supply necessary nutrients to skin and should penetrate the subcutaneous tissues to deliver the required nutrients”. These preparations are applied on the face in the form of liquid or pastes and allowed to dry and set to form film giving tightening, strengthening and cleansing effect to the skin (5). They are usually left on the skin for fifteen to thirty minutes to allow all the water to evaporate, the resulting film thus contracts and hardens and can easily be removed.

The Natural face packs do contain some vital vitamins that are required for the health and glow of our skin in many ways. They are no side effect, pretty simple to make and less complicated. Facial packs generally show temporary effect and for the regular glow it should be used 2-3 times a week.

1.2 Types of Herbal Face Packs

1. Sandalwood Face Pack
2. Turmeric Face Pack
3. Neem Face Pack

4. Aloe vera Face Pack

5. Amla Face Pack

1.3 Desired Properties or Characteristics of Herbal Face pack

- It helps to remove acne, pimple, scars, and marks.
- Face pack shed off the dead cells of skin and provides a soothing, calming and cooling effect on the skin.
- They revive the natural glow of skin in the optimum time period.
- Frequent uses of natural face packs improve skin texture and complexion.
- Easily and evenly spread on application.
- It should be non-irritating and non-toxic.
- It should be free from gritty particles.
- It should have pleasant odour.

1.4 Benefits of Applying Face pack: (6,7)

- Nourishes the skin. Fruit face packs supply essential nutrients to skin.
- Helps to reduce, acne, pimple, scars and marks depending on its herbal ingredients.
- Usually face packs made of neem help to reduce acne and pimple.
- Face packs usually exfoliate dead cells of skin.
- These face masks provide a soothing and relaxing effect on skin.
- They help to restore the lost shine and glow of skin in short span of time.
- Regular use of natural face masks bring glow to skin, improve skin texture and complexion.
- The harmful effects of pollution and harsh climates can be effectively combated with judicious use of face packs.
- They help to prevent premature aging of skin.
- Formation of wrinkles, fine lines and sagging of skin can be effectively controlled by using natural face packs.

1.5 Precautions to be taken while applying face pack

- Select the face pack according to your skin type. Take opinion of natural therapist or concerned skin expert before applying face pack.
- The face pack should not be left on face more than 15 to 20 minutes. Keeping for very long time may result in formation of wrinkles, sagging of skin and enlargement of open pores.
- Apply face pack once in a week.

- Don't try to peel or scratch the dried face pack. This may harm underlying skin. Spray water (which is at room temperature) on face before removing dried face pack. After removing the mask roll an ice cube on facial skin. This helps to close open pores and tightens skin. It also tones and soothes the skin.
- Do not scrub face vigorously. This may result in eruption of pimples and dark spots.
- Stay away from heat when you have applied face pack.
- Avoid applying face pack near "eye zone". The skin around eye is very delicate. The process of removing face pack may damage the sensitive skin around eyes.

2. TOPICAL DRUG DELIVERY SYSTEM

Topical drug delivery systems are localized drug delivery system for local delivery of therapeutic agents via skin to treat the cutaneous disorder. These systems are generally used for local skin infection. The formulations are available in different forms, like from solid through semisolid to liquid. If the drug substance in the solution has a favourable lipid/water partition coefficient and if it is a non-electrolyte, then drug absorption is enhanced via the skin (8).

2.1 Anatomy of Skin

The skin is the largest organ of the body, accounting for about 15% of the total adult body weight. It performs many vital functions, including protection against external physical, chemical, and biologic assailants, as well as prevention of excess water loss from the body and a role in thermoregulation. The skin is continuous, with the mucous membranes lining the body's surface.

The structure of human skin (Fig.1) can be categorized into four main layers

- The epidermis
- The non-viable epidermis
- A viable epidermis (Stratum corneum)
- Overlying dermis
- The innermost subcutaneous fat layer (Hypodermis)

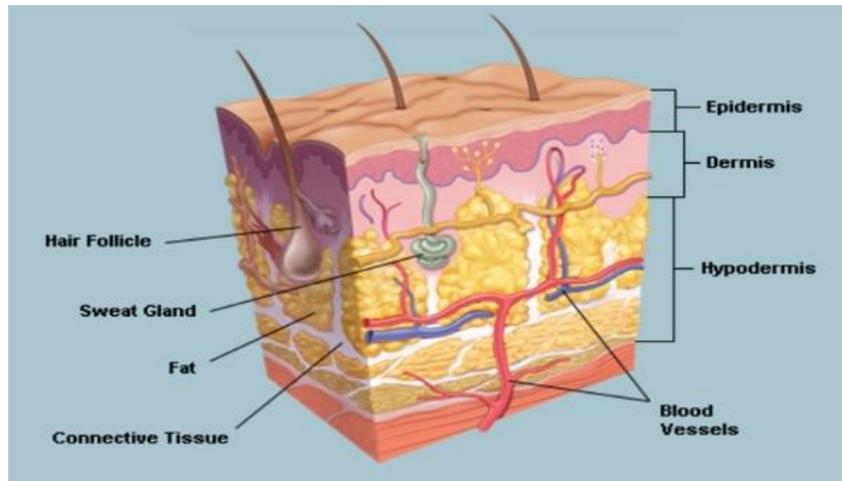


Fig.1. Anatomy of skin

1. The Epidermis

The epidermis is composed of keratinized, stratified squamous epithelium. It is made of four or five layers of epithelial cells, depending on its location in the body. It does not have any blood vessels within it (i.e., it is avascular).

2. The non-viable epidermis

The stratum corneum (Latin for 'horny layer') is the outermost layer of the epidermis. There has been a long-standing belief in dermatology that the stratum corneum consisted of dead cells (corneocytes), devoid of biological activity and function. The stratum corneum is now understood to be live tissue that performs protective and adaptive physiological functions including mechanical shear, impact resistance, water flux and hydration regulation, microbial proliferation and invasion regulation, initiation of inflammation through cytokine activation and dendritic cell activity, and selective permeability to exclude toxins, irritants, and allergens. This layer is composed of 15–20 layers of flattened cells with no nuclei or cell organelles.

3. The viable epidermis

Viable Epidermis is the layer of the skin situated below the stratum corneum. It is stratified, squamous and keratinizing epithelium and is responsible for the barrier properties of the skin. It contains melanocytes, langerhans cells and markel cells. It contains other layers in which the cells are at different stages of differentiation.

4. Dermis

The dermis or corium is a layer of skin between the epidermis (with which it makes up the cutis) and subcutaneous tissues, that primarily consists of dense irregular connective tissue and cushions the body from stress and strain. It is divided into two layers, the superficial area adjacent to the epidermis

called the papillary region and a deep thicker area known as the reticular dermis. The dermis is tightly connected to the epidermis through a basement membrane. Structural components of the dermis are collagen, elastic filaments, and extracellular matrix. It also contains mechanoreceptors that provide the sense of touch and thermoreceptors that provide the sense of heat. In addition, hair follicles, sweat glands, sebaceous glands (oil glands), apocrine glands, lymphatic vessels, nerves and blood vessels are present in the dermis. Those blood vessels provide nourishment and waste removal for both dermal and epidermal cells.

5.Hypodermis

The *hypodermis* (subcutaneous layer, or superficial fascia) lies between the dermis and underlying tissues and organs. It consists of mostly adipose tissue and is the storage site of most body fat. It serves to fasten the skin to the underlying surface, provides thermal.

2.2 Rationale for topical preparation

With the purpose to formulate an efficient and effective topical preparation, considerations are mainly concerned with the site of action of the drugs and its effect. Topical preparations may be used produce:

2.2.1 Effects on Surface

These effects include,

1. The cleansing effect of removing germs and dirt.
2. Improves cosmetic appearance.
3. Protective action against moisture.
4. Produce an antimicrobial effect.

2.2.2 Effects on Stratum Corneum

1. Protectives that penetrate this layer.
2. Keratolytic action.
3. Moisturizing effect.
4. Effects on Viable epidermis and dermis: Anaesthetic, anti-inflammatory, antihistamine, antipruritic, etc. are the major classes of drugs that penetrate these layers (9).

2.3 Advantages of topical drug delivery system (10,11)

1. Avoidance of primary pass metabolism.
2. Convenient to use and easy to apply.
3. Easily to terminate the medications.
4. Drug delivered selectively to a specific site.

5. The gastro-intestinal incompatibility will be avoided.

2.4 Disadvantages of topical drug delivery system (10, 11)

1. Possibility of local skin irritation at the site of application.
2. Contact dermatitis due to some drug may occur.
3. Some drugs with poor permeability are difficult to penetrate via the skin.
4. Drugs with larger particle sizes are difficult to penetrate.
5. Possibility of allergenic reactions.

2.5 Factors Affecting Topical drug absorption (12,13)

1. Physiological factors

- Thickness of skin
- pH of skin
- Temperature of skin
- Lipid content
- Density of sweat gland
- Hydration of skin
- Inflammation of skin
- Blood flow

2. Physiochemical factors

- Partition coefficient
- Molecular weight of drug
- Degree of ionization
- Vehicle effect

2.6 Challenges for designing topical dosage form

The challenge of developing a successful topical product stems from the several requirements that a formulation must meet all the below criteria.

Skin Penetration

Skin penetration is the primary challenge to deliver the bioactive agents into the skin that follows Fick's first law of diffusion, which states the transfer rate of solutes as a function of the concentration of the various ingredients, the *size* of the surface area to be treated and the permeability of the skin. Percutaneous absorption is inversely proportional to molecular weight, which affects the diffusion coefficient (10).

Skin pH

Drugs with molecular size larger than 500 Daltons are very difficult to penetrate stratum corneum. Formulation with high or low pH can harm the skin. Moderate pH value is suitable for topical delivery. The degree of ionization at a particular pH also plays an important role (14).

Stability

It provides a database studies at the stage of development to benefit the selection of formulation, excipients and container closure systems, to determine shelf life and storage conditions and to confirm that no changes in the formulation or process of manufacturing that adversely affect the product stability (15).

Acceptability

In the current scenario, the patients are eyeing for the topical products that are safe, effective, easy to apply, and cosmetically acceptable. In the case of acne, routines increase convenience and are disruptive minimally that increase compliance level and efficacy of the topical system.

Container Selection

Container selection such as can, jar, tube, etc. provides a stable environment that depends on drug and excipients physicochemical properties, which protect from chemical degradation. The state of the formulated product depends on API characteristics.

3. FORMULATION CONSIDERATIONS FOR HERBAL FACE PACK

a) Absorbent: They are materials that soak up oil from the water. They are used for moisture -proofing by limited fluid absorbing (taking up of a liquid or gas either by absorption or adsorption) in a dry state. Examples: Calcium bentonite, kaolin.

b) Humectants: Humectants pull moisture from whatever they encounter. This can be the air around them or in the case of skincare, humectants can pull moisture from the lower levels of the skin and bring it to the surface. Humectants on skin, the humectant supports moisturizing (as long as you don't use too much of it). Examples: Aloe vera, glycerine, sorbitol.

c) Antioxidants: Antioxidants are substances that can prevent or slow damage to cells caused by free radicals, unstable molecules that the body produces as a reaction to environmental and other pressures. Examples: Lemon peel, orange peel.

d) Preservatives: A preservative is a natural or synthetic ingredient that is added to products such as foods, pharmaceuticals and personal care products to prevent spoilage, whether from microbial growth or undesirable chemical changes. The use of preservatives is essential in most products to prevent product damage caused by microorganisms and to protect the product from inadvertent contamination

by the consumer during use. An ingredient that protects the product from the growth of microorganisms is called an antimicrobial. Examples: Neem, aloe vera.

e) **Pharmaceutical agents:**

- **Rejuvenator:** Rejuvenator helps reduce multiple signs of aging. In addition to helping maintain softer and firmer skin, it decreases pore size, wrinkles, and age spots. Examples: Turmeric.
- **Whitening agents :Whitening agent,** also known as **skin lightening** and **skin bleaching agents**, refers to the practice of using natural substances in an attempt to lighten the skin or provide an even skin colour by reducing the melanin concentration in the skin. Examples: Sandalwood powder.
- **Antibacterial agents:** Antibacterial agents are a group of materials that fight against pathogenic bacteria. Thus, by killing or reducing the metabolic activity of bacteria, their pathogenic effect in the biological environments will be minimized. Examples: Rose petal powder.
- **Anti-inflammatory agents:** A substance that reduces inflammation (redness, swelling, and pain) on face. Anti-inflammatory agents block certain substances in the body that cause inflammation. Examples: Gram flour.
- **Anti-tanning agents:** Tan refers to the uneven colouring of skin after sun exposure. Skin contains melanin, a chemical responsible for pigmentation. On exposure to harsh sunlight, body releases melanin just under the skin surface. This helps absorb UV radiation. The higher the exposure to UV rays, the higher the pigmentation, and thus, darker the tan. Anti -tanning agents are those which remove tanning on the skin. Examples: Sandal wood powder.
- **Anti-aging agents or anti-wrinkle agents:** There are various active ingredients that can reduce the appearance of fine lines or also larger wrinkles. This can be achieved by different mechanisms including inhibition of facial skin muscle tightening, stimulation of the production of proteins in the connective tissue (e.g. collagen, elastin), and optimal hydration of skin cells and prevention of water loss. Examples: Sandal wood powder.

3.1 Medicinal uses of formulation considerations for herbal face pack

1. **Absorbent** (Calcium bentonite): (16)

Calcium bentonite helps skin by different ways like diminishing pore sizes, removing blackheads and whiteheads fading freckles, soothing sunburns cleansing skin, improving blood circulation, complexion reducing acne and blemishes and gives a glowing effect to a skin as they contain healthy nutrients.

Calcium bentonite will help to make your skin radiant and excellent for aggravated and irritated skin.

2. Humectants (Aloe vera): (17)

Aloe vera has anti-microbial property rendering it ideal to deal with acne and pimples.

Aloe vera is a great moisturizer intended for a skin. Aloe vera powder contains several nutrients like glycerine, sodium palmate, sodium carbonate, sodium palm, sorbitol.

3. Antioxidants (Lemon peel): (18)

The high content of Vitamin C in lemon will help to lighten the skin tone and remove dark spots caused by skin tan.

It prevents the skin from free radical damage, skin hydration and oxidative stress.

4. Preservatives (Neem): (19)

Neem is anti-inflammatory, antiseptic and highly beneficial for oily and acne prone skin.

An anti-acne effect is due to antimicrobial, anti-inflammatory and anti-oxidant activities of different chemical constituents.

5. Rejuvenator (Turmeric): (20)

Turmeric has anti-inflammatory and anti-allergic activity. It is best blood purifier and helps in wound healing.

It possesses best blood purification action so it is used in all disease with blood impurities origin.

Turmeric is rejuvenator of skin and revitalizes skin; delays the signs of aging like wrinkle

6. Whitening agents (Indian madder): (20)

Indian madder holds the reputation of a very good skincare herb. Used externally and internally, it helps one to gain lustre and glow of the skin and aids to remove pimples, freckles and discoloration. Its paste should be applied in various skin disorders like itching, black spots on the face, pimples, leukoderma.

It nourishes the skin and benefits in acne, wrinkles and other health issues related with skin. It lightens skin color, reduces skin irritation and benefits for acne, wrinkles and other skin related issues.

7. Antibacterial agents (Rose petal): (21)

It helps you to get rid of excess dead cells, sebum, dirt and grime which tend to get deposited in your facial pore.

8. Anti-inflammatory agents (Gram flour):

The high content of zinc in gram flour will help to fight infections that cause acne. It removes dead skin, astringent and protective.

9. Anti-tanning or Anti-wrinkles agents (Sandalwood): (20,22)

Sandalwood protects the skin against the impact of environmental pollution and keep the skin cool, fair and healthy.

Sandalwood is helpful Ayurvedic herb with antimicrobial properties is used for healing various skin problems and removes scars.

3.2 Preparation for herbal face pack

3.2.1 Weighing: All required natural ingredients for face pack preparation were accurately weighed individually by using digital balance.

3.2.2 Sieving: After the mixing of all ingredients were passed through sieve no.120 to get sufficient quantity of extra fine powder.

3.2.3 Collection and Storage: The powder mixture was collected and store in suitable plastic container and used for doing evaluation parameters.

4. EVALUATION OF FACE PACK**Organoleptic Evaluation (23)**

The organoleptic parameters include its nature, colour, odour, feel, taste and consistency which were evaluated manually for its physical properties.

Physical Evaluation (18)

The particle size was tested by microscopy method. The flow property of the dried powder of combined form was evaluated by performing Angle of Repose by funnel method, bulk density and tapped density by Tapping Method.

Physicochemical Evaluation (16)

Ash content was performed using incinerator, pH was found by using pH meter and loss on drying was also performed.

Irritancy test (7)

Mark an area (1sq.cm) on the left-hand dorsal surface. Definite quantities of prepared face packs were applied to the specified area and time was noted. Irritancy, erythema, oedema, was checked if any for regular intervals up to 24 hrs and reported.

Stability studies (2)

Stability testing of prepared formulation was conducted by storing at different temperature conditions for the period of one month. The packed glass vials of formulation stored at different temperature conditions like, Room temperature, 350C and 400C and were evaluated for physical parameters like Colour, Odour, pH, Consistency and feel.

Shinoda test

To the ethanolic extract, few drops of concentrated hydrochloric acid (HCL) were added. Then the magnesium turnings were put into the solution and observed for appearance of pink red colour.

5. CONCLUSION

An herbal face pack is used to rejuvenate the 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 facial skin. This face pack supplies vital nourishment to the skin. It helps in the elimination of acne, pimple, scars, and marks. Face pack exfoliates skin and provides a soothing, calming and cooling effect on the skin. They restore the natural glow of skin in the optimum time period. Frequent uses of natural face packs improve skin texture and complexion. Pollution and harsh climates badly affect the skin and these effects can be countered by the regular usage of face packs. They help to retain the elasticity of skin cells, thereby controlling premature aging of the skin. Wrinkles, fine lines, and loosening of skin can be effectively controlled by using natural face. In this work, we found excellent properties of the face packs and further studies are needed to be performed to ascertain more useful benefits of face packs as cosmetics. Natural remedies are accepted nowadays with open hands as they are safer with fewer side effects than the chemical base products. Herbal formulations are required in large amounts to fulfil the needs of the growing world market. It is an effective attempt to formulate the herbal face pack containing different powders of different plants with multiple therapeutic benefits.

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6. REFERENCE

1. Kokate K.C., Purohit A.P., Gokhale S.B. Cosmeceuticals In: Pharmacognosy. Nirali Publication, Pune.36thed, 2006, pp 548,593.
2. Shoba rani R; Hiremath. Text book of Industrial pharmacy, Drug delivery systems and cosmetics & Herbal drug technology: Universities press (India) Ltd ;2nd Edition.
3. Millikan, Larry E. Cosmetology, Cosmetics, Cosmeceuticals: Definitions and Regulations. Clin Dermatol 2001; 19(4);371-374.
4. <https://www.slideshare.net/rahimbrave/herbal-cosmetics-69811712>.
5. Rieger MM. Harry's Cosmeticology. In: Chapter 23, Face, Body& Hair Masks & Scrubs. 8th ed. vol I. New York: Chemical Publishing Co., Inc.; 2009. p. 471-483.

6. Deep Chanchal; Saraf Swarnlata. Herbal Photoprotective Formulations and their Evaluation, the Open Natural Products Journal, 2009, 2, 71-76.
7. Mandeep Singh; Shalini Sharma; Sukhbir Lal Khokra; Ram Kumar Sahu; Rajendra Jangde, Preparation and Evaluation of Herbal Cosmetic Cream; Pharmacology online, 2011, 1258-1264.
8. A Hardenia, S Jayronia, S Jain, International Journal of Pharmaceutical Sciences and Research, 5: 1653-60, 2014.
9. D Bhowmik, H Gopinath, B P Kumar, S Duraivel, K P S Kumar, The Pharma Innovation Journal, 1: 12-31, 2012.
10. S Shaheda Sultana, P Parveen, M Sri Rekha, K Deepthi, C A Sowjanya, D Seetha, S S Sultana, Indo American Journal of Pharmaceutical Research Indo American Journal of Pharm Research, 4: 5250-65, 2014.
11. S B Kute, R B Saudagar, Journal of Advanced Pharmacy Education & Research, 3: 368-76, 2013.
12. M A Farage, A Katsarou, H I Maibach, Contact Dermatitis, 55: 1-14, 2006.
13. S Vats, C Saxena, T S Easwari, V K Shukla, International Journal for Pharmaceutical Research Scholar, 3: 2277-7873, 2014.
14. J D Bos, M.M.H. M. Meinardi, Experimental Dermatology, 9: 165-169, 2000.
15. S Bajaj, D Singla, N Sakhuja, Journal of Applied Pharmaceutical Science, 2: 129-167, 2012.
16. Hwang JK, Shim JS, Gwon.SH, Kwon YY, Oh HI et al. Novel use of Panduratin derivatives or extract of Kaempferia pandurata comprising the same. U.S. Patent 0065272A1, 2012 [cited 2016 Aug 05].
17. Rajeswari R, Umadevi M, Rahale CS, Pushpa R, Selvavenkadesh S, Sampath Kumar KP, Bhowmik D. Aloe vera: The Miracle Plant Its Medicinal and Traditional Uses in India. J Pharmacognosy Phytochemical 2012; 1(4): 118-124.
18. Ashawat MS., Banchhor M., "Herbal Cosmetics, "Trends in skin care formulation" Pharmacognosy Rev., 2009; 3(5): 82-89.
19. Yamini K, Onesimus T. Preparation and Evaluation of Herbal Anti-Acne Gel. Int J Pharm Bio Sci 2013; 4(2): 956 – 960.
20. Kumar. K., Sasikanth, K., Sabareesh, M. and Dorababu, N. (2011). Formulation and Evaluation of Diacerein Cream. Asian J Pharm Clin Res 4(2): 9398.
21. Kotta Kranthi Kumar; K Sasikanth; M Sabareesh; N Dorababu. Formulation and Evaluation of Diacerein Cream; Asian J Pharm Clin Res, 2011; 4(2): 9398.

22. Nemade CT, Baste N. Formulation and evaluation of a herbal facial scrub. *World J Pharm Res* 2014; 3(3): 4367- 4371.
23. Buhse L, Kolinski R, Westenberger B, Wokovish A, Spencer J, Chen CW et al. Topical Drug Classification. *Int J Pharm* 2005; 295: 101-112.