

A Rivew On Evaluation Of Multipurpose Herbal Lotion

¹Deepak Sainath More, ²Miss. Madhuri Shrawane, ³Dr. D.K. Vir, ⁴Amol Ramesh Thombre, ⁵Saurabh Sanjay Wagh

1) Student, 2) Associate professor, 3) Principal, 4) Student 5) Student

Shree Goraksha College of Pharmacy & Research Centre, Chhatrapati Sambhaji Nagar, India

Abstract : To formulate & evaluate lotion by using Aloe vera gel, (Aloe barbadensis) dimethyl sulfoxide extract of Neem (azardirachta indica) and Curry (Murraya koenigii) leaves extract. The lotion was prepared by using the mixing of oil phase (liq. paraffin & beeswax) into aqueous phase (borax, methyl paraben in dist. water) and slowly addition of aloe vera gel, neem extract ,curry leaves extract and stir vigorously until it form smooth texture. Then add few drops of peppermint oil as a fragrance. The formulation showed good appearance, Ph, adequate viscosity, and no phase separation was observed. The formulation was stable at room temperature. All the herbal ingredients showed significant different activities. Based on result we have to conclude that the formulation was stable and can be use safely used for skin.

Keywords: Aloe barbadensis, Azardirachta indica, Murraya koenigii, herbal cosmetics, multipurpose lotion etc.

1. Introduction:

Herbal Cosmetics, here referred as products, are formulated, using various permissible cosmetic ingredients to Form the base in which one or more herbal ingredients are used to provide defined cosmetic advantages only, is called as “Herbal Cosmetics”

The herbal cosmetics are those when natural herbs and their products used for their aromatic value in cosmetic preparation among consumers for herbal products triggered the demand for natural products and natural extracts in cosmetics preparations. Lotions are liquid preparations meant for external application without friction. They are applied directly to skin with the help of some absorbent material, such as, cotton wool or gauze soaked in it. Lotions may be used for local action as cooling, soothing or protective purposes.

The cosmetics are the utility product used Extensively throughout the world for maintaining and improving general appearance of face and other Part of body e.g. skin, eye, hair, hand, etc. herbal Cosmetics are the preparation which represent Cosmetics associated with active bio-ingredients, Nutraceuticals and pharmaceuticals. Cosmetics are products that are used to cleanse and beautify the skin. The first recorded Use of cosmetics is attributed to egyptians in 4000 B.C. Pharmaceuticals are essentially drug products and are defined as products that prevent, mitigate, Treat or cure disease and affect the structure or Function of the body.

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 thereof for cleansing, beautifying, promoting attractiveness or altering the appearance.

Lotions are liquid preparations that is for application without friction. They are applied directly to skin with the help of some absorbent material, Such as, cotton wool or gauze soaked in it. Lotion may be used for Local action as cooling, soothing or Protective purposes. A herbal lotion is a liquid preparation, applied externally on the skin to produce or enhance a beautification. Lotions are used for washing the skin and to remove the oily secretions. . It increases the blood circulation, emoliency ,

extended to astringency, skin freshness, bleaching and other medicinal properties. Herbal lotions are usually applied without friction.

2. Human Skin

The skin is the largest organ of the body, with a entire area of about 20 square feet. The skin protects us from germs and the elements, helps regulate body temperature, and permits the sensations of touch, heat, and cold.

Skin has three layers:

- The epidermis, the outermost layer of skin, provides a waterproof barrier and creates our skin tone
- The dermis, beneath the epidermis, contains tough connective tissue, hair follicles, and sweat glands. The deeper subcutaneous tissue (hypodermis) is made of fat and connective tissue.
- The skin colour is created by special cells called, which produce the pigment melanin. Melanocyte is located In the epidermis.

Diagram of skin

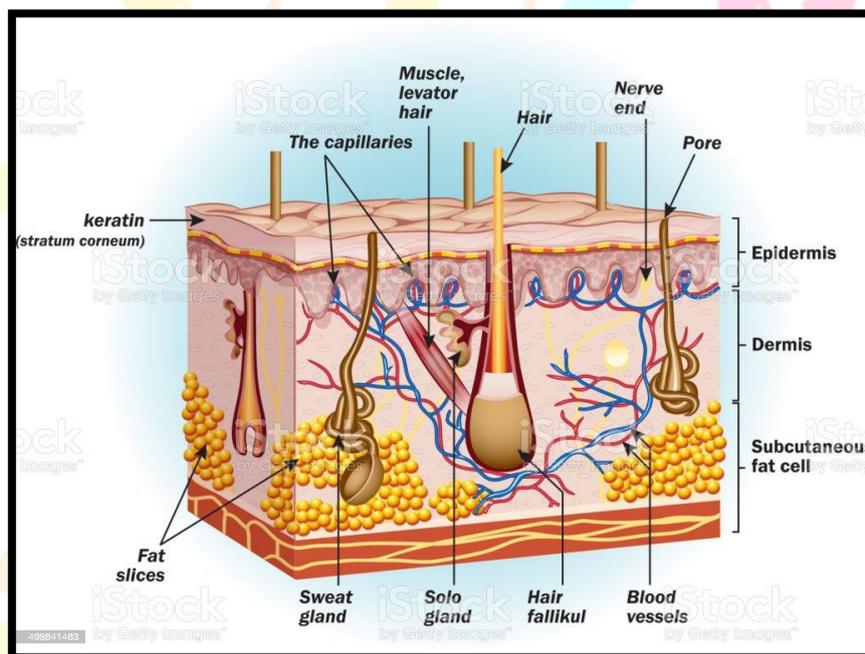


Figure 1 : V.S of Skin

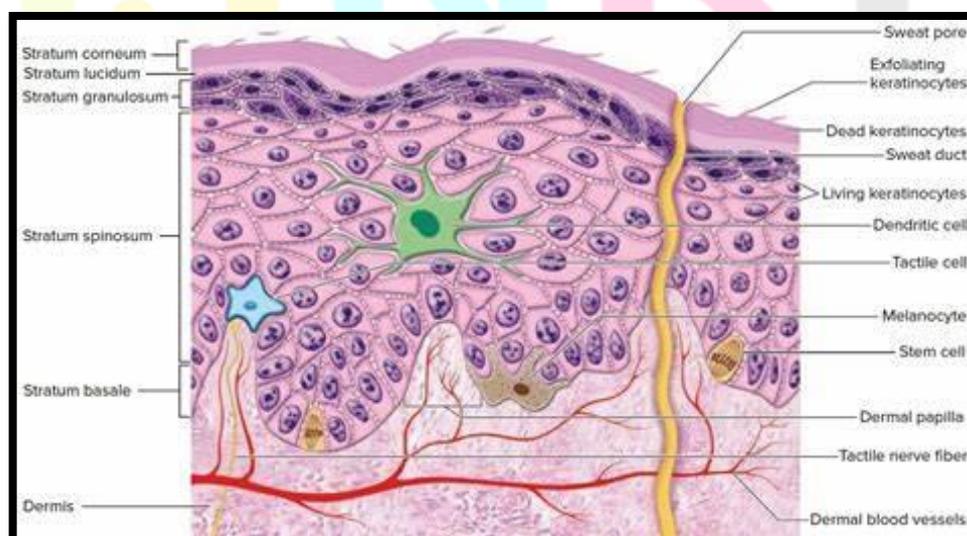


Figure 2 : Penetration through human skin

2.1 Skin has three layers:

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3. Need and Objective

3.1 Need

1. Treat or prevent dry, rough, scaly, itchy skin and minor skin irritation
2. Emollients are substances that soften and moisturize the skin and decrease itching and flaking.
3. The main aim of our work is to develop a herbal lotion which can give multipurpose effect

3.2 Objective:-

1. To formulate and evaluate herbal lotion using Aloe Vera gel, dimethyl sulphoxide extracts of Neem (*Azadirachta indica*) and Curry (*Murraya koenigii*) to give multipurpose effect.
2. To avoid skin irritation, and get soothing effect herbal body lotion.
3. To minimise side effect of lotion by using of herbal drug substances.

4. Drug Profile of lotion:

4.1 Aloe vera

Aloe stimulates fibroblast which produced the collagen and elastin fibres making the skin more elastic and less wrinkled. It also has cohesive effect on the superficial flaking epidermal cells by sticking them together, which softens the skin. (4) Aloe vera belongs to the liliaceae family and is often used in cosmetics for lotion. It has a healing impact on skin wounds and has the ability to moisturise and soften the skin. Aloe vera's antimicrobial and hydrating properties protect skin against microbial degradation and keep it from becoming dry and harsh. Aloe vera's cooling action offers a cooling feeling and inhibits the onset of sunburn. This medication is used as a moisturizer to treat or prevent dry, rough, scaly, itchy skin and minor skin irritation.

• Use of Aloe vera

1. Help out moisturize the skin.
2. Boosts healing of wounds.
3. Fight skin-ageing.
4. Reduces infection and acne.
5. Lighten blemishes on the face.

4.2 Neem

Neem is a member of the meliaceae family and has antibacterial and moisturising properties, making it a common ingredient in cosmetics for external use. Neem soap is used to treat minor skin infections or as a preventative measure against fungal infection. Neem as the main component has anti-acne, anti-wrinkles, anti-ageing, and anti-microbial properties, as well as hydrating and pimple-reducing properties. The natives of India use *Azadirachta indica* or neem. Neem is respected by Ayurvedic practitioners for its

ability to support healthy Skin. Neem relieves Dry Skin , Psoriasis, Scabies, Itchy skin, Rashes, and Topical skin issues. Have Hydrating and nourishing the skin .Neem is used in the treatment of acne and pigmentation of other.

Neem oil contains fatty acids, Antioxidants, and antimicrobial compounds, and These can benefit the skin in a range of ways.

- **Uses of Neem**

- 1) Fight skin infections,
- 2) promote wound healing,
- 3) Combat signs of skin aging.
- 4) Skin Softner
- 5) skin diseases,
- 6) wounds,
- 7) skin ulcers;

4.3 Curry leaves

The leaves of *Murrayakoenigii* contain proteins, carbohydrate, fiber, minerals, carotene, nicotinic acid, Vitamin C, Vitamin A, calcium and oxalic acid. It also contains crystalline glycosides, carbazole alkaloids, koenigin, girinimbine ,isomahanimbin, koenine,koenidine and koenimbine. Triterpenoid alkaloids cyclomahanimbine, tetrahydromahanimbine are also present in the leaves. Murrayastine, murrayaline, pyrayafolinecarbazole alkaloids and many other chemicals have been Isolated from *Murrayakoenigii* leaves.

Uses of Curry leaves

- 1) Beneficial of eye sight
- 2)Lowers cholesterol level
- 3) Cures gas
- 4)Treat intestinal issues
- 5)Improves blood circulation
- 6) Promotes weight loss
- 7) Hastens hair growth
- 8)Stops diarrhoea
- 9)Prevent diabetes
- 10)Reduce stress

4.4 Borax

Borax is used in the cosmetic industry to prevent or Slow bacterial growth in moisturising products like Creams, shampoos, gels, lotions, bath bombs, Scrubs and bath salts. Manufacturers of cosmetics Use borax as a buffering agent or an emulsifier to Keep product ingredients from separating Borax as an ingredient is used to Eradicate skin bacteria and remove dead skin cells and excess oil. It does not penetrate deep into the Skin and makes it relatively safe to use in limited Quantities. Borax is used in the cosmetic industry to Prevent or slow bacterial growth in moisturising Products like creams,

shampoos, gels, lotions, bath Bombs, scrubs and bath salts. Manufacturers of Cosmetics use borax as a buffering agent or an Emulsifier to keep product ingredients from Separating.

- **Uses of Borax**

- 1)Moisturizes Skin.
- 2)Protects the Liver.
- 3)Lowers Cholesterol Levels.
- 4)Relieves Pain and Is Anti-Inflammatory.
- 5)Clears Acne.
- 6)Heals Dry, Cracked Lips.
- 7)Reduces Stretch Marks.

4.5 Beeswax

Used cosmetically, Beeswax hydrates, conditions, Sooth, and calms the skin. It exfoliates repairs damage, promotes the skin's Regeneration, diminishes the appearance of the Signs of aging, soothes itchiness and irritation, and creates a hydrating, long-lasting protective barrier Against environmental pollutants. Beeswax is also a natural exfoliator, ideal for Sloughing away dead skin cells. By making Beeswax into a lotion bar, it will work double-duty To keep your skin soft and hydrated. Treats Diaper Dermatitis, Psoriasis and Eczema. Beeswax is a great choice for many skin Conditions.

- **Uses of Beeswax :**

1. Moisturizes Skin.
2. Protects the Liver.
3. Lowers Cholesterol Levels.
4. Relieves Pain and Is Anti-Inflammatory.
5. Clears Acne.
6. Heals Dry, Cracked Lips.

4.6 Liquid paraffin

Light liquid paraffin refers to a highly refined mineral oil with being a transparent, colourless, nearly odourless, and oily liquid. The composition this paraffin involves saturated hydrocarbons derived from petroleum. Light liquid paraffin has different applications that provide significant benefits. It might even suit your skin and provide great relief in most of your medicinal problems.

- **Uses of Liquid paraffin**

1. Laxative
2. lubricate
3. highly moisturising

4.7 Methyl Paraben

Methylparaben is used in skin care products as a preservative to increase their shelf life. The antimicrobial and antifungal properties of methylparaben make it an excellent choice as a preservative.

- **Uses of methyl paraben**

1. preservative
2. increase shelf life
3. Anti-fungal agent

4.8 Peppermint Oil

Peppermint is a common flavoring agent in foods and beverages, and peppermint oil is used as a fragrance in soaps and cosmetics. Today, peppermint is promoted for irritable bowel syndrome (IBS), other digestive problems, the common cold, sinus infections, headaches, and other conditions. Peppermint oil is promoted for topical use (applied to the skin) for problems like headache, muscle aches, joint pain, and itching. In aromatherapy, peppermint oil is promoted for treating coughs and colds, reducing pain, improving mental function, and reducing stress.

5. Material and Management :

5.1 Prepration Method of Aloe vera gel :

1. Collect raw material (aloe leaves).
2. Wash leaf and remove base and tip of the leaf.
3. Leaf is cut into section (Filleting).
4. Extract mucilage part of the leaves into mixing jar.
5. Heat it and add agar agar into the mixing jar.
6. Grinding/Homogenization of Unpasteurized Juice
7. Add Vitamin E and Pasteurize the mixer cool the mixer of aloe leaf
8. Package the produced gel and store it.

5.2 Steps Used In Formulation of Aloe vera Gel :

- **Reception of raw materials-** The Aloe vera leaves after harvesting were preferably transported to the processing place. The leaves should be sound, undamaged, mold /rot free and matured (3-4 years) in order to keep all the active ingredients in full concentration. Filleting operation- It was shown that the aloe gel, once extracted from the leaf, had greater stability than the gel left in the leaf. In order to avoid the decomposition of the biological activity, the filleting operation must be completed within 36 hrs. Of harvesting the leaves.
- **Grinding/homogenization-** The major steps in this process include crushing or grinding. The aloe gel fillets should be crushed and homogenized using a commercial high speed tissue crusher at room temperature (25°C) and add agar into the mixture.
- **Addition of vitamin E-** The unpasteurized aloe gel juice was fortified with vitamin E to improve the flavour of Aloe vera gel juice and to stabilize the juice. It is used for its antioxidant activity.
- **Pasteurization-** Treatment (at 85-95°C for 1-2 min) is an effective method to avoid the bad flavor and the loss of biological activity of the Aloe vera gel. Flash cooling- After pasteurization, the juice is flash cooled to 5°C or below within 10-15 sec. This is a crucial step to preserve biological activity of the Aloe Vera gel.
- **Storage-** Relative humidity and temperature are two most important environmental parameters that to be affected.



Figure 3 : Aloe vera gel

5.3 Extraction of neem leaves

Neem leaves were collected and washed with distilled water and dried in Hot air oven. After proper drying, leaves were powdered. Then 5g NeemLeaves powder+50 ml dimethyl sulfoxide was taken in a volumetric flask and shaken for 3 d on REMI RSB-12 mechanical shaker. Then the Solution was heated on a water bath at 80-100 °C and concentrated up to20 ml and then filtered using muslin cloth to removeimpurities. Then the filtrate or filter product obtained, which is a clear solution or clear extract of Neem leaves, was used in the preparation

5.4 Extraction of Curry leaves

The extraction was carried out in water and ethanol take 1gm of plant source dissolves in 5ml of water and ethanol maintain the prepared solution for 24 hour .In closed at room temperature (methanol extract boling in 5min).Filtered the solution with whatman filter paper. The filtered solution is used in further identification tests and isolation method.



Figure 4 : Curry leaves extract

6. Formulation of Lotion

Heat liquid paraffin and beeswax in a borosilicate glass beaker at 75 °C and maintain that heating temperature. (Oil phase). In another beaker, dissolve borax, methylparaben in distilled water and heat this beaker to 75 °C to dissolve borax and methylparaben and to get a clear solution. (Aqueous phase). Then slowly add this aqueous phase to heated oily phase. Then add a measured amount of aloe powdered. Vera gel, Neem extract, and curry leaves extract and stir vigorously until it forms a smooth lotion .

Table 1 : Formula of lotion:

| Sr. No. | Ingredients | Quantity |
|---------|----------------------|----------|
| 1 | Aloe vera gel | 1ml |
| 2 | Neem extract | 0.2 ml |
| 3 | Curry leaves extract | 1ml |
| 4 | Bees wax | 3.5g |
| 5 | Borax | 0.4g |
| 6 | Liquid paraffin | 15ml |
| 7 | Methyl paraben | 0.04g |
| 8 | Distilled water | Q.S |
| 9 | Peppermint oil | Q.S |

6.1 Evaluation of herbal lotion:

➤ TESTS :

1.Homogeneity

The formulation were tested for homogeneity by visual appearance and by touch.

2. Appearance

The appearance of the lotion is low viscous for topical use.

3.After feel

Emolliency, slipperiness and amount of residue left after the application of fixed amount of lotion was checked.

4. Acid Value

Take 10gm of substance dissolve in accurately weighed in 50ml mixture of equal volume of alcohol and solvent ether. The flask was connected reflux condenser and slowly heated, until sample was dissolved completely. To this 1ml of phenolphthalein added and titrated with 0.1N NaOH, until faintly pink colour appears after shaking for 30sec. $\text{Acid Value} = n \times 5.61/w$ n= number of ml of NaOH required w=weight of substance.

5.PH measurement

The pH meter was calibrated using standard buffer solution. About 0.5gm of lotion was weighed and dissolved in 50ml of distilled water and its pH was measured using digital pH meter.

6. Irritancy test

Mark an area (1 sq. cm) on the left hand dorsal surface. The lotion was applied to the specified area and time was noted. Irritancy, erythema, edema, was checked if any for regular intervals upto 24hrs and reported.

7. Viscosity

Viscosity of the formulation was determined was brookfield or oswald viscometer at 100 RPM, using spindle no. 7 at temp 25oC. The determinations were carried out in triplicate and the average of three reading was recorded.

8. Accelerated

stability testing Accelerated stability testing of prepared lotion was conducted for 2 most stable formulations at room temp, studied for 7 days. The formulations were placed at 40oC + 1oC for 20 days. Both formulations were kept at room temp and elevated temp and observed on oth, 5th, 10th, 15th and 20th day for any change in color, phase separation etc.

9. Subjective Properties

Consistency, feel on application and irritation parameters are determined.

10. Spreadability

Two glass slides of standard dimensions (20 × 5cm) were selected. The formulation was over one of the slide. The other slide placed on the top of the lotion such a that the formulation sandwiched between the two slides in an area occupied by a distance of 7.5 cm, alongside 100 gm weight was placed uniformly to form a thin layer. The weight was removed and the excess of lotion adhering to the slides was scrapped off. The two slides in a position were fixed to stand (45° angle) without slightest disturbance and in such a way that only the lower slide held firmly by the opposite fangs of the clamps allowing the upper slide to slip off freely by the force of weight tied to it. 60 gm of weight was tied to the upper slide carefully. The time taken for the upper slide to travel the distance of 5 cm and separate away from the lower slide under the direction of weight was noted. The experiment repeated for 3 times and the mean taken for three such dimensions was calculated. The results were recorded. The Spread ability is calculated by using formula: $S = M \times L/T$ Where, S= Spread ability, L= Length of glass slide, M= Weight tied to the upper slide and T= Time.

7. RESULT & DISCUSSION

The formulation shows good appearance, PH, adequate viscosity, and there is no phase separation was observed. Also the formulation showed no redness, erythema, and irritation during irritancy study and it was easily washed.

8. Conclusion

By using Aloe vera gel, Neem and Curry extract the lotion showed multipurpose effect and all these herbal ingredients showed significant different activities. Based on result and discussion the formulation was stable at room temperature and can be safely used on the skin.

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