

# A Research for Formulation and Evaluation of Herbal Body Lotion

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## Abstract

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. Formulation of herbal body lotion, For With Beeswax, Borax, coconut oil, Rose water and Aloe Vera gel a is prepared using Different composition. These formulations were Evaluated with different evaluation parameters Like Homogeneity, Appearance, After feel, Acid Value, pH measurement, Irritancy test, Viscosity, Accelerated stability testing, Subjective Properties, Spreadability, Type of emulsion test, Sensitivity Test, Washability Test, statistical analysis, In vitro Permeation studies, Test for thermal stability, Determination of total fatty matter, Determination Of water content, Patch test. Objective:- To formulate and evaluate herbal body lotion Using borax, beeswax, coconut oil, Rose water and Aloe Vera gel to give Multipurpose effect. Lotions maintain skin's hydration levels by locking In the moisture, keeping the skin healthy, soft, and Supple. Unlike a cream, the lotions are less greasy And have more water content. The cream was prepared by using the cream base That is bee's wax, , borax, distilled water, coconut oil rose water and Aloe Vera gel. Beeswax exfoliates, conditions, soothes, and calms The skin, Borax eradicate skin bacteria and remove Dead skin cells and excess oil, and Aloe Vera Antifungal and anti-inflammatory and it is also used To reduce scar, pigmentation, redness and itching of The skin. This body lotion was formulated and evaluated by Different evaluation parameters such as pH, Viscosity, spreadabilty, physical appearance and Irritancy test Stability testing for prepared formulation Was performed by storing it at different temperature Condition for time period of 24h for 1 week. To Know the parameters like odour, pH and Smoothness of lotion. All the three formulations Fi,F2, and F3 showed Good appearance, PH, adequate viscosity and no Phase separation was observed. Also, the Formulations F1,F2,and F3 showed no redness, Erythema and irritation during irritancy study and They were easily washable. The objective of this Review is to compile the information of different Herbal formulations of lotion and its evaluation. Herbal body lotion formulations studied by many Researchers and this information can be used by Many researchers for novel herbal cosmetic Formulations with new herbs. 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 that Is for external application without friction. They Are applied directly on the skin with the help of Some absorbent material, such as, cotton wool Or Gauze soaked in it. The focus of the present research was to formulate. The herbal body lotion for the occasion of moistening and nourishing the skin.

**Keyword:** Coconut oil, Aloevera gel, Beeswax, Borax, Rosewater ,Formulation herbal body lotion and Evaluation

## INTRODUCTION

The word „Cosmetic“ derived from a Greek word –kosmesticos“ that means to Adorn. From that time any Materials used to Beautification or promoting appearance Is known As cosmetic. The word “cosmetics” Actually stems From its use in Ancient Rome. They were typically Produced by female slaves known as “cosmetic” Which Is where the word “cosmetics” stemmed From. Cosmetics are used to enhance appearance. Makeup has been around for many centuries. [1] The First known people who used cosmetics to Enhance their Beauty were the Egyptians. Makeup Those days was just simple eye coloring or some Material for the body. Now-a-days makeup plays An important role for both men and women. The Importance of cosmetics has Increased as many People want to stay young and attractive. Cosmetics are readily available today in the form Of creams, lipstick, perfumes, eyeshadows, nail Polishes, hair sprays etc. Other cosmetics like face powder Give glow to the skin after applying the base cream. Then we have lipsticks, which are applied by many women of all ages. They are made from wax and cocoa butter in the desired amount. Cosmetics like creams, gels, and colognes are used on a daily basis by both women and men. Creams act as a Cleanser for the face in many circumstances. More recently anti- ageing creams have been manufactured which Can retain younger looking skin for many years. The best cleansing agents are cleansing cream, soap and Water. Cosmetic creams serve as a skin food for Hard, dry and chapped skin. It mainly lubricates, Softens and Removes unwanted dirt from the Skin. Some popular fat creams that are used Include Vaseline and Lanolin. Dry creams are used In the manufacture of soap and gelatin which is Used as a base for the skin. 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, shall be Called as “Herbal Cosmetics”. The herbal cosmetics Are those when natural herbs and their products Used for their aromatic value in cosmetic Preparation among 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. Herbal Lotion, Hererz 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, Shall be called as “Herbal Cosmetics”. The Herbal lotion 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 that Is for External application Without Friction. They Are applied directly to skin it 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. The Herbal lotion is a liquid preparation, Applied Externally on the skin.[2]

Ideal properties of Herbal lotion

1. They should give cooling effect on application
2. They should be free from particles.
3. They should produce emollient effect.
4. They should remove the oily secretion upon Application.
5. They should spread uniformly on the skin Surface.
6. They should not cause any skin toxicity.
7. They should be compatible with skin ph.

## Advantages of Herbal lotion

1.They do not provoke allergic reactions and do Not have any negative side Effects.

1. They are easily incorporated with skin and Hair.
2. These are very effective than other Cosmetics With small quantity
3. Extract form of the plants decreases the bulk Properties of the cosmetics And gives Appropriate Pharmacological effects.
4. Easy to available and found in large of variety Of plants.
5. They have more stability, purity, efficacy, with Their herbal constituent .

The skin is the largest organ in the human body. For the average adult human, The skin has a surface area of between 1.5-2.0 square meters. The thickness of The skin varies considerably over all parts of the body, and between men .(1.3mm) and women(1.26mm) and the young and the old Skin is composed of Three primary layers: the epidermis, the dermis and the hypodermis. pH of skin Varies from 4-5 to 6.

**EPIDERMIS** -Epidermis is the outermost layer of the skin. The epidermis Contain no blood vessels and is nourished by diffusion from the dermis. The Main type of cell which make up the epidermis are keratinocytes, melanocytes, Langerhans cells and Merkel's cells. The epidermis helps the skin to regulate Body temperature. Epidermis is divided into the following 5 sublayer or

Strata:[3]

Stratum corneum

Stratum lucidum

Stratum granulosum

Stratum spinosum

Stratum terminative (also called "stratum basale)

**DERMIS**-The dermis is the layer of skin beneath the epidermis that consist Of epithelial tissue and cushions the body from stress and strain. The dermis is Tightly connected to the epidermis by basement membrane. It contain hair Follicles, sweat gland, sebaceous gland, apocrine.

**HYPODERMIS** :- The hypodermis is not part of the skin, and lies below the Dermis. It consists of loose connective tissue, adipose tissue and elastin. The Main cell types are fibroblasts, macrophages and adipocytes. Fat serves as Padding and insulation for the body.[4]

**Used of Ingredients :-****1.Coconut Oil :-**

Synonyms:-Coconut oil, coconut butter, copra oil.

Biological Source:- Coconut oil is the oil expressed from the dried solid part of endosperm of coconut, *Coco's nucifera L.*, belonging to family *Palmae*.

Geographical Source:- Coconut is widely distributed throughout the world. It is largely cultivated in African and southeast Asian countries. Coconut also known as copra is a dietary as well as industrial product throughout the world. Large quantity of oil is Produced in India, Sri Lanka Malaysia, South Africa, China, Indonesia, and other Countries.[5]

Characteristics:- In temperate region below 23°C coconut oil is concrete oil. Coconut butter is a White or pearl white unctuous mass, odourless or with peculiar coconut odour and Bland taste. Its melting point is 23°C to 26°C. It is soluble in two volumes of Alcohol at 60°C but highly soluble in chloroform, ether and carbon disulphide. The oil readily becomes rancid on exposure to air. The coconut oil has the highest Saponification value, 250–264 and the lowest iodine value, 7–10 among the Vegetable oils in common use.

Chemical Composition:- Coconut obtained from the hard, dried endocarp consists of a mixture of Triglycerides of saturated fatty acids. The oil contains about 95% of saturated fatty Acids with 8 and 10 carbon atoms. It shows the presence of caprylic acid, 2%; Capric acid, 50–80%; lauric acid, 3%; and myristic acid about 1%.

Uses:- Coconut oil is used as dietary products in many areas of the world. In European Pharmacopoeia, fractionated coconut oil is known as 'Thin vegetable oil'. It is Useful as a no aqueous medium for the oral administration of some medicaments. Fractionated coconut oil is used as a basis for the preparation of oral suspension Of drugs unstable in aqueous media. Diets based on medium chain triglycerides Including preparations made from coconut oil are used in conditions associated With mal – absorption of fat such as cystic fibrosis, enteritis, and steatorrhoea. Abdominal pain and diarrhoea have been reported in patients taking diet based On medium chain triglycerides[6]

## 2.Alovera Gel:-



**Biology:-** Botanical Name of Aloe vera *barbadensis miller*. It belongs to the family of Liliaceae or Asphodelaceae. It is a shrubby, perennial and xerophytic plant and Has originated from the Arabian peninsula

**Introduction:-** Aloe Vera, commonly known as ‘Gwar Patha or Ghrit Kumari’ in Hindi (and Sanskrit respectively) is a succulent or juicy plant species of the genus Aloe. It Grows up to 80-100 cm in height, matures in 4-6 years and survives for around 25 Years under favourable conditions. This succulent perennial herb has a triangular, Sessile stem, shallow root system, and fleshy serrated, pea-green leaves arranged In a rosette of 30 – 50 cm length and 10 cm breadth at the base. The bright yellow Tubular flowers are 25 – 35 cm in length and their axillary spikes and stamens are Frequently projected beyond the perianth tube. The fruits contain many seeds. The Gel inside leaves is clear, odourless, tasteless and free of leaf skin or yellow parts. Aloe vera gel has immense medicinal value and so finds use in a wide range of Products.

**Active Ingredients:-** The leaves of aloe vera have three layers. The outermost layer consists of 15 – 20 Cells thick protective layer synthesizing carbohydrates and proteins. The major Components include anthraquinones, chromones, polysaccharides, and enzymes. The elements present in the gel are Al, B, Ba, Ca, Fe, Mg, Na, P, Si etc. The Transverse section of the leaf is made up of three layers and are[8]

- Outer Protective Layer
- Middle Layer
- Colourless Inner Layer

**Chemical Constituents** The fresh gel consists of water (99.1%) and mesophyll cells (0.9% dry matter), In 3 distinct fractions: cell wall, microparticles, and liquid gel (accounting for 16.2%, 0.7%, and 83.1% of dry pulp (w/w), respectively). The sugar component Is mannose as mannose-6-phosphate. Overall, the 5 neutral sugars (i.e., arabinose, Xylose, mannose, galactose, glucose) account for 69.2% of the total sugars in the Gel. Mucopolysaccharides are mainly present as acemannan. The anthraquinone Content is present below 50 ppm and this is the impurity from the leaf extract of Aloe vera. Other ingredients include various amino acids, enzymes, and vitamins Present in minute amounts.

**Therapeutic Uses:-** From keeping the body cool to healing wounds and burns, aloe vera or rather, Aloe vera gel has numerous health benefits. FDA approved that Aloe vera can be Used in food as flavouring, herbal remedies, cosmetics, and food supplements. However, studies show that the benefits of aloe vera are endless. Following are Some of the top therapeutic values of aloe vera: Wound Healing- Aloe Vera is used for the treatment of radiation burns & Radiation ulcers.

**Anti-Inflammatory Action-** Sterols present in Aloe vera gel which are Considered to reduce inflammation up to 37%, contain campesterol,  $\beta$ -sitosterol, Lupeol & cholesterol which are considered to be anti-inflammatory in nature and Help in reducing inflammatory pain.[10,11]

**Moisturising and Anti-Aging Agent:-** Gel improves skin integrity and decreases Acne, wrinkles. It also gives a cooling effect and acts as a moisturizer. Amino Acids soften the skin cells & zinc helps to tighten the pores.

**Antitumor Activity:-** The presence of glycoproteins has antitumor & antinuclear Effects and increases the proliferation of human dermal cells

**Maintaining Oral Hygiene:-** Reports show that aloe vera in tooth gels is very effective and helps to fight Cavities. In some cases, aloe vera gels are even better than commercial toothpaste To control oral bacteria[12]

### 3. Beeswax:-



**Synonyms:-** White beeswax, yellow beeswax, cera alba, and cera flava.

**Biological Source:-** Beeswax is the purified wax obtained from honeycomb of hive bee, *Apis Mellifera* Linn and other species of *Apis*, belonging to family *Apidae*.

**Geographical Source:-** It is mainly found in Jamaica, Egypt, Africa, India, France, Italy, California etc.

**Characteristics :-** Yellow wax or *Cera flava* is yellowish to greyish brown coloured solid, with Agreeable, honey-like odour and a faint, characteristic taste. When cold, it is Somewhat brittle and when broken, shows presence of a dull, granular, Noncrystalline fracture. Yellow wax is insoluble in water and sparingly soluble in Cold alcohol. It is completely soluble in chloroform, ether, and in fixed or volatile Oils, partly soluble in cold benzene or in carbon disulphide and completely soluble In these liquids at about 30°C.[13] White wax is less unctuous to the touch; it is yellow, soft, and ductile at 35°C and Fusible at 65°C. A yellowish-white solid, somewhat translucent in thin layers. It Has a faint, characteristic odour which is free from rancidity and tasteless. It is Insoluble in water, soluble in chloroform, ether, fixed oil, and volatile oils (hot Turpentine oil) and sparingly soluble in alcohol. It is not affected by the acids at Ordinary temperatures, but is converted into a black mass when boiled with Concentrated sulphuric acid.[14]

**Chemical Constituents:-** Beeswax contains myricin, which is melissyl palmitate; melting point 64°free Cerotic acid (C<sub>26</sub>H<sub>52</sub>O<sub>2</sub>), myricyl alcohol (C<sub>30</sub>H<sub>61</sub>OH) is liberated when Myricyl palmitate is specified. Melissic acid, some unsaturated acids of the oleic Series, ceryl alcohol, and 12 to 13% higher hydrocarbons are present.

**USES:-** Beeswax is used in the preparation of ointments, plaster, and polishes.

#### 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[15]

#### Uses

AS Cleaning Agent :- Various properties of borax help to increase its cleaning Power. It converts water into hydrogen peroxide during cleaning. It is highly basic. So it makes the hot water basic which enhances the effectiveness of bleach or Other cleaners .

As an Insect Killer – Borax stops the metabolic process of many organisms. This Property of borax makes it a better disinfectant.It is used in the test of diabetes Mellitus.It is used as a water softening agent. For welding of iron and steel Mixture of borax and ammonium chloride is used as a flux.[16]

#### 5.Rose water :-



Biological Source: Rose water is extracted from the flowers of *Rosa damascene*.

Family:- Rosaceae

Chemical constituents:- Rose water contains citronellol, geraniol, nerol, Linalool, phenyl ethyl alcohol, pinene, limonene and p-cymene.[18]

Description: Pale yellow Characteristic aromatic odour. Fruity taste. It is insoluble in water but soluble in alcohol and vegetable oils.[19]

Use in cosmetic:- Used in the preparation of soaps, body lotions, face cream etc. Used as moisturizer.[20]

Helps soothe skin irritation :- One of the greatest benefits of rose water is its strong anti-inflammatory Properties. These properties can help treat multiple ailments, both internal and External. It may even help soothe the irritation Trusted Source of eczema or Rosacea[21]

Soothes sore throats :- Doctors often prescribe antibiotics for sore throats, but you may want to try rose Water as well. Rose water has traditionally been used to soothe sore throats Trusted Source.

Reduces skin redness:- Rose water has been used as a beauty product for thousands of years, so it's no Surprise that it can improve your complexion and reduce skin redness. The Antibacterial properties may help reduce acne. The anti-inflammatory properties Can reduce skin redness Trusted Source and puffiness.[22]

### **MATERIAL :-**

All the natural materials used in the present study Collection Of Herbs (Aloe Vera): In this We mainly use only one herb known as Aloe vera. Moisturizing Agent delivers Smoothing property to The skin. Aloe vera gel contains two Hormones: Auxin and Gibberellins. These two hormones Provide wound healing .and anti-Inflammatory Properties that reduce skin inflammation. Aloe is Used to Effectively heal Chronic Skin problems, Such us psoriasis, acne and eczema. The Herb that Is used for research Study was collected , coconut oil and Alovera gel From local market washim in a form of Liquid formation. The details of the plant Material used for the formulation of herbal Body lotion mentioned below.

1. Bees Wax
2. Coconut oil
3. Alovera Gel
4. Borax
5. Rose water

### **Role of Ingredients:-**

Ingredients	Use
1. Beeswax	Stiffening agent in cosmetic
2. Coconut Oil	Moisturizer with antiseptic effect
3. Alovera Gel	Cooling property and is anti-inflammatory
4. Borax	Antiseptic, anti-inflammatory
5. Rose waters	Vehicle



**Formulation of Lotion :-**

- Dissolve borax in rose water at 70°C on a Water bath
- Melt the wax with coconut oil in another Beaker on water bath.
- keep the temperature at about 70°C Pour borax Solution into molten wax At the same Temperature with constant stirring
- Stirr the mass constantly when the temperature Drops to about 45°C Pour The formulation in wide mouth container And lable it.[23,24]

**Composition of Herbal Body Lotion :-**

Formula:-

Ingredients	F1	F2	F3
1.Beeswas	5g	6g	5g
2.Coconut Oil	4ml	4ml	3ml
3.Alovera Gel	3g	3g	4g
4.Borax	3g	3g	5g
5.Rose Water	5ml	4ml	3ml

**Evaluation of Herbal lotion :-**

- 1.Organoleptic character
- 2.Homogenicity
- 3.PH determination
- 4.Determination of spreadability
- 5.Irritancy test
- 6.Washability test

**1. Organoleptic character**

Colour – White

Odour -Pleasant

Texture –Smooth State – Semi-solid

2. **Homogenicity**:- The formulation were tested for homogeneity by Visual appearance and by touch.
3. **PH determination**:- 0.5g cream was taken and dispersed in 50 MI distilled water and then PH was measured by Using digital PH meter.
4. **Determination of Spreadability**:-Sample was applied between two glass slides And was compressed to uniform thickness by Placing 100gm weight for 5 minutes. Weight was Added to the pan. The time required to separate the Two slides, i.e. the time in which the upper glass Slide moved over the lower slide was taken as Measure of spreadability. It was Calculated using

The formula:- Spreadability= $\frac{m \cdot I}{t \cdot m}$ -Weight tide to upper slide ,l – Length moved on the glass slide , t-time taken.

5. **Irritancy test:-** &Mark the area (2 cm<sup>2</sup>)on the left-hand Dorsal surface. Then the cream was applied to that Area and the time was noted. Then it is checked For irritancy, erythema, and edema any for an Interval up to 24 h and reported.
6. **Washability:-** A portion of lotion was applied over the Skin of hand and allowed to flow under the Force of flowing tap water for 10 minutes. The time When the lotion completely removed was noted.

#### Result and Discussion:-

Sr.No	Formulation	PH
1.	F1	6.5
2.	F2	6.9
3.	F3	7.1

#### Determination of Spreadability:-

Sr .no	Formulation	Time	Spreadability
1.	F1	8	32.6
2.	F2	11	22.8
3.	F3	14	15

#### Irritancy Test:-

Sr.No	Formulation	Irritancy effect	Erythema	Edema
1.	F1	Nil	Nil	Nil
2.	F2	Nil	Nil	Nil
3.	F3	Nil	Nil	Nil

#### Washability Test:-

Sr.No	Formulation	Washability
1.	F1	Easy Washable
2.	F2	Easy Washable
3.	F3	Easy Washable

#### Result :-

The present research was the formulation And evaluation of herbal body lotion. The evaluation Parameters were coming under results, like the Physical Evaluation of herbal body lotion, PH of the lotion, Spreadability, Washability, Non-irritancy Test, of the herbal pain relieving Lotion was shown in table 3,4,5,6 All the three formulations F1 ,F2 , and F3 Showed good appearance, PH, Determination of Spreadability. Also, the Formulations F1, F2, and F3 Showed no Redness, Erythema and irritation during Irritancy study and They were easily Washable.

**Conclusion :-**

The present work focus on the potential Of herbal extracts from cosmetic Purposes. The Uses of cosmetic have been increased in many Folds in personal Care system. The Use of bioactive Ingredient in cosmetic influence biological Functions of skins and Provide nutrients necessary For the healthy skin. There Are numerous herbs Available naturally having different uses in Cosmetic .preparations for skincare as Antioxidants. The present study revealed that Herbal Cosmetic are very safe and does not Produce any toxic and adverse reactions Compare To marketed cosmetics products. Herbal Lotion we Will avoid skin Problems. By using Aloe Vera gel, Coconut oil and Rose water the Lotion showed A Multipurpose effect and all these herbal Ingredients showed significant different Activities. Based on results and discussion, the formulations F1, F2 and F3 were Stable at room temperature And can be safely used on the skin.

**CERTIFICATE**

This is to certify that, the work presented in this is Submitted in the Partial full filament for the Eighth Semester of “Bachelor of pharmacy” In the faculty Of pharmacy, Sant Gadge Baba Amravati University (SGBAU) University, has been carried out at Shraddha institute of pharmacy ,Washim 444505. Maharashtra (India) by Mr. Mahesh S.Agose under the guidance of Mr. Vinayak A.Katekar and Dr.Swati P.Deshmukh The project is ready for submission.

**DECLARATION**

I undersigned, Mr. Mahesh S.Agose B. Pharm Eighth semester, Shraddha institute of pharmacy ,Washim Hereby declare that the thesis titled Formulation And Evaluation Of Herbal Body Lotion is based on original research work and Has not been submitted previously for the award of Any Degree or diploma by me to any other University. The thesis work was carried out and Submitted in the partial fulfillment of requirement Of the degree of pharmacy, in the faculty of pharmacy Of Sant Gadge Baba Amravati University , Under guidance of Vinayak A.Katekar and Dr.Swati P.Deshmukh .hereby Declare that information given in the thesis istrueasperm Effort accomplish this research work.

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