



## Development and Assessment of Lotion Using Herbal Extract

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### KEYWORDS

Flax-seed gel, moisturizing, nourishing, flax-seed extract-based lotion.

### ABSTRACT:

The objective of the present study was to formulate and evaluate a moisturizing and nourishing lotion for the skin with the help of flax-seeds by using some functional and herbal ingredients. The formulation was developed using 0.5, 1, 1.5, and 2gm of flax-seed extract gel. Lotions were prepared by using preservatives such as; sodium benzoate and suspending agents like glycerin & formulated with various ingredients of the oil phase; cocoa butter, almond oil, beeswax, polyethylene glycol & water phase; flax-seeds gel, glycerin, tri-ethanolamine, rose oil as perfuming agent. The prepared flax-seed extract-based lotions were evaluated for their organoleptic characteristics, homogeneity, pH, viscosity, irritancy, spread ability, and stability tests. Among the four formulations, formulation F2 showed good spread ability, consistency, homogeneity, appearance, viscosity, and pH stability for a long period.

### 1.INTRODUCTION:

Herbal cosmetics are beauty products formulated using various herbal ingredients to provide defined cosmetic benefits. These are the preparations containing photochemical from a variety of botanical sources, it is necessary for healthy skin and hair. These are essential parts of life which they are used for beautifying, cleaning, grooming, etc. Herbal cosmetics are oil in water or water in oil type of emulsion, as they contain essential oil and antioxidants that all help to prevent microbial growth<sup>1</sup>.

Lotions are low-viscosity topical suspensions, solutions, and emulsions that work as an emollient and protective agent that are applied to the skin. They give effective protection to the skin and they are free from irritation and itching. So we can use lotions in our daily routine. Herbal lotions are applied to the skin or membrane and also applied to buccal, nasal, vaginal, and rectal parts. They do not produce toxic effects or harm to the skin and body<sup>2</sup>.

Lotions are used externally and are applied by using hands, brushes, cotton wool, etc. without rubbing. Lotions provide a cooling and soothing effect to the skin and they protect the skin from sun damage such as; sunburn and drying of skin. Lotions can be used for the delivery of medications such as; antibiotics, antiseptic, anti-fungal, anti-acne agent, and anti-allergents. Hence lotions are widely used as herbal cosmetics<sup>3</sup>.



Flax seeds or linseeds are seeds found in flax plants. Humans have ingested flaxseed since the beginning of civilization. Flaxseed has the greatest omega-3 fatty acid, 76 % of protein, and 75 % of lipids. Flax is a functional food or a source of functional nutrients since it includes alpha-linolenic acid, lignans, and polysaccharides and these nutrients include anti-inflammatory activity.

Flaxseed is one of the oldest crops, having been cultivated since the beginning of civilization. The Latin name of the flaxseed is *Linum usitatissimum*, which means "very useful". Flax was first introduced in the United States by colonists, primarily to produce fiber for clothing. Flaxseeds also contain phytoestrogens called lignans, which are similar to the hormone estrogen. The fiber in flaxseed is found in the seed coat. When taken before eating, it seems to make people feel less hungry. It might also help limit how much cholesterol the body absorbs from food<sup>4</sup>.



Flaxseed is used for constipation, diabetes, high cholesterol, obesity, and swelling of the kidneys in people with lupus. It is also used for many other conditions, but there is no good scientific evidence to support most of these other uses. Flax seeds are small edible seeds from the North American flax plant. Not only do these seeds add a nutty flavor to dishes, but they're also bursting with nutrients like heart-healthy fats, fiber, plant protein, and key vitamins and minerals<sup>5</sup>.

### BENEFICIAL EFFECTS OF FLAXSEEDS ON SKIN:

Flaxseeds are not only beneficial for your body but also for your skin. They contain lignans and antioxidants that help in skin tightening and preventing sagging of the skin. They also contain fatty acids which keep your skin nourished, hydrated, and moisturized. Flaxseeds also contain high amounts of omega-3 fatty acids that are useful in promoting healthy skin cells<sup>6</sup>.

Flaxseeds help to reduce acne scars, lighten dark spots, improve skin texture, etc. Flaxseed lotion can be used to soothe the skin irritation and reduce the redness. It works as an anti-aging gel and removes dead cells. Hence an attempt was made to prepare flaxseed extracts lotion which would produce beneficial effects on the skin such as nourishing, moisturizing, and hydrating<sup>7</sup>.



### USES OF ALMOND OIL:

Almond oil expressed from bitter almonds is largely used in cosmetic preparations due to its flavoring, and medicinal purposes. These are also called sweet almond oil.

Almond oil has been used to treat dry skin conditions, including eczema and psoriasis. It has moisturizing and emollient properties and is rich in vitamin E and carbohydrates. These are widely used in skin care

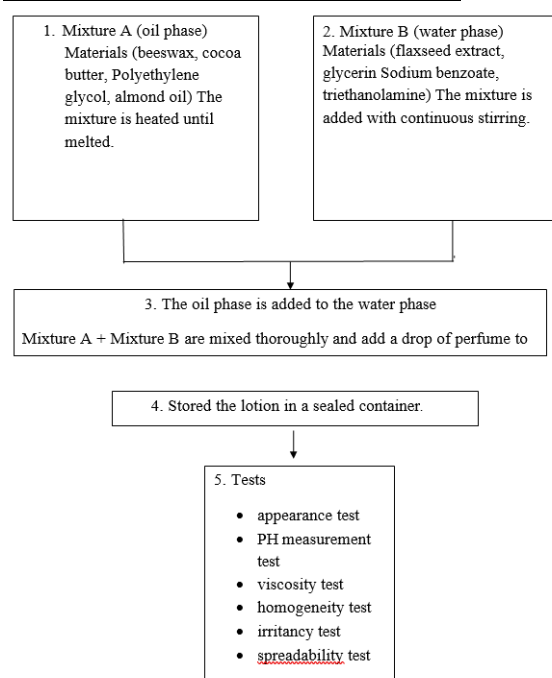
products<sup>8</sup>.

## 2.METHODOLOGY<sup>9</sup>:

### STEP 1 – PREPARATION OF FLAXSEED EXTRACT

The aqueous extract of flaxseed was prepared by adding flaxseeds to boiling water with constant stirring until a thick mucilage was obtained. Then the mucilage was strained using muslin cloth and stored at room temperature until further use.

### STEP-2- PREPARATION OF LOTION



### FORMULATION TABLE:

Sr.No	Ingredients	F1	F2	F3	F4
01	Flaxseed	0.5gm	1gm	1.5gm	2gm
02	Almond oil	1-2 drops	1-2 drops	1-2 drops	1-2 drops
03	Polyethylene glycol	2.5 ml	2.5 ml	2.5 ml	2.5 ml
04	Glycerin	1.5ml	1.5ml	1.5ml	1.5ml
05	Beeswax	3.8gm	3.8gm	3.8gm	3.8gm
06	Cocoa butter	4.2 gm	4.2 gm	4.2 gm	4.2 gm
07	Sodium	0.1gm	0.1gm	0.1gm	0.1gm



	benzoate				
08	Triethanolamine	1ml	1ml	1ml	1ml
09	Rose oil	1-2 drops	1-2 drops	1-2 drops	1-2 drops
10	Water	32ml	31.5ml	31ml	30.5ml

### 3. EVALUATION PARAMETERS:

#### 1. Homogeneity:

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

#### 2. Appearance:

a) Color: The color of the formulations was observed by visual examination.

b) Odor: The odor of the formulations was found to be characteristic.

c) Consistency: The formulations were examined by rubbing on hand manually.

d) State: The state of the formulation was observed by visual examination.

#### 3. After Feel:

Emolliency, slipperiness, and amount of residue left after the application of the fixed amount of lotions were checked.

#### 4. PH measurement:(standard value 4.5-7)

The PH meter was calibrated using a standard buffer solution. About 0.5 gm of all formulations were weighed and dissolved in each 50 ml of distilled water and its pH was measured using a digital pH meter<sup>10</sup>.



#### 5. Irritancy Test:

Mark an area (1sq cm) on the left-hand dorsal surface. All formulations were applied to the specified area and time was noted. Irritancy, erythema, and edema were checked if any for regular intervals up to 24 hours and reported.

#### 6. Viscosity:(290-450 cp)

The viscosity of the formulations was determined by Brookfield viscometer at 100 rpm using spindle number 7 at temperature 25°C. The determination was carried out in triplicate and the average of 3 readings was recorded<sup>11</sup>.



#### 7. Stability testing:

Stability testing of prepared formulations was conducted for 4 most stable formulations at room temperature and studied for 7 days. The formulations were placed at 40°C ±1°C for 20 days. Both formulations were kept at room temperature and elevated temperature and observed on the 0<sup>th</sup>, 5<sup>th</sup>, and 10<sup>th</sup> day for any change in color, phase separation etc<sup>13</sup>.

#### 8. Spreadability:( 35.8-50.3gm.cm/S)

Two glass slides of standard dimensions were selected. The formulations were placed over one of the slides. The other slide placed on the top of the lotion such as that formulation was sandwiched between two slides in an area occupied by a distance of 6.5 cm alongside 100 gm weight was placed uniformly to form a thin layer. The weight was removed and the excess of lotion adhering to slides was scrapped off. The two slides in a position were fixed to stand without the slightest disturbance and in such a way that only the lower slide was helped by the opposite fangs of clamps allowing the appearing slide to slip off freely by the force of



weight tied to it. 20 gm of weight was tied to the upper slide to travel a distance of 5cm and separate away from the lower slide under the direction of weight was noted. The experiment was repeated 3 times and the mean taken for three times such dimensions was calculated. The results were recorded<sup>12</sup>. The spreadability is calculated by using the formula;  
 $S = M \times L/T$

#### Where;

S = Spreadability

L = Length of glass slide

M = Weight field to the upper slide T = Time.

#### 9. Organoleptic characterization test:

Lotions are the most spread liquid cosmetic. Lotions perform a variety of cosmetic functions such as;

- Cleansing
- Moisturizing
- Bleaching
- Protecting

#### 10. Type of emulsion test:

A dye solubility and dilution test was conducted to determine the type of emulsion formed.

#### 11. Phase Separation Test:

The prepared lotion was transferred in suitable wide mouth container. Set aside for storage the oil phase and aqueous phase separation were visualizing after 24 h. And results were noted.

#### 4. RESULT AND DISCUSSION:

Evaluation Tests	Results of Prepared Formulations			
	F1	F2	F3	F4
1. Appearance test				
a) color	white	white	white	white
b) state	Semi-solid	Semi-solid	Semi-solid	Semi-solid
c) odor	pleasant	pleasant	pleasant	pleasant

d) consistency	thick	thick	thick	thick
2. PH test	5.61	6.11	6.29	6.84
3. Viscosity test	216.0	311.9	371.9	443.9
4. Spread ability test	36.92	39.39	43.58	46.43
5. Irritancy test	Nil	Nil	Nil	Nil
6. Phase separation test	No separation	No separation	No separation	No separation

#### 5. SUMMARY:

Herbal cosmetics are beauty products that are formulated by using Herbal ingredients to provide defined benefits. Flax seeds not only nourish the skin but also heal & hydrate the skin. It contains fatty acids, lignins & antioxidants. It reduces acne; lightens dark spots, improves skin texture, etc. Hence an attempt was made to extract the gel from flaxseeds and this flaxseed extract gel was used to formulate the lotion and also almond oil was used as it is rich in vitamin E. Flaxseed gel extract-based lotion was prepared using two phases; oil phase & water phase. In the oil phase cocoa butter, almond oil, beeswax & polyethylene glycol were used whereas in the water phase flaxseed gel extract, glycerin, triethanolamine, and rose oil as a perfuming agent. Four formulations were prepared using 0.5, 1, 1.5, and 2gm of flaxseed extract gel. Evaluation parameters showed that among the four formulations, formulation F2 showed a good spreadability was 39.39gm.cm/S, homogeneity was good, viscosity was 311.9cp and pH was 6.11.

The optimized formulation (F2) was also subjected to stability study at room temperature 28°C – 35°C for one month and parameters were evaluated and found to be stable.

#### 6. CONCLUSION:

In the personal care system, the usage of herbal cosmetics has expanded due to fewer side effects. Flaxseeds provide a variety of essential ingredients such



as 35- 45% oil, which contains 9-10% saturated fatty acids (palmitic & stearic acid), about 20% monosaturated fatty acids (oleic acids), and more than 70% alpha-linolenic fatty acids & omega -3-fatty acids. These help moisturize, nourishing & hydrating the skin, and also, they can reduce fine lines & wrinkles. Hence it can be concluded that the formulation of flaxseed extract lotion would be beneficial as a herbal cosmetics to provide anti-ageing, anti-acne, emollient, moisturizing, nourishing & hydrating properties.

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