

# Formulation and Evaluation of Polyvalent Herbal Cream

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**Abstract:** Natural beauty care products are the arrangements used to upgrade the human appearance. The point of the current exploration was to figure and assess the herbal cream to saturate and feeding the skin. *Carica papaya* has great cell reinforcement properties, it involves an enzyme called papain helps in a skin condition known as psoriasis. *Solanum lycopersicum* animate collagen creation and improves skin versatility. *Coffea arabica* diminishes the presence of sun spots, redness and scarce differences. Likewise lessens appearance of cellulite. *Curcuma longa* contains cancer prevention agents, against bacterial, calming parts. It can assist with dermatitis, alopecia, lichen planus and other skin issues. These herbal drugs are perhaps the most mainstream propitious and notable trees which are all the more broadly read for its drug and clinical properties. Definition of Oil in water (O/W) emulsion-based cream was formed with *Carica papaya*, *Solanum lycopersicum*, *Coffea arabica*, *Curcuma longa* remove. Concentrate of Papaya, Tomato, coffee, Turmeric was acquired by utilizing ethanol as a dissolvable. The natural plan demonstrated great consistency, great spreadibility, homogeneity, pH, non-oily and no proof of stage partition. The herbal extract containing cream considerably expanded skin flexibility, hydration and diminished the skin melanin.

**Keywords:** Herbal cream, ethanolic extract, Oil in water, Saponification.

## ⊙ INTRODUCTION

Restorative items are utilized to ensure skin against exogenous and endogenous destructive specialists and improve the excellence and appeal of skin. Beautifiers are building up an appealing outside appearance, however towards accomplishing long existence of good wellbeing by decreasing skin problems. (Kapoor et al,2005) The natural fixings present in skin health management items that underpins the solidarity to the skin, uprightness of skin and surface, saturating, keeping up versatility of skin by decrease of collagen and photograph security and so on This character of corrective is because of quality of fixings in skin health management detailing, since it assists with diminishing the creation of free extremists in skin and deal with the skin properties for long time. (Saraf et al, 2010) The corrective items are the most ideal decision to diminish skin problems, for example, skin maturing, skin wrinkling, hyper pigmentation and harsh skin surface and so on The utilization of manufactured items turns out to be unsafe from long an ideal opportunity for the adolescent just as our current circumstance. Different engineered compounds, synthetic substances, colour and their subsidiary demonstrated to cause different skin infections having various results. The estimation of spices in the cosmeceutical making has been broadly improved in close to home consideration framework and there is an extraordinary interest for the herbal beauty care products. Subsequently we are utilizing herbal beautifying agents however much as could reasonably be expected. The essential thought of skin health management corrective lies somewhere down in the Rigveda, Yajurveda, Ayurveda, Unani and Homeopathic arrangement of medication. (Hema et al,2010) These are the items where spices are utilized in rough or concentrate structure. These spices ought to have assortments of properties like cell reinforcement, calming, clean, emollient, antiseborrathic, antikerolytic movement and antibacterial and so on The word herbal is an image of wellbeing as opposed to the manufactured one which affects human wellbeing. (Vishwakarma et al,2011)

- *Carica papaya*, Caricaceae family is a perennial large herbaceous plant known for diverse biological activities. Different parts of this plant such as seeds, leaves, fruits, peels, roots, and stems have been previously reported to possess nutritional and medicinal values. This plant possesses a nutritional value that is rich in vitamins and natural minerals but low in calories. Moreover, every part of this plant had been used in treating different type of diseases which include wound dressing, antibacterial, anthelmintic effects, traditionally used to control birth, and several other activities. And It contains Papain Proteolytic enzyme which is used for pain and swelling (inflammation) as well as fluid retention following trauma and surgery. It is used as a digestive aid and for treating parasitic worms, inflammation of the throat and pharynx, shingles (herpes zoster) symptoms.
- Tomato, *Solanum lycopersicum*, after its botanic name, is an herbaceous plant from the Solanaceae family. It contains high content of lycopene, a powerful anti-oxidant, is the major interesting factor of tomato. We know all the advantages of an anti-oxidant for our skins: fighting free radicals, a factor of skin ageing. They are produced by our cells faced to daily stresses. An anti-oxidant is a wonderful anti-ageing active ingredient.
- Coffee berry scientific name as *Coffea arabica* L., family Rubiaceae is a natural ingredient that has promising efficacy in the topical treatment of oxidative stress-induced pathologies (e.g., premature skin aging, dermatoses), and its seed oil is widely used in cosmetic formulations. Indeed, it was recently shown that *Coffea arabica* leaf extract, naturally rich in polyphenols, can prevent photo-damage in skin through: (1) stimulation of type I pro-collagen, (2) inhibition of MMP expression (i.e., MMP-1, -3, -9), and (3) inhibition of MAPK pathway (i.e., phosphorylation of JNK, ERK and p38

MAPK). Further, an *in vitro* study showed protective effects of green *Coffea arabica* oil (GCO) in human skin cells and explants.

- *Curcuma longa*, a member of the ginger family (*Zingiberaceae*), has rhizomes below the ground. *Curcuma longa* has been used for thousands of years as a remedy in the traditional Indian and folk medicine for the cure of a large variety of illnesses, such as inflammation, infectious diseases, and gastric, hepatic, and blood disorders. Curcumin is a major isolated polyphenol from the rhizome of turmeric (*Curcuma longa*). It has a wide range of pharmacological effects such as antioxidant, anti-inflammatory, antimicrobial, antitumor, and hepatoprotective activities. (Sahu et al,2011)

The target of present examination work is to get ready Skin care Product that saturates and relax the skin as well as helps in mending of skin sores and skin breaks. A natural cream that can give compelling assurance to skin and liberated from any harmfulness or poisonous build up or any bothering when routinely utilized and ought to likewise be cosmetically adequate.

## ⊙ MATERIALS & METHODS

### ⊗ Preparation of extracts

The shade dried and coarsely powdered with a mechanical grinder. The powder as passed through sieve No.40 & stored in an airtight container for further use. 500gm powder of *Carica papaya*, *Solanum lycopersicum*, *Coffea arabica*, *Curcuma longa* was placed in Soxhlet extractor, using petroleum ether defatting was done and then successively extracted with ethanol. The extracts were then concentrated to dryness under reduced pressure and controlled temperature, respectively and then preserved in a refrigerator for further utilization. (Himaja et al,2017)

### ⊗ Cream formulation

Oil in water (O/W) emulsion-based cream (semisolid formulation) was formulated. The emulsifier (stearic acid) and other oil soluble components (Cetyl alcohol, Olive oil, Glycerine) were dissolved in the oil phase (Part A) and heated to 75° C. The preservatives and other water-soluble components (Methyl paraben, Sodium benzoate, Triethanolamine, Propylene glycol, ethanol extract of *Carica papaya*, *Solanum lycopersicum*, *Coffea arabica*, *Curcuma longa* was dissolved in the aqueous phase (Part B) and heated to 75° C. After heating, the aqueous phase was added in portions to the oil phase with continuous stirring until cooling of emulsifier took place. (Arti et al,2014) The formula for the cream is given in table 1.

**Table No. 1: Composition of Cream:**

S.No	Ingredients	Quantity (%)
1.	Ethanol extract of Papaya	0.5
2.	Ethanol extract of coffee	0.5
3.	Ethanol extract of Tomato	0.5
4.	Ethanol extract of turmeric	0.5
5.	Cetyl alcohol	3
6.	Stearic acid	12
7.	Olive oil	3
8.	Methyl paraben	0.028
9.	Sodium Benzoate	0.029
10.	Propylene glycol	4
11.	Glycerine	1
12.	Triethanolamine	Q.S
13.	water	Q.S

## ⊙ EVALUATION OF CREAM

### ⊗ pH of the Cream

The pH meter was calibrated using standard buffer solution. About 0.5 g of the cream was weighed and dissolved in 50.0 ml of distilled water and its pH was measured. (Marie Lode et al,2007)

### ⊗ Viscosity

Viscosity of the formulation was determined by Brookfield Viscometer at 100 rpm, using spindle no 7.

### ⊗ Dye test

The scarlet red dye is mixed with the cream. Place a drop of the cream on a microscopic slide covers it with a cover slip, and examines it under a microscope. If the disperse globules appear red the ground colourless. The cream is o/w type. The reverse condition occurs in w/o type cream i.e. the disperse globules appear colourless in the red ground.

### ⊗ Homogeneity

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

### ⊗ Appearance

The appearance of the cream was judged by its colour, odour and roughness and graded.

### ⊗ After feel

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

### ⊗ Type of smear

After application of cream, the type of film or smear formed on the skin were checked.

### ⊗ Removal

The ease of removal of the cream applied was examined by washing the applied part with tap water.

### ⊗ Acid value

Take 10 gm of substance dissolved in accurately weighed, in 50 ml mixture of equal volume of alcohol and solvent ether, the flask was connected to reflux condenser and slowly heated, until sample was dissolved completely, to this 1 ml of phenolphthalein added and titrated with 0.1N NaOH, until faintly pink colour appears after shaking for 30 seconds.

Acid value =  $n \times 5.61 / w$

n = the number of ml of NaOH required.

w = the weight of substance.

#### ⊗ Saponification value

Introduce about 2 gm of substance refluxed with 25 ml of 0.5 N alcoholic KOH for 30 minutes, to this 1 ml of phenolphthalein added and titrated immediately, with 0.5 N HCL.

Saponification value =  $(b-a) \times 28.05 / w$

The volume in ml of titrant = a

The volume in ml of titrate = b

The weight of substance in gm = w

#### ⊗ Irritancy test

Mark an area (1sq.cm) on the left-hand dorsal surface. The cream was 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.

#### ⊗ Accelerated stability testing

Accelerated stability testing of prepared formulation was conducted at room temperature, studied for 7 days. And then the formulation studied at  $40^{\circ}\text{C} \pm 1^{\circ}\text{C}$  for 20 days. The formulations were kept both at room and elevated temperature and observed on 0th, 5th, 10th, 15th and 20th day for the all-Evaluation parameters.

#### ⊗ Spread ability test

Sample was applied between two glass slides and was compressed to uniform thickness by placing 100gm weight for 5minutes. 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 spread ability.

Spread ability =  $m \times l / t$

m = Weight tide to upper slide

l = length moved on the glass slide

t = time taken.

#### ⊗ Microbial growth test

The formulated cream was inoculated on the plates of Muller Hinton agar media by streak plate method and a control was prepared by omitting the cream. The plates were placed in the incubator and are incubated at  $37^{\circ}\text{C}$  for 24 hours. After the incubation period, plates were taken out and check the microbial growth by comparing it with the control. (Sahu et al, 2012)

### ⊙ RESULTS & DISCUSSION

#### ⊗ pH of the Cream

The pH of the cream was found to be in range of 5.6 to 6.8 which is good for skin pH. The herbal formulation was shown pH nearer to skin required i.e. pH 6.6.

#### ⊗ Viscosity

The viscosity of cream was in the range of 27045–26038 cps which indicates that the cream is easily spreadable by small amounts of shear. The herbal formulation was shows viscosity within the range.

#### ⊗ Dye test

The scarlet red dye is mixed with the cream. Place a drop of the cream on a microscopic slide covers it with a cover slip, and examines it under a microscope. The disperse globules appear in red colour and the ground colourless.

#### ⊗ Homogeneity

The formulation was tested for the homogeneity by visual appearance and by touch, appearance and touch was good.

#### ⊗ Appearance

When formulation was kept for long time, it found that no change in colour of cream.

#### ⊗ After feel

Emolliency, slipperiness and amount of residue left after the application of fixed amount of cream was found.

#### ⊗ Type of smear

After application of cream, the type of smear formed on the skin were non-greasy.

#### ⊗ Removal

The cream applied on skin was easily removed by washing with tap water.

#### ⊗ Acid value

The acid value results of formulation were shown in table 2, and showed satisfactorily values.

#### ⊗ Saponification value

The saponification value results of formulation were shown in table 2, and showed satisfactorily values.

**Table No.2**

S.No	Parameter	Formulation
1.	Acid Value	5.8
2.	Saponification Value	23.6

### ⊗ Irritancy test

The formulation shows no redness, oedema, inflammation and irritation during irritancy studies. These formulations are safe to use for skin.

### ⊗ Accelerated stability testing

The formulation was kept both at room and elevated temperature and observed on 0th, 5th, 10th, 15th and 20th day for the all-Evaluation parameters. The stability results showed that the formulation was good.

### ⊗ Spread ability test

The spread ability test showed that formulation has good spreadable property.

### ⊗ Microbial growth test

There were no signs of microbial growth after incubation period of 24 hours at 37°C and it was comparable with the control.

## ⊙ CONCLUSION

From above discussion it is inferred that the readied plan demonstrated great spread ability, no proof of stage detachment and great consistency during the examination time frame. From the above investigation it tends to be inferred that it is conceivable to create creams with herbal concentrates. The ethanolic concentrate of *Carica papaya*, *Solanum lycopersicum*, *Coffea arabica*, *Curcuma longa* showed solid antibacterial movement. The consequences of various trial of cream demonstrated that the development could be utilized topically to secure skin against harm. Regular cures are more adequate in the conviction that they are more secure with less results than the engineered ones. (Hema et al, 2010) In this way, an herbal cream which is non-poisonous, protected, viable and improves tolerant consistence by the usage of natural concentrates would be profoundly adequate. Further examination will do to check experimentally the synergistic activity of definition.

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