

## FORMULATION AND EVALUATION OF TURMERIC HERBAL FACE PACK.

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### ABSTRACTS

Face acts as mirror to show the health condition of person. Herbs are use for the purpose of adding beauty to the skin and the ancient people used herbs for the purpose of adding charm to the skin. Mukha lepa “mentioned in Ayurveda for herbal face pack Face pack cause the tightening the skin to cause a effect that show a effect of a rejuvenate effect to skin. Turmeric face pack is the herbal face pack which use for the purpose of glowing, beautifying, cleaning the skin. According to Ayurveda the major cause of skin problem is due to impurities in the blood. There are different plants extracts and their derivatives are use

to remove the impurities in the blood like turmeric, manjishta, sandlwood. Skin is the home of many microorganisms which include yeast, fungi and many microscopic organism which gives favourable environment for the growth of microorganisms.

**KEYWORDS:** herbal, face pack, turmeric, sandalwood.

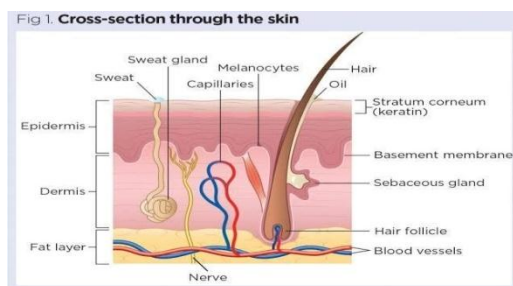
### INTRODUCTION

In the market now days different types of cosmetics products are available which are used for purpose of Cleaning, beautifying and moisturizing the skin.<sup>[1]</sup> Herbs are use for the purpose of adding beauty to the skin and the ancient people used herbs for the purpose of adding charm to the skin.<sup>[2,3]</sup> As the face is the major part of the skin, we use different types of products for glowing the skin.<sup>[1,2]</sup> Face acts as mirror to show the health condition of person.<sup>[1,2]</sup> For the healthy skin we must need balance diet which h include the amino acid, oxidant, lipids, carbohydrates etc.<sup>[1]</sup> “Mukha lepa “mentioned in Ayurveda for herbal face pack.<sup>[4]</sup> Face pack is the preparation of smooth powder which use for the application and apply on the skin in form of paste.<sup>[2]</sup> Face pack is take some time to show their particular action which is glowing, cleaning.<sup>[2]</sup> These preparation is allow on the skin for 10-20 minutes to set and form a thick

layer of film and when they become hard. They must be removed. Face pack causes the tightening of the skin to cause an effect that shows a rejuvenating effect to the skin. These preparations also remove dirt, cell debris, clay from the skin and make the skin glowing.<sup>[5]</sup> Turmeric face pack is the herbal face pack which is used for the purpose of glowing, beautifying, cleaning the skin. Turmeric is a natural ingredient which is available in every home and it has multiple properties like anti-oxidant, anti-bacterial and anti-inflammatory. Turmeric is used for the action of glowing from ancient times. There are different types of herbs present in turmeric face pack. Face pack has different types and their purposes are also different.<sup>[1]</sup> Some of them are used for the purpose of cleaning, glowing, removing wrinkles, acne and pimples of skin.<sup>[5]</sup> Turmeric face pack is the part of Indian marriage ceremony which is used to glow the skin as it has anti-oxidant property. Turmeric is used in various purposes like to heal the wounds as it has anti-inflammatory property. According to Ayurveda the major cause of skin problem is due to impurities in the blood. Substances like poison and other extracts are present in blood due to bad life style and improper food habits. There are different plant extracts and their derivatives are used to remove the impurities in the blood like turmeric, manjishta, sandalwood.<sup>[6]</sup>

## SKIN

The largest organ of the body is skin which is present external to the body and makes us safe from light, heat etc.<sup>[1,2]</sup> It is the biggest organ of the body which primarily controls the body temperature and stores vitamin -D, fat and water. Skin is made of mesodermal cells and different pigments.



It has three layers which are as.

- Epidermis
- Dermis
- Hypodermis

Skin is the home of many microorganism which include yeast, fungi and many microscopic organism which gives favorable environment for the growth of microorganisms.<sup>[4]</sup> It cannot eradicated by cleaning agent. For this purpose we use beautifying cosmetics which are act on skin in light and these cause unfavorable susceptible response. Each session of use must reasonable apparel keeping in mind the end goal to encourage the dissipation of the perspiration. Various researches are done that are use for the formulation and quality check of turmeric face pack for glowing skin are prepared at home using natural ingredients like turmeric, camphor, sandalwood, gram flour, almond, tulsi, and cucumber.<sup>[7]</sup>

#### **The good herbal face pack has properties like.**

- It has less side effects.
- It is use in large aspect.
- It's cost is also low.
- It is easily available.

#### **Benefit of herbal face pack after apply on skin<sup>[8,9]</sup>**

- It nourishes the skin.
- It help to reduce acne, scars.
- Deed cells are eradicated by face pack.
- It prevents the premature aging of skin

#### **MATERIALS**

All materials used in formulation bought from the local market of sonipat haryana which are as :- turmeric powder, gram flour, sandalwood powder, almond powder, cucumber powder, rose petal powder and camphor.<sup>[1]</sup>

#### **Turmeric (*curcuma long*)**



Turmeric plays an important role to make skin young. It Plays an vital role to make our face free from wrinkles and having properties to kill bacteria and anti inflammatory.<sup>[10,11]</sup> It is very effective to treat the problem of acne as it has anti bacterial and anti septic properties and also reduce the oil. It makes skin young and cause glow in the skin.<sup>[10,11]</sup>

**Sandal wood (*Santalum alba*)**

Sandal wood works in various ways to make skin healthy. It has an anti aging property and also help the skin in various ways like tanning effect, emollient, and anti bacterial properties.

<sup>12</sup> It plays an important role to restore the skin or body from wounds /sores.

**Gram flour (*cicer arietinum*)**

Gram flour contains zinc in high quantity that fight against infection that cause acne. It help to remove dead skin and make the skin glowing. It has astringent and protective properties which help to eradicated the dead cells and make skin healthy.<sup>[1]</sup>

**Rose petal powder (*Rosa canina*)**

Rose petal powder has anti bacterial property. Vitamin -K is present and also has property of anti -oxidant. It provides protection against bacterial infection and make skin glow.<sup>[1]</sup>

**Cucumber powder (*cucumis sativus*)**

Cucumber contains vitamin -C in rich amount and 96% of water.<sup>[8]</sup> It helps to prevent the dehydrating the skin and also helps in healing the sunburn. It helps to prevent acne, reduce skin inflammation and prevents free from scars. Skin tone is also enhance.

#### **Almond powder (*Prunus amygdalus*)**



Vitamin -c present in almond in rich amount which nourishes the skin and softens the skin.<sup>9</sup> It contains linoleic acid which is essential fatty acid that help to prevent skin dryness.

#### **Tulsi Powder (*Ocimum Sanctum* Linn)**



It contains camphene which act as natural toner that prevents excess oil in the skin.<sup>10</sup> It prevents blackheads, whiteheads.

#### **Camphor powder ( $C_{10}H_{16}O$ )**



Camphor present as white crystal powder and it has anti microbial, anti viral, and anti tussive properties.<sup>[11]</sup> It also use to skin penetration enhancer and also relive skin irritation.

## Method of preparation

### Collection of ingredients



All ingredients like turmeric powder, gram flour, sandal wood powder, almond powder, cucumber powder, rose petal powder and camphor bought from the local market of sonipat haryana.

### Weighing



### Digital weighing balance Model No:- SM-1

All the required herbal ingredients weighed according to specific quantities which maintained below using digital weighing balance.

### Mixing



### With the help of mortar pestle

All the ingredients of the face pack which are as :- turmeric powder, rose petal powder, cucumber powder, almond powder, tulsi powder, gram flour and camphor mixed using mortar and pestle to make homogeneous mixture.

## Sieving



Ingredients	F1	F2	F3	F4
Turmeric powder	22 gm	25 gm	30 gm	20 gm
Gram flour	22 gm	23 gm	17 gm	32 gm
Sandal- wood Powder	20 gm	22 gm	32 gm	23 gm
Almond powder	6gm	10 gm	4gm	10 gm
Cucumber powder	3 gm	5 gm	3 gm	10 gm
Camphor powder	3 gm	2 gm	1 gm	2gm
Rose petal powder	10 gm	5gm	5gm	2gm
Tulsi powder	5gm	7 gm	8 gm	2 gm
Rose water	5 ml	7 ml	4 ml	6 ml

## Sieve No -42

After the mixing process fine powder ingredients were passed through sieve no-44 to collect extra fine powder.

## Collection and storage

The powder mixture was collected and stored in particular plastic jar /container. Further use for the evaluation test.



## Collected formulation

### Formulation table

### Evaluation test for turmeric face pack

Face pack powder which is evaluated by following parameters.



**Organoleptic evaluation**

Organoleptic evaluation refers to that method of evaluation in which the product is evaluated with the help of sense organ and also involve the microscopic evaluation of drug. Odor of drug /powder, feel by touch color of drug and it's texture.<sup>[13]</sup>

**Physical evaluation<sup>[14]</sup>**

Physical evaluation of powder /drug which is evaluated by the help of physical parameters which are as.

- Ash content
- Bulk density
- Tapped density
- Loss of drying
- Angle of repose
- Particle size

Ash content <sup>1</sup>

Ash content refers to the organic contents present in the powder.

Ash content = weight of ash /weight of original sample \*100.

% Total Ash content =weight of ash /original weight of powder \*100% .

Bulk density

Bulk density is that density which is calculated as.

Bulk density =Mass of powder /total bulk volume of powder.

It was determined when the powder passed through the sieve no-20. Measured the weights of powder and poured the powder in measuring cylinder to determine the volume of powder.

**Tapped density**

Tapped density is that density which is calculated as

Tapped density =Mass of powder /tapped volume of powder.

It was determined when powder passed through the sieve no-20. Measured the weigh of powder by weighing balance and poured the powder in measuring cylinder and tapped it to get tapped volume of powder.

**Loss of drying**

Loss of drying used to determine the moisture content of powder.

%loss of drying (L. O. D) = weight of water in sample /total weight of wet sample \*100%.



### Particle size

Particle size was evaluated with the help of sieve apparatus.

Formulation mixture was passed between the lowest sieve no-20 to 44 which was highest. As free flowing of powder was depended on particle size. So it must showed the satisfactory result.

### Angle of repose

It is the maximum possible angle between the surface of pile of powder to the horizontal plane of powder.

Angle of repose can be defined by the equation

Formula $\Theta = \tan^{-1} (h / r)$	
Where,	
$\Theta$ - Angle of repose, h- Hight of the heap, and	
r- Radius of the heap.	
Flow property	Angle of repose (degrees)
Excellent	25-30
Good	31-35
Fair- aid not needed	36-40
Passable- must agitate, vibrate	41-45
Poor	46-55
Very poor	56-65
Very, very poor	>66

### PH

It is measure of how acidic or basic is water.

It is measured by PH meter.

To determine the PH of powder we dissolved 2gm of powder in 100ml of distilled water. Stirred it for 3-5 minutes and calculated the PH of powder. At room temperature about 20-25<sup>0</sup>C.

### Patch test<sup>[13]</sup>

Patch test is done to show the sensitivity of skin towards the face pack.

For this we applied the paste of powder of each formulation on skin of hand.

Allowed the paste kept dry for 15 to 20 minutes .when the paste didn't show any irritancy then the all formulation passed the test.

These formulation was ready for use on face.

### Organoleptic evaluation

Organoleptic evaluation refers to that method of evaluation in which the product is evaluated with the help of sense organ and also involve the microscopic evaluation of drug. Odor of drug /powder, feel by touch color of drug and it's texture.

**Procedure**

All the four formulation that were termed as F1, F2, F3 and F4 evaluated by our sense organ.

**Bulk density**

Bulk density is that density which is calculated as

Bulk density = Mass of powder / total bulk volume of powder.

It was determined when the powder passed through the sieve no-20. Measured the weights of powder and poured the powder in measuring cylinder to determine the volume of powder.

**Material Required**

All the four formulation that were termed as F1, F2, F3 and F4 respectively.

Measuring cylinder, funnel, tripod stand, and weighing balance filter paper.

**Procedure**

Weighed 100 gm of all formulation that were as :-F1, F2, F3 and F4 with help of weighing balance. Poured each formulation in measuring cylinder and measured the bulk volume of formulation. Calculated the bulk density with the help of formula which mentioned above.

**Tapped density**

Tapped density = Mass of powder / tapped volume of powder .

It was determined when powder passed through the sieve no-20. Measured the weight of powder by weighing balance and poured the powder in measuring cylinder and tapped it to get tapped volume of powder.

**Material required**

All formulation that were termed as :-F1, F2, F3, and F4 respectively.

Measuring cylinder, weighing balance, funnel, tripod stand filter paper.

## Procedure

Weighed 100gm of all the formulation that were as :-F1, F2, F3 and F4 respectively.

Poured all the formulation powder in measuring cylinder and tapped the measuring cylinder.

Calculated the tapped volume Calculated the tapped density with the help of above formula.



## Angle of repose<sup>[5]</sup>

It is the maximum possible angle between the surface of pile of powder to the horizontal plane of powder.

Angle of repose can be defined by the equation

Formula	
$\Theta = \tan^{-1} (h / r)$	
Where,	
$\Theta$ - Angle of repose, h- Hight of the heap, and	
r- Radius of the heap.	
Flow property	Angle of repose (degrees)
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Fair-aid not needed	36-40
Passable- must agitate, vibrate	41-45
Poor	46-55
Very poor	56-65
Very, very poor	>66

## Material required

All formulation that were termed as :-F1, F2, F3, and F4 respectively. Measuring cylinder, weighing balance, funnel, tripod stand filter paper.

## Procedure

Weighed 100 gm of all the formulation powder that were termed as F1, F2, F3, and F4 respectively. Set -up the tripod stand and fixed funnel in the tripod stand.

Poured the powder of formulation in funnel. And allowed the powder passed from the funnel. Calculated height of pile of powder and average radius of circle. Calculated the angle of repose with the help of above formula.



### **Tripod stand with funnel that contain formulation powder Moisture content**

Loss of drying used to determine the moisture content of powder. %loss of drying (L. O. D) = weight of water in sample /total weight of wet sample \*100%.

### **Material required**

Silica G, formulation powder, desiccators, hot oven, and weighing balance.

### **Procedure**

Weighed 0.5 gm of powder of each formulation respectively. Weighed empty crucible and poured the powder of each formulation in crucible.

Taken crucible in the hot oven and calculated the weighed of powder of each formulation respectively. Repeated the process till the weighed of powder of each formulation became constant.



### **Hot air oven Model No:- IFTD. 6.M.S**

### **Ash value**

Ash content refers to the organic contents present in the powder.

Ash content = weight of ash /weight of original sample \*100.

% Total Ash content =weight of ash /original weight of powder \*100% .

### **Material required**

Muffle furnace, weighing balance, crucible, tong ,protective gloves.

**Procedure**

Weighed 2 g powder of each formulation respectively.

Poured the powder of each formulation in crucible.

Weighed it again to calculate the weight of powder with crucible.

Placed crucible in the muffle furnace and started the furnace also set the temperature up to 6000<sup>0</sup> C.

Kept furnace for 2 to 3 minutes.

Calculated the % of total ash content with the help of above formula.



**Muffle furnace Model No:-KI-179 PH**

It is measure of how acidic or basic is water.

It is measured by PH meter.

To determine the PH of powder we dissolved 2gm of powder in 100ml of distilled water.

Stirred it for 3-5 minutes and calculated the PH of powder. At room temperature about 20-25<sup>0</sup>C.

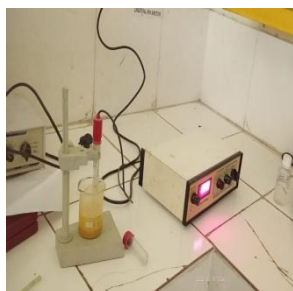
**Material required**

PH meter, beaker, magnetic stirrer, distilled water, weighing balance.

**Procedure**

To determine the PH of powder we dissolved 2gm of powder in 100ml of distilled water.

Stirred it for 3-5 minutes and calculated the PH of powder. At room temperature about 20-25<sup>0</sup>C.

**Digital Ph meter model no :-MPH-171****Particle size**

Particle size was evaluated with the help of sieve apparatus . Formulation mixture was passed between the lowest sieve no-20 to 44 which was highest. As free flowing of powder was depended on particle size. So it must showed the satisfactory result.

**Material required**

All the four formulation powder that were termed as :-F1 , F2, F3, and F4 respectively.

Sieve apparatus

**Procedure**

Assembled the sieve apparatus according to mesh size of sieve that were as 44 to 22. Poured the formulation powder in the sieve apparatus. Started the sieve apparatus manually by hand. When all the powder of face pack passed through each sieve after operation of 10 minutes. Calculated the particle size of powder.



Sieve apparatus Model no - SN-20

**Patch test<sup>[15]</sup>**

Patch test is done to show the sensitivity of skin towards the face pack. For this we applied the paste of powder of each formulation on skin of hand. Allowed the paste kept dry for 15 to

20 minutes .when the paste didn't show any irritancy then the all formulation passed the test. This formulation was ready for use on face.

#### **Before applying face pack on skin**



#### **On applying face pack on hand**



#### **After applying face pack on hand**



#### **Stability testing**

Stability testing was done to show our formulation was stable. We gave the condition of fixed temperature at 42<sup>0</sup> C and at 20-25<sup>0</sup> C. We stored the formulation for 15 days.

F3 showed the strong stability. We got following observation which given below in table.

#### **RESULT**

We prepared all the formulation of face pack that were as :-F1 , F2 , F3 and F4.

Face pack followed all the parameters of the test. Face pack was free flowing.

Face pack didn't show any irritancy on skin. It was very easy to apply.



**Table No. 1: Organoleptic evaluation.**

Formulation	Color	Appearance	Odor	Texture
F1	Pale yellow	Powder(free flow)	Slight	Fine
F2	Yellow	Powder (free flow)	Slight	Fine
F3	Pale yellow	Powder(free flow )	Slight	Fine
F4	Dark yellow	Powder (free flow)	Slight	Fine

**Table No. 2 Bulk density.**

S. No	Formulation	Bulk density
1	F1	0.571g/ml+-0.01g/ml
2	F2	0.558g/ml+-0.02g/ml
3	F3	0.666g/ml+-0.01g/ml
4	F4	0.588g/ml+-0.03g/ml

**Table No. 3 Tapped density.**

S. No	Formulation	Tapped density
1	F1	0.8695 g/ml +- 0.11g/ml
2	F2	0729 g/ml+- 0.22 g/ml
3	F3	0.66 g/ml+-0.23 g/ml
4	F4	0.833g/ml+-0.11g/ml

**Table No. 4 Angle of repose.**

S. No	Formulation	Angle of repose	Type of flow
1	F1	25-30	Excellent
2	F2	<25	Good
3	F3	30-40	Passable
4	F4	25-30	Good

**Table No. 5 Moisture content.**

S. N	Formulation	% moisture content
1	F1	6
2	F2	8.5
3	F3	7
4	F4	5

**Table No. 6total Ash content**

S. No	Formulation	total ash content (g)
1	F1	5.2
2	F2	5.7
3	F3	4.8
4	F4	5

Table No. 7 Ph

S. No	Formulation	PH
1	F1	6.1+ 0.2
2	F2	6.7+0.1
3	F3	5.9+ 0.3
4	F4	5.7+ 0.3

Table No. 8 irritancy test.

S. No	Formulation	Irritancy
1	F1	Negative
2	F2	Negative
3	F3	Negative
4	F4	Negative

Table No. 9 Particle size.

S. No	Formulation	Particle (micro size meter)
1	F1	27.4+ 3.44
2	F2	24.2+ 2.22
3	F3	25.2+1.22
4	F4	23.2+0.9

Table No. 10 Stability testing (for PH)

S. No	Formulation	PH at 20-25 <sup>0</sup> C	PH at 42 <sup>0</sup> C
1	F1	6.2+ 0.1	6.0+ 0.2
2	F2	6.7+ 0.4	6.4 +0.4
3	F3	6+0.1	5.9+0.2
4	F4	5.8+0.2	5.7+ 0.1

Table No. 10.1 (For Colour).

S. No	Formulation	Color at 20-25 <sup>0</sup> C	Color at 42 <sup>0</sup> C
1	F1	No change	No Change
2	F2	No change	No change
3	F3	No change	No change
4	F4	No change	No change

Table No. 10.2 (For Texture)

S. No	Formulation	Texture at 20-25 <sup>0</sup> C	Texture at 42 <sup>0</sup> C
1	F1	No change	No change
2	F2	No change	No change
3	F3	No change	No Change
4	F4	No change	No change

**Table No. 10.3 (For Smoothness)**

S. No	Formulation	Smoothness at 20-250 C	Smoothness at 42 <sup>0</sup> C
1	F1	Smooth	Smooth
2	F2	Smooth	Smooth
3	F3	Smooth	Smooth
4	F4	Smooth	Smooth

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