

EXPERIMENT NO. 6

Aim: To formulate and evaluate herbal cream containing *Curcuma longa*.

Requirements: Ethanol, sieve, pH meter, viscometer, glass slides etc.

Theory: Turmeric is a spice that comes from the turmeric plant and is the main spice in curry. It has a warm, bitter taste and is frequently used to flavor or color curry powders, mustards, butters, and cheeses. Turmeric is commonly used for conditions involving pain and inflammation. It is very good for skin. Turmeric contains antioxidants and anti-inflammatory components. These characteristics may provide glow and luster to the skin. Turmeric may also revive your skin by bringing out its natural glow. The curcumin found in turmeric can help wounds heal by decreasing inflammation and oxidation. It also lowers the response of body to cutaneous wounds. This results in wounds healing more quickly.

Procedure:

Preparation of Turmeric extract

Collect the Turmeric and dry it for 2 day in sunlight. Crush it to fine powder and passe it from sieve # 60. Macerate the collected powder with 70% ethanol in iodine flask for 7 days. Filter the extract and decolorize it with charcoal to get clear liquid. Evaporate this extract to get the semisolid mass.

Preparation of Cream

The formulation components used are-

Formulation of cream	Ingredients (%w/w)
Extract in Isopropyl alcohol	2
Stearic acid	10
Triethanolamine	1.3
Mineral oil	3.5
Moisturizer conditioner	10
Cetyl alcohol	2
Propyl paraben	0.02
Sodium metabisulphite	0.1
EDTA	0.1
Water	qs to 100ml

The moisturizer conditioner is a mixture of propylene glycol: glycerine: sorbitol (2:1:1). Dissolve all the aqueous soluble ingredients in water and mix all oil soluble ingredients at 75° C in separate beakers. Add the aqueous phase to oil phase slowly with constant stirring and homogenize the mixture for 30 min.

Evaluation of creams

pH

Measure the pH by pH meter.

Viscosity

Determine the viscosity of cream by Brookfield viscometer. Pour the developed formulation into the adaptor of the viscometer and the angular velocity is increased gradually from 0.5 to 20 rpm.

Stability studies

The stability studies are carried out as per ICH guidelines. Fill the cream in bottle and keep in humidity chamber maintained at $30 \pm 2^\circ\text{C} / 65 \pm 5\% \text{RH}$ and $40 \pm 2^\circ\text{C} / 75 \pm 5\% \text{RH}$ for two months. At the end of studies, analyze the samples for the physical properties and viscosity.

Spreadability studies

Spreadability is expressed in terms of time in seconds taken by two slides to slip off from the formulation, placed between, under the application of a certain load. Lesser the time taken for the separation of the two, better the spreadability. Select two glass slides of standard dimensions. The formulation whose spreadability has to be determined is placed over one of the slides. The other slide placed on top of the formulations is sandwiched between the two slides across the length of 5 cm along the slide. 100 g weight is placed up on the upper slide so that the formulation between the two slides presses uniformly to form a thin layer. The weight is removed and the excess of formulation adhering to the slides scrapped off. One of the slides is fixed on which the formulation is placed. The second movable slide is placed over it, with one end tied to a string to which load could be applied by the help of a simple pulley and a pan. A 30g weight is put on the pan and the time taken for the upper slide to travel the distance of 5.0cm and separate away from the lower slide under the direction of the weight is noted. The spreadability was then calculated from the following formula:

$$\text{Spreadability} = m \times l \times t$$

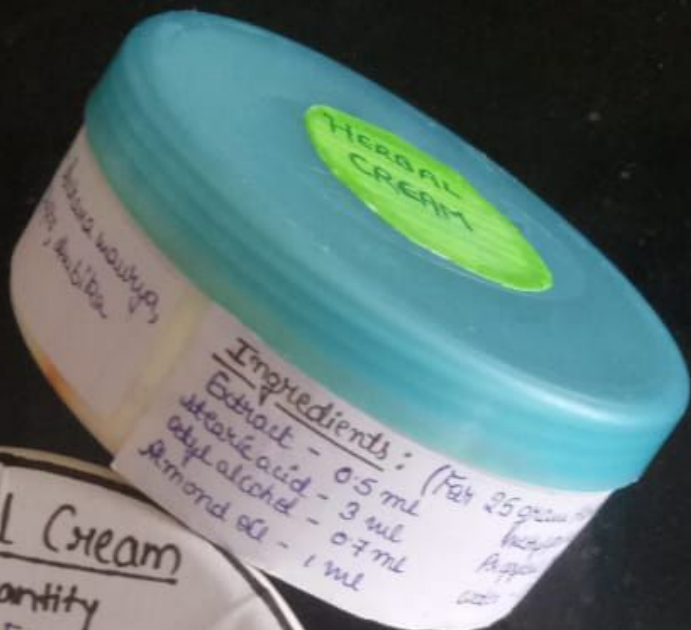
m = weight tied to the upper slide (30g)

l = length of glass slide (5cm)

t = time taken in seconds.

Test for microbial growth

Inoculate the formulated cream on the plates of agar media by streak plate method. Place the plates in to the incubator and are incubated at 37°C for 24 hours. After the incubation period, plates are taken out and check the microbial growth by comparing it with the control.



Ingredients: (For 25 gram jar)
 Extract - 0.5 ml
 Stearic acid - 3 ml
 Cetyl alcohol - 0.7 ml
 Almond oil - 1 ml

Herbal Cream

Ingredient	Quantity
Herbal extract	0.5 gm
Stearic acid	3 gm
Cetyl alcohol	0.75 ml
Almond oil	1 ml
Methyl paraben	0.007 gm
Propyl paraben	0.007 gm
Propylene glycol	1 ml
Water	q.s.

Mfg. date: 18/05/2022
 Exp. date: 18/05/2024
 Net wt. = 25 gm

Mfg. by: Abhishek, Aakash, Adarsh
 Ashutosh, Mahesh Tripathi,
 Aman Sharma
 B. Pharm; 6th Sem
 (Batch - A)

HERBAL CREAM

Composition

- ① Extract 0.5 ml
- ② Stearic acid 3 gm
- ③ Cetyl alcohol 0.75 gm
- ④ Almond oil 1 ml
- ⑤ Propyl paraben 0.007 gm
- ⑥ Propylene glycol 1 ml
- ⑦ Water q.s.