Evaluation of semisolid dosage forms

Evaluation of ointments

1) penetration test
2) Rate of release of medicaments
3) Absorption of medicaments in to blood stream
4) Irritant Effet

penetration test

for Ex:- weigh 5 gms of ointment
↓
and rubbed over a skin
↓
and left for certain period of time.
↓
after that scrap on the applied area.
↓
and collect the unabsorbed ointment
↓
and weigh. after weighing 3gm of ointment was there
↓
The difference in the weight represents the absorbed amount
↓
5 - 3 = 2
↓
2 gms of ointment was absorbed

B. Rate of release of medicament

can be determined by ① Agar plate method

Small amount of ointment is plaed on the surface of nutrient agar contained in petridish

Depending on the medicament content it is seeded with the Staphylococcus aureus

After certain period of time, by measuring the zone of inhibition, one can asses the release of medicament

Absorption of medicament in to blood stream

Ointment should be evaluated for the rate of absorption of drug in to blood stream

test can be done by in-vivo only

Ointment should be applied over a definite area of skin by rubbing

At regular intervals of time

urine & serum samples should be analysed

for the quantity of drug absorbed per unit should be more.

Irritant Effut

Test is performed on skin and eyes of rabbit or human skin

↓

ointment is injected in to thigh muscles and under abdominal skin in rabbits.

↓

results should observed daily for a week

↓

If any reactions observed at 24, 48, 72 & 96 hr.

↓

lesions produced on cornea, iris, conjunctiva can be used to asses irritancy effects.

Evaluation of creams :- Sensitivity test
Rheology test
Biological test

Rheology

→ Rheological characteristics play a very vital role in Evaluation of creams from tubes or jars

→ Viscosity can be measured by using viscometers

→ Rheology / viscosity should remain constant

→ Rheological measurement are utilized to characterize the ease of pouring from a bottle, squeezing from a tube or other deformable containers

→ Rheology / viscosity plays an important role in pumping the product from mixing and storage to fill equipment.

Sensitivity test

used creams.

↓

must be tested for sensitization or photosensitization

↓

Test was done by patch test

↓

in an open way or occulsive one.

↓

test sample is applied along with standard market product

↓

Effet is compared after period of time

Evaluation of pastes : Rheology test
Foaming character
PH of the product
Abrasiveness
particle size

Foaming character

This test is done for

↓

foam forming tooth pastes or powders.

↓

tooth paste / powder should be mixed with water.

↓

and shake for few minutes.

↓

foam will form.

↓

formed foam is used to study its nature, stability and washability.

PH of the product

→ PH of the cream can be measured on a standard pH meter at room temperature

↓

formulation should be diluted with a suitable solvent and placed in a beaker

Abrasiveness:

measure of amount of solid medicament per unit of paste.

particle size:

This can be determined by microscopic study of the particles or other means

Evaluation of Gels:

spreadability

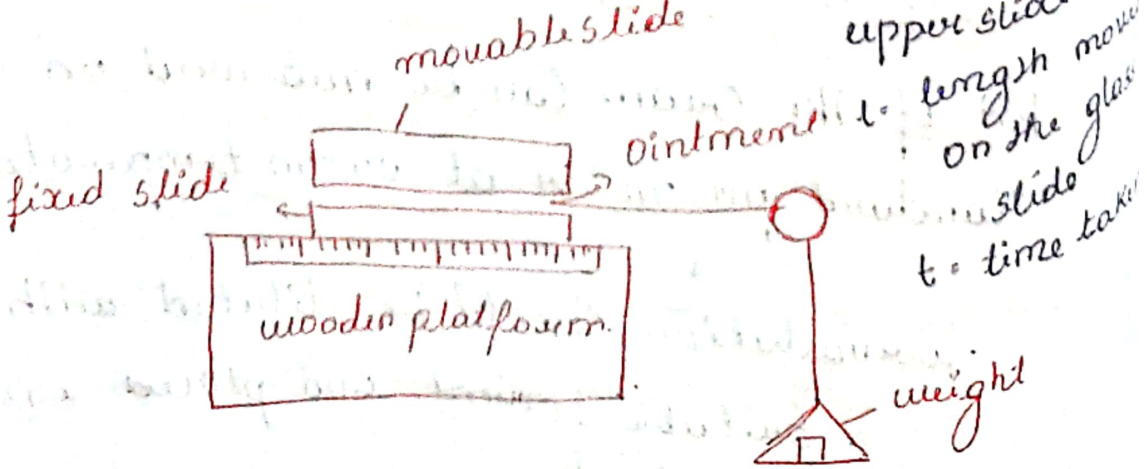
- In spreadability test, a small quantity of ointment is placed between 2 slides
  - one is movable
  - force is applied on movable slide
  - and the corresponding distance travelled is recorded

$$S = \frac{m \times l}{t}$$

m = wt applied to upper slide

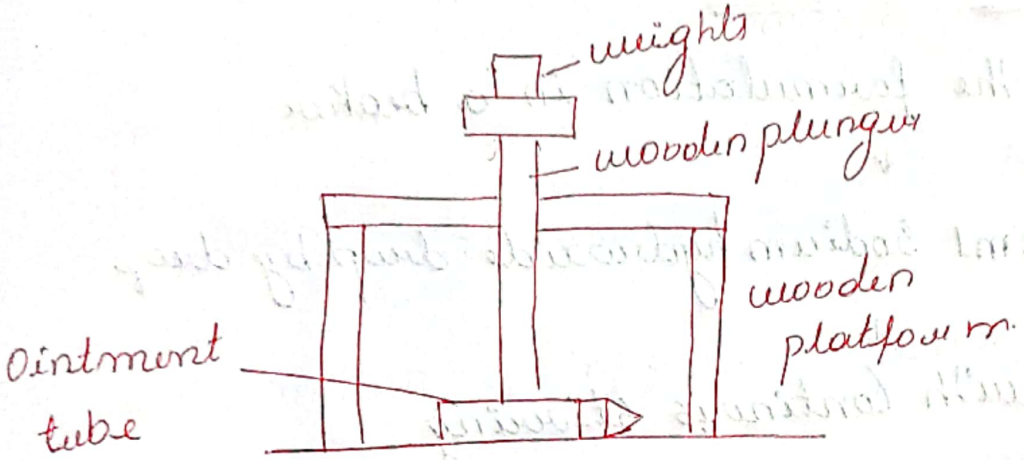
l = length moved on the glass slide

t = time taken



Extrudability

Force required making the ointment move out or Extrude through uncapped tube, placed below the plunger is test of Extrudability.



Drug Content

→ 1 gm of gel is weighed in a 50ml of volumetric

↓

add 20 ml of purified water with Continous shaking

↓

volume is adjusted with a mixture of 10% methanol in water

↓

Absorbance of the solution with the blank is measured at 360 nm using UV-spectrophotometer

c) Homogenity of Drug Content

→ Six tubes are taken randomly and assayed for the drug content by the above method

c) Determination of pH:

Take the formulation in a beaker

↓

add 1ml Sodium hydroxide drop by drop

↓

with Continous stirring

↓

check pH

↓

by using pH meter.

d) Viscosity:-

→ Brook field viscometer is used for determination of viscosity

→ Gels were filled in jar

→ Spindle was lowered perpendicularly

→ Spindle should not touch to the bottom of the jar

→ Spindle was rotated in the gel at increasing shear rate 0.5, 1, 2.5 and rpm

4. Each speed the corresponding dial reading was noted