

13/11/19

# Unit - 4th

## Forskolin

B.S  $\Rightarrow$  obtain from the roots of plant  
Colis Forskolin belongs to family  
Lamiaceae.

### Extraction & Industrial Production

- Root & bark powder it is mixed with the toluene & extract for 2 hours -

↓  
filter the extracted solution

↓

And mix the filtrate with n-hexane it give the brown ppt of Forskolin.

- Root & bark powder + Toluene

↓ extract

filtrate + n-hexane

↓

Brown ppt Forskolin.

Estimation  $\Rightarrow$

Sample preparation Forskolin +  
chloroform.

Mobile phase - Toluene + ethylacetate 55:1:5

Stationary phase - Silica gel F254.

Using agent  $\Rightarrow$  3% valanine glycol acetic acid  
+ 10%  $H_2SO_4$  + water.

Utilization  $\Rightarrow$

- Promote antiobesity.
- Used in ophthalmic condition like glucoma.
- Antidepressant
- Antiasthmatic effect.

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## Sennoside

B.S - leaflets of *Cassia Angustifolia*  
Family *Leguminaceae*.

Industrial production -

Mixed the powder  
extract with ethanol & chloroform extract its  
for 30 minute filter the extract and collect  
the filtrate mix the filtrate with  
oxalic acid & methanol & proceed  
for further extraction filter the  
extracted material and collect the filtrate  
mix the previously collected filtrate &  
filtrate which is obtain after  
the extraction with oxalic acid its  
give the ppt of sennosides B

which is further recrystallized with triethylamine to give sennoside A.

Powder + ethanol + chloroform

↓  
filter for 6 hours.

↓  
① filtrate + oxalic acid + methanol

↓  
extraction.

↓  
filtrate ②

↓  
(1+2)

↓  
ppt of sennosides

↓  
Recrystallized with triethylamine.

↓  
Sennoside A

Estimation

Sample preparation - sennoside + methanol

Column = 25x4.6 mm mob

mobile phase - 1:1: acetic acid + water + acetonitrile.

flow rate - 1 ml/min

## Utilization ⇒

- Utilized in the treatment of constipation.
- Skin disease.
- Useful in the treatment of jaundice.
- Anthelmintic
- Loss of hepatic, malarial, and in indigestion.

## Utilization of Artemisinin

- Artemisinin and its derivative are known for their ability to suppress inflammatory immune response.
- It is the first line of drug therapy for *Plasmodium falciparum*.
- It also contains anticancer.
- Artemisinin and its derivative Artesunate are superior to ~~even~~ quinine in treatment to malaria in adult ~~to~~ ~~&~~ children to the oral administration.

## Vincristine & Vinblastine

B.s) obtain from the whole plant of  
catbananthus roseus  
family - apocynaceae.

### Industrial Production

Vinea + RH  $\xrightarrow{\text{adjust PH=4}}$  extract with 2% HCl  
 $\downarrow$  NaOH  
again extract  
with benzene  
 $\downarrow$   
PH  $\uparrow$  7  
 $\downarrow$   
extract with benzene  
 $\downarrow$   
extract of benzene  
+  
Methylene chloride  
 $\downarrow$   
Separate by column  
chromatography  
 $\downarrow$   
extract of  
vinblastin

### Estimation

Sample preparation - 1mg of vinblastin +  
95% of water in methanol

stationary phase - silica gel G.

Mobile phase - Aceto nitrile + benzene  
30:70

Visu

1:1. solution of seric ammonia.  
sulphate in 85% of phosphonic acid

R<sub>f</sub> value - 0.39

Utilization ⇒ As an anticancer  
vincristin is used in case  
of acute leukemia.

## Taxol

B.S ⇒ obtain from the bark of taxes bracteata  
family. Taxaceae.

Industrial Production ⇒ Powder bark + methanol

↓  
extract

↓  
filtered

↓  
evaporate to dryness

↓  
discard the mass

↓

Extract  $\begin{matrix} \swarrow \text{CCl}_4 \\ \searrow \text{H}_2\text{O} \end{matrix}$   
↓  
mix both the extract  
↓  
discard  $\text{CCl}_4$  extract + methanol  
↓  
evaporate to get Taxol

### Estimation

Sample preparation - Taxol + ethanol

Mobile phase - chloroform + methanol (7:1)

Stationary phase - Silica gel F254

Visualizing agent - valinin vanilline sulphuric acid.

R<sub>f</sub> value - 0.61

### Utilization ⇒

It is used to treat breast cancer, lung cancer, ovarian cancer.

It used as an antiproliferative.

for prevention of reocment of  
naoin of coronary artery

## Utilization of Podophyllotoxin

It contains cytotoxic & antitumour activity.

Podophyllum is used as an emetic agent.

Podophyllotoxin cream is commonly prescribed as a potent topical antiviral.

Its semisynthetic derivative is used as an anticancer drug like etoposide.

## Utilization of Atropine

It is used as pre-anesthetic medication & also as an antispasmodic & mydriatic agent.



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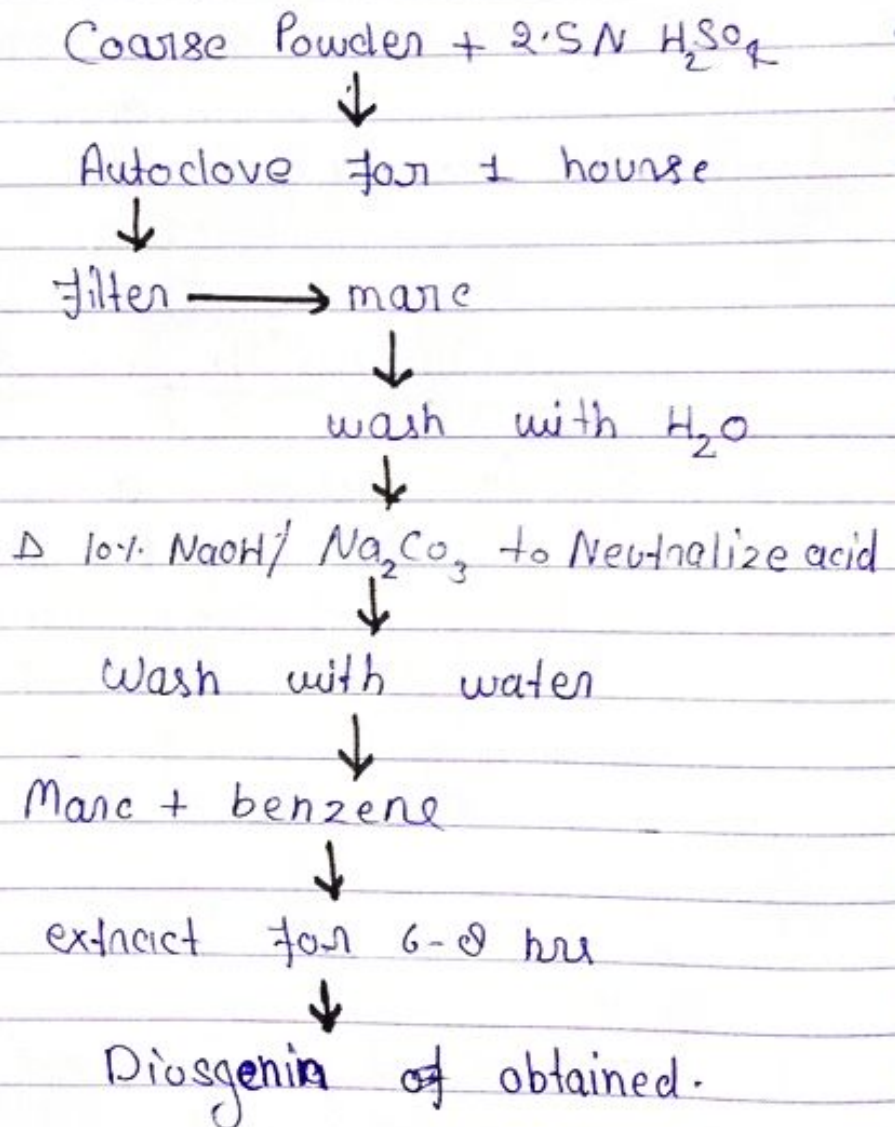
## Diosgenin

B.S - Obtain from the *dioscorea deltoidea* belongs to family. dioscoreaceae.

### Industrial Production

It is prepared by three method first

#### ① Acid hydrolysis -



② Fermentation & acid hydrolysis ÷

Smashed + tubes of *Dioscorea deltoidea*



Ferment for 2-3 days



filter & wash with  $H_2O$

Marc + 2-4 N  $H_2SO_4$



extract for 6-7 hrs

wash with

10% NaOH /  $Na_2CO_3$  to Neutralize acid



wash with water



Marc + heptane



extract



Diosgenin



obtained

③ Extraction and acid hydrolysis ÷

Powder + ethanol / methanol



extract

Syrupy liquid obtained



Conc. with HCl



6-12 hrs.



Dioscim

↓ convert to

Diosgenin (ppt) *with lit*



filter



Collect the Diosgenin.

### Estimation ←

Sample preparation - diosgenin + methanol.

Mobile phase - ethylacetate & n-hexane (2:4)

Stationary phase - silica gel F254

Derivating agent - 3 gm of  $SbCl_3$  + 100 ml HCl

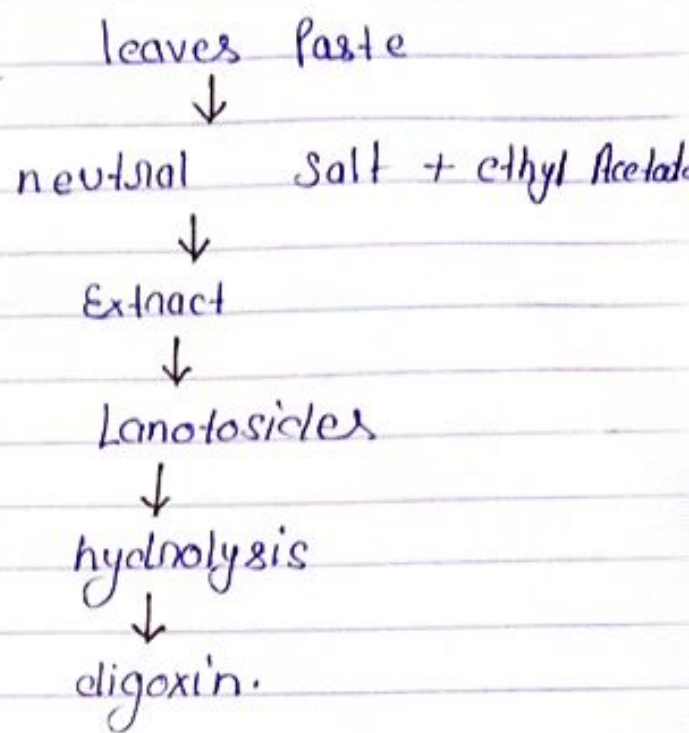
### Utilization -

- Precursor for steroidal synthesis.
- Utilized for the synthesis of sex hormones and in oral contraceptive.
- Diostonic towards cure used in the treatment of Rheumatism.

## Digoxin

B.S Obtain from the dried leaves of *Digitalis lanata*.  
Family - Scrophulariaceae

## Industrial Preparation-



## Estimation-

Sample preparation- 40 ml of digoxin + 95% of ethanol up to 100 ml, take 5 ml of this solution & dilute it up to 100 ml

Assay- 3 ml of above solution + 3 ml picric acid allow it to stand for 30 minutes & measure the absorbance at 495 nm.

## Utilization:

It is used as a drug of choice in cardiac disorders.