

# EXTRACTION

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# INTRODUCTION

- Extraction defined as the treatment of the plant or animal tissues with solvent, whereby the medicinally active constituents or API are dissolved & most of the inert matter remain undissolved.
- GALEN a Greek pharmacist of Rome who described various methods of extracting the crude drugs for the first time & hence the branch dealing with the extraction of plant & animal drugs is known as Galenical pharmacy & the products as Galenicals.



## CONT..

- Menstruum: solvent used for extraction.
  - Marc: the insoluble material that remains extraction.
  - Various process involved for extraction-
    - Infusion
    - Decoction
    - Maceration
    - Percolation
    - Continuous hot percolation or Soxhlet extraction or Soxhlet process.
    - Digestion
- 

## CONT...

- Following solvents are generally used for extraction
- ✓ Water & Alcohol
- ✓ **WATER:** it is used as a solvent for protein, colouring matter, gums, glycosides, sugars, alkaloidal salts, enzymes, many organic acids & most of the organic salts. Waxes, fats, fixed oils & most alkaloids are insoluble in water.
- ✓ **Disadvantages:** fermentation, decomposition of the preparation, chance to produce undesirable substances & interfere with clarity of the preparation.
- ✓ Use of preservatives.

### Advantages

It is cheap.

It has wide solvent action.

It is non-toxic.

It is non-inflammable.

## CONT..

- Water causes hydrolysis of many substances.
- Larger amount of heat required compare with non-aqueous preparations.
- ✓ **ALCOHOL:** it is used as a solvent for alkaloids, alkaloidal salts, glycosides, volatile oils & resins. It also dissolves many forms of colouring matter, tannins, many organic acids & salts. Gums, albuminous matter, gums, waxes, fats, fixed oils & sugar those are not soluble in alcohol.
- ✓ **ADVANTAGES:** bacterial growth not occurs, if the solut.contains more than 20% alcohol, non-toxic, small amt.of heat is required.

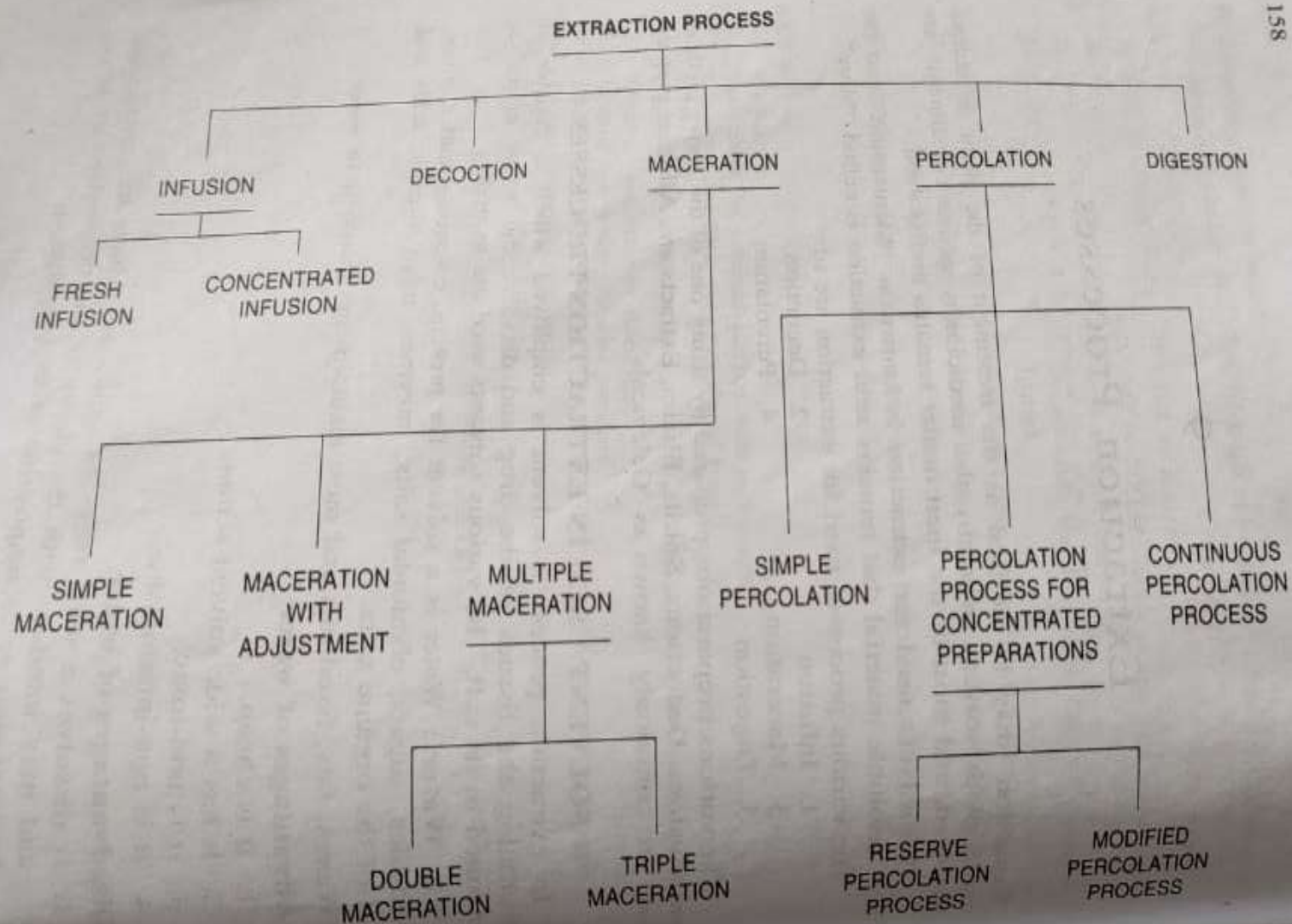


# DISADVANTAGES

- Alcohol as a solvent very costly.
- The preparation becomes costly when alcohol is used as solvent for extraction of active constituent of the drug.

Note- Solvents such as solvent ether, chloroform, light petroleum, certain acids used rarely for extraction of active constituents from crude drugs.







# EXTRACTION PROCESSES

## **INFUSION**

- It consists of pouring water over the drugs and then allowing it to keep in contact with water for the stated period, usually 15 minutes, with occasional stirring and finally filtering off the liquid.
- The marc is not pressed.
- The boiling water is commonly used as a solvent, since it has a greater solvent action than cold water.





## CONT...

01 INSERT  
SOFTBREW™ FILTER



02 ADD GROUND  
COFFEE




03 POUR IN  
HOT WATER



04 AFTER 4-8MINS YOUR  
COFFEE WILL BE READY



## CONT...

- For the preparation of infusions the coffee pots or tea pots or special infusion pots are used.
  - In that, firstly drug is placed in bottom of the pot.
  - Then add hot water & stirred three or four times during the period of infusion.
  - Infusion also prepared in muslin cloth. In that drug is placed in muslin cloth & enclose & then suspending it just below the level of the water in a beaker.
  - For that process string is not required.
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# TWO TYPES OF INFUSION

## ➤ FRESH INFUSION

## ➤ CONCENTRATED INFUSION

## ➤ FRESH INFUSION

- Aqueous liquid used as a menstruum.
- It is prepared by...
- Coarse drug + Hot water then filtrate after some time.
- As per pharmacopoeia it is used within 12 Hrs after formulation.
- e.g. fresh infusion of Quassia.



CONT..

➤ **CONCENTRATED INFUSION**

- It is eight times stronger than fresh infusion.
- In that 20 to 25 % alcohol conc. used as a menstruum.
- It is prepared by double or triple maceration process.
- It can be stored for a longer time of period.
- e.g. Concentrated infusion of Quassia.

# **DECOCTION**

- In this process, the drug is boiled with water for a stated period usually 10 minutes.
- After boiling, the liquid is strained and water is passed through the content of the strainer to make the required volume.
- This process is mainly used for vegetable drugs of hard and woody nature having thermostable water soluble constituents.





THANK YOU

