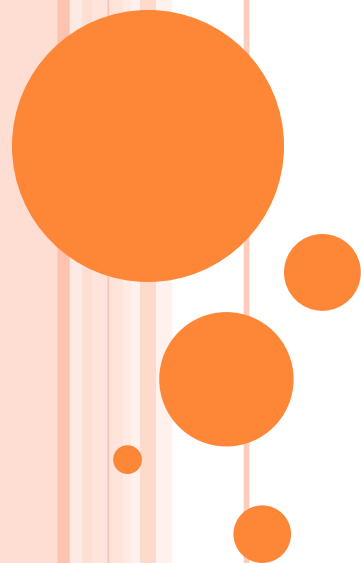


EXTRACTION

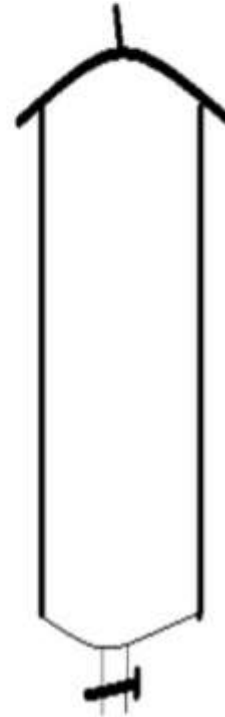
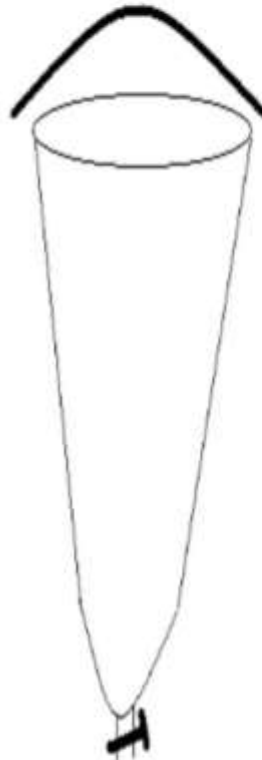
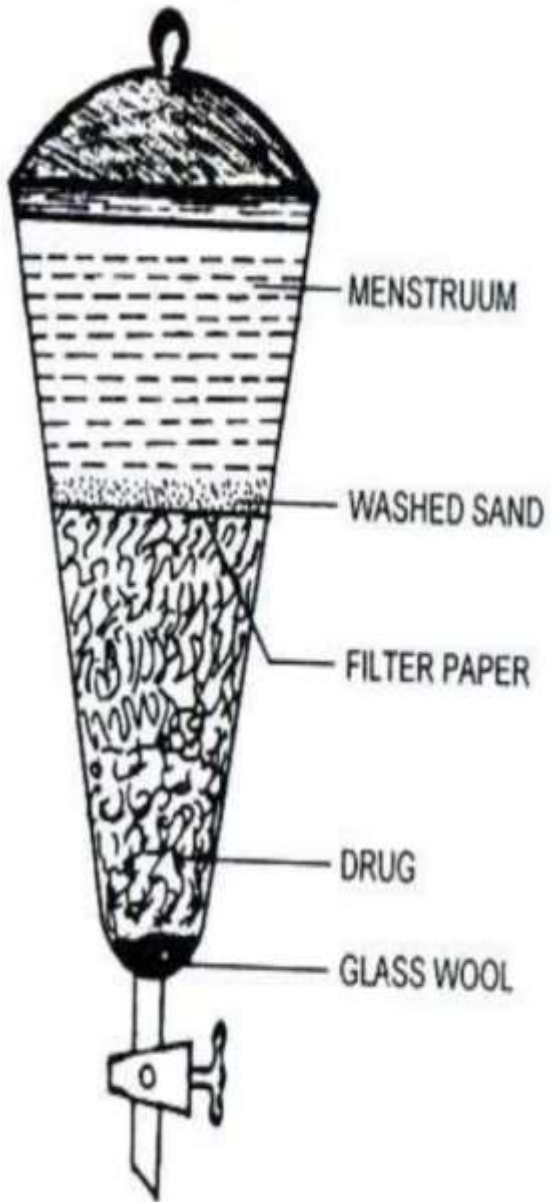


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PERCOLATION PROCESS

- o 3 types of percolation process used for the extraction of drugs are:
 - i. Simple percolation or percolation process for tinctures.
 - ii. Percolation process for concentrated preparations
 - a. Reverse percolation process
 - b. Modified percolation process
 - iii. Continuous hot percolation or soxhelation





SIMPLE PERCOLATION PROCESS

- In the percolator, arrange the powder on their size i.e coarse powder to fine powder.
- **Imbibition:** at that first stage, the drug firstly moisten or swelling of the tissues of the drug before packing it into the percolator.
- **Packing of the drug:** before packing the drug firstly pass through the sieves for prevention of lumps & masses.
- ✓ Then, glass wool moistened with the solvent is placed at the bottom of the percolator to prevent the blockage of the outlet trap.
- ✓ Then add the moisten drug into the percolator & pressed lightly after each addition & drug is packed upto $\frac{2}{3}$ rd or $\frac{3}{4}$ th of the percolator.

CONT..

- ✓ Then placed filter paper on the packed drug.
- ✓ Then placed washed sand on that for prevent disturbance of the top layers of the drug.
- ✓ Finally add the menstruum to saturate the material. When liquid starts coming out from the percolator ,outlet is closed.
- ✓ And again add menstruum in the percolator.
- ✓ Then allow it to macerate for 24 hrs. the percolator is closed to prevent evaporation of the solvent.
- **Maceration:** after 24 hrs maceration, open the outlet of the percolator & collect the percolate which measures about $3/4^{\text{th}}$ of the volume required for the finish product.
- The rate of collection of percolate is generally 10-30 drops per minute.


CONT..

- ✓ After collecting the required qty. of percolator, the marc is taken out from the percolator & it is pressed to recover the solvent.
- ✓ Then adjust the final volume with menstruum.
- ✓ Then, liquid is filtered in order to free it from other material.
- ✓ e.g. Tincture of belladonna, strong tincture of ginger.



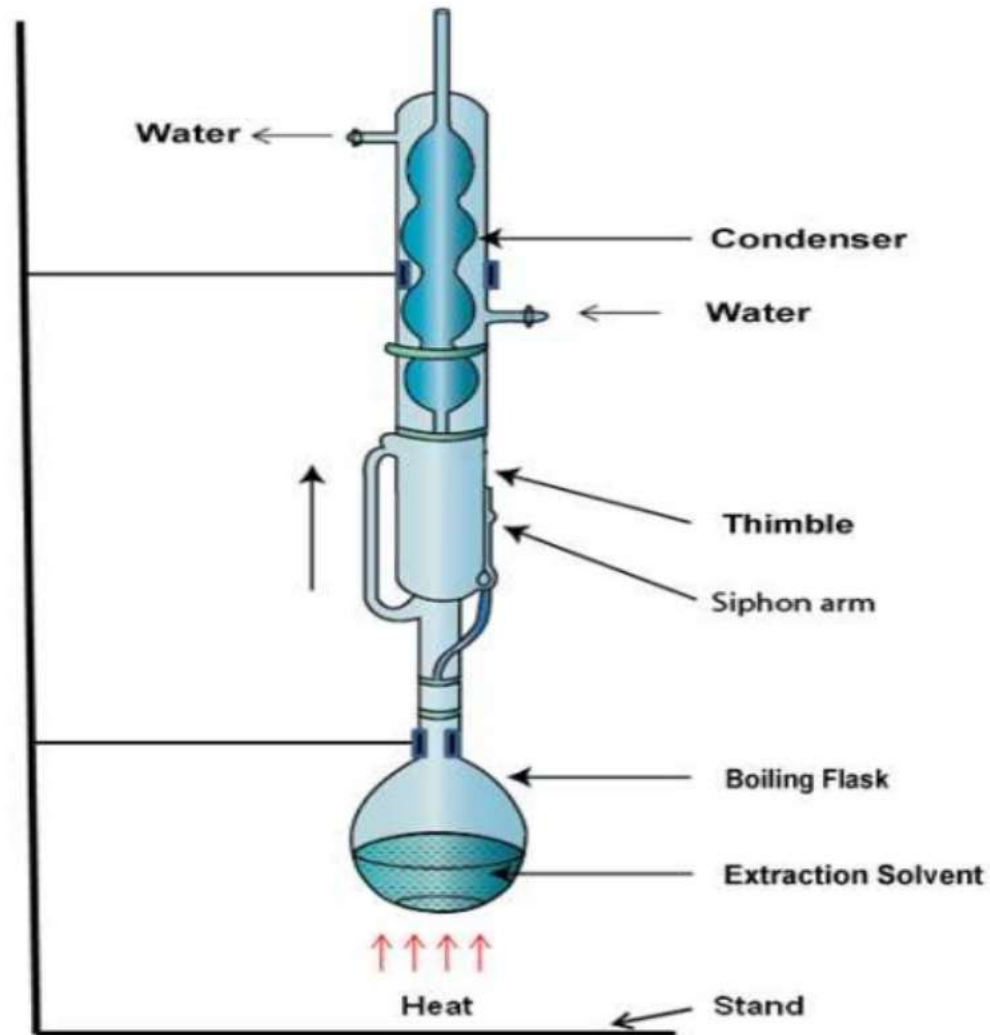
PERCOLATION PROCESS FOR CONCENTRATED PREPARATIONS

○ RESERVE PERCOLATION PROCESS:


- In this process, a part of the percolate, generally $3/4^{\text{th}}$ the volume of the finished preparation, is reserved.
 - Then the percolation process is continued till the drug is completely exhausted.
 - Then the percolate is subjected evaporation or distillation to convert it into a soft extract.
 - This soft extract is dissolved in the reserve portion of the percolate & then sufficient menstruum is added to produce the required volume.
- 

CONTINUOUS HOT PERCOLATION OR SOXHELATION

- This process apply when, the drug are not freely soluble in the solvent.



CONT..

- The powdered plant material is packed in a thimble.
 - The solvent is boiled in a flask. The evaporated solvent passes through the side tube of the extractor and condensed in the condenser, fitted at the top of the extractor.
 - The condensed hot solvent runs into the thimble and soaks the material & extracts the constituents.
 - When the chamber holding the thimble becomes full the solvent siphons down to the flask and the process is continuously repeated till extraction is complete
- 

DIGESTION

- In digestion process, the drug is extracted by heating at a particular pressure.
- This will increase the penetration power of the menstruum, so that there is complete extraction of the drug.
- Precautions should be taken so that the increased temperature may not harm the active constituents of the drug.



CONT...

- The apparatus known as “Digestor” is used for extraction of the drug by this method.
- It is a vessel made up of metal. The whole of the drug along with the menstruum is placed in the body of the digester.
- Place the cover over it and bolt it with the help of nuts.
- The drug is treated with menstruum for a definite period under specified conditions of temperature and pressure.



FACTORS AFFECTING CHOICE OF EXTRACTION PROCESS

- **Character of drug**
- **Cost of drug:** costly drug extracted by percolator & cheap drug extracted by maceration process.
- **Stability of drug:** for thermolabile drugs avoid continuous hot extraction process.
- **Solvent:** non-aq. Solvent used for extraction & water is used for maceration process.
- **Therapeutic value of drug:** when drug has considerable therapeutic value, the max. extraction is required, so percolation process is used.

THANK YOU

