

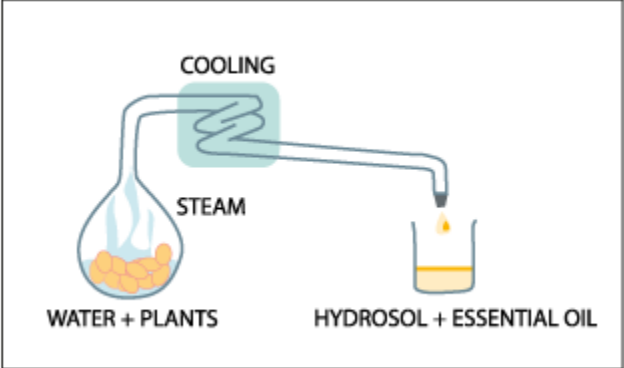
METHODS OF EXTRACTIONS

Extraction:-

Extraction is a method of removing the active ingredient from the solid or liquid by using proper solvent.


Methods of extraction :-

1. Infusion :-

Principle:-	Working:-	Application:-	Diagram :-
<p data-bbox="205 553 407 797">Infusion are the dilute solution containing the readily soluble constituent of crude drugs.</p> <p data-bbox="205 829 394 911">Useful for soft drugs</p>	<ol data-bbox="478 553 737 959" style="list-style-type: none">1. Drug + solvent2. Allow the drug to get into solvent for 15 to 20 mins.3. filter it with the help of sieve or cloth4. infusion is ready	<ol data-bbox="766 553 1199 699" style="list-style-type: none">1. it is used in infusion of orange2. used in concentrated infusion of quassia.	


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2. Decoction :-

Principle-	Working:-	Application ;-	Diagram :-
<p data-bbox="184 334 474 451">Decoctions are simple boiled solution of drugs</p> <p data-bbox="184 488 401 605">Useful for water soluble and heat stable drugs</p> <p data-bbox="184 643 394 716">Example-kwath preparation.</p>	<ol data-bbox="499 334 768 768" style="list-style-type: none">1.drug+solvent2.boiled for few mins3.then cold for some time4.filter with sieve or cloth5.decoction is ready	<ol data-bbox="800 334 1108 797" style="list-style-type: none">1.decoction useful for making tinctures and similar solution2.used to extract fluids,essenses ,and active ingredients from hard plant material3.used in preparation of a ayurvedic extractes such as kwath	

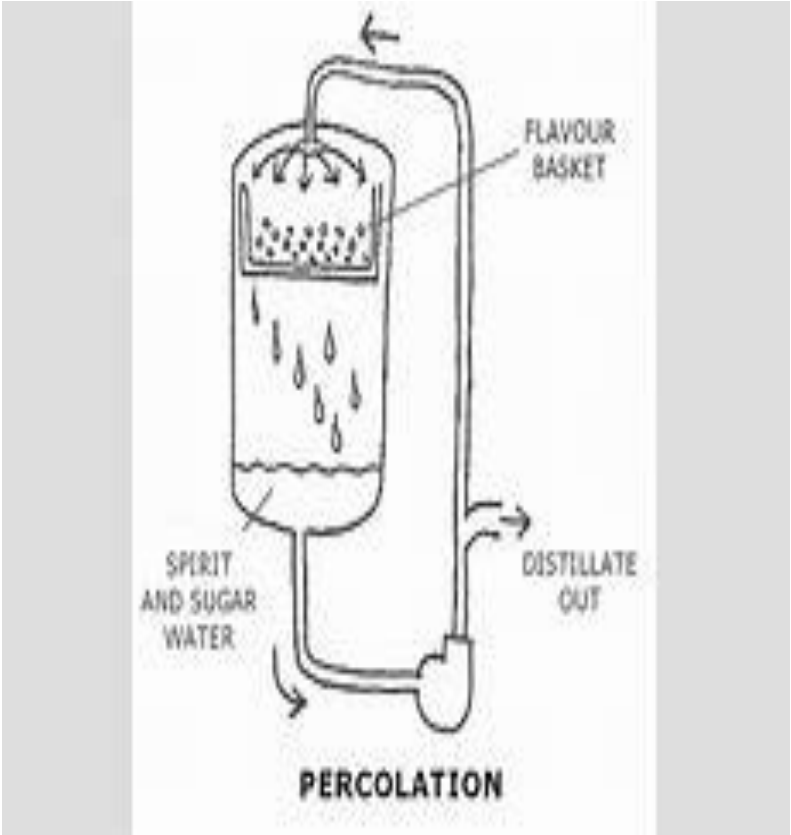
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3.Maceration :-

Principle :-	Working :-	Application:-	Diagram :-
<p data-bbox="205 337 474 743">Maceration is the process by which organized tissue is transform into a suspension of intact cells result in pulpt product which is used as base material for pulpy juices, necters.</p>	<ol data-bbox="499 337 852 922" style="list-style-type: none">1.plant material2.kept in closed vessel3.selected solvent is added as whole4.it is allowed to stand for 7 to 8 days5.liquid is strained off and solid is pressed to get most out of it6.clarification of mestruum7.evaporation and concentration8.macerate is ready.	<ol data-bbox="884 337 1146 938" style="list-style-type: none">1.Maceration is wine making process where the phenolic material of the grape2.tannins,colouring agent (anthocyanins)and flavoured compounds are leached from the grapes skins,seeds and stems into the must.	 <p data-bbox="1171 332 1875 995">The image shows four glass bottles arranged on a white surface. Each bottle contains a dark, opaque liquid with a thick, greenish-brown sediment or pulp floating on top. The bottles are sealed with blue caps. The background is a light-colored wall with a floral pattern.</p>

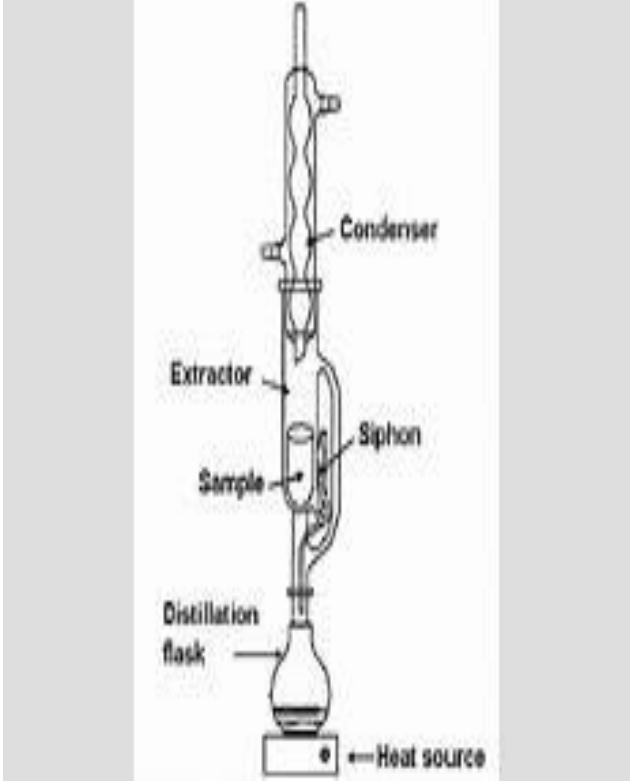
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4. Percolation:-

Principle :-	Working:-	Application :-	Diagram :-
<p>Percolation is the process of continuous downward movement of solvent through the different levels of drug material and various materials to get the extract of desired drugs.</p>	<ol style="list-style-type: none">1.size reduction2.imbibition3.packing4.maceration5. percolation.	<ol style="list-style-type: none">1.percolation is useful for a drug which is heat labile2.the percolation is the most common procedure for the preparation of tinctures and fluid extract.3.it is used in agriculture to determine the movement of fertilizers or the salt content of the soil.	<p>Diagram :-</p> 

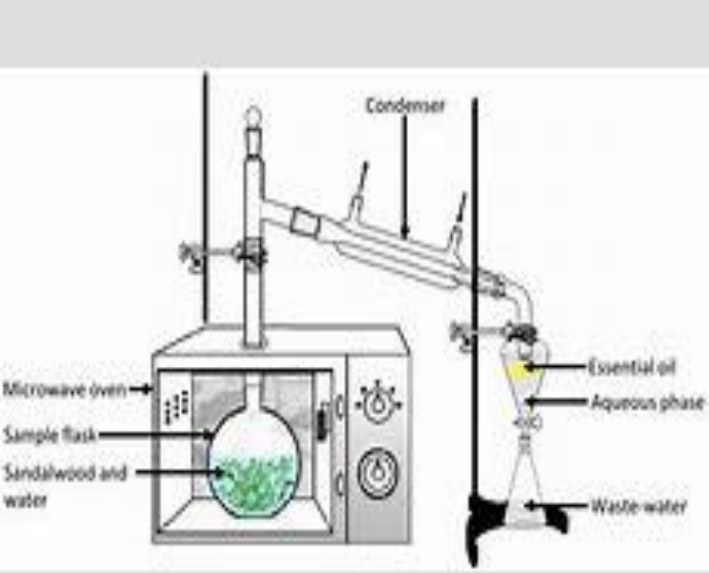
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5. soxhlet extraction :-

Principle :-	Working :-	Application :-	Diagram :-
<p data-bbox="212 334 449 574">It is process for extract in non volatile and semi-volatile organic compound from solid.</p> <p data-bbox="212 613 464 894">The Soxhlet extraction process ensures intimate contact of the sample matrix with the extraction solvent</p>	<ol data-bbox="485 334 833 1133" style="list-style-type: none">1. filter paper bag and placed in Soxhlet apparatus2. solvent was heated and the vapors were condensed3. condensed extract drip into filter paper.4. level of liquid in chamber rised5. liquid content of chamber siphon was collected into flask.6. this process was continue out until the siphone tube was emptied.	<ol data-bbox="854 334 1142 878" style="list-style-type: none">1. extraction of sennoside from senna leaf.2. extraction of caffine from tea.3. it is used when the desired compound has the limited solubility in a solvent and the impurity is insoluble in that solvent.	

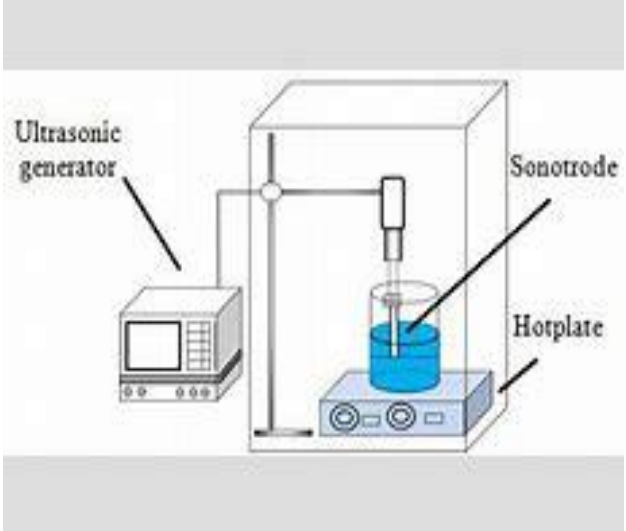
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6. Microwave assisted extraction :-

Principle :-	Working :-	Application :-	Diagram :-
<p>MAE is a efficient method which involved deriving natural compounds from raw plants .</p> <p>Microwave extraction allows organic compounds to be extracted more rapidly, with similar or better yield.</p>	<ol style="list-style-type: none"> 1. microwave radiation 2. moisture get heated up. 3. moisture evaporates. 4. generation of tremendous pressure on cell wall. 5. swelling of the cell. 6. leaching out of phytoconstituents. 	<ol style="list-style-type: none"> 1. MAE is used to various natural product extraction. 2. in the extraction of terpenes from must (vitis vinifera) in closed vessels system 3. in the extraction of volatile oils from menthe piperita in modified domestic oven . 	 <p>The diagram illustrates the microwave-assisted extraction process. It shows a microwave oven with a sample flask inside containing sandalwood and water. A condenser is connected to the flask, and the extracted mixture is collected in a vessel containing essential oil and an aqueous phase. Waste water is shown being collected in a separate container.</p>

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7.Ultrasound assisted extraction :-

Principle :-	Working :-	Application :-	Diagram :-
<p>The ultrasound assisted extraction is based on the principle of acoustic or ultrasonic cavitation.</p> <p>Ultrasonic extraction widely used for the production of botanical extract such as CBD from cannabis and hemp.</p>	<ol style="list-style-type: none">1.sample is placed in a vessel2.extraction solvent is added3.sonotrode is placed in contact with sample .4.ultrasound cavities propagation and pressures resulting in enhanced extraction .5.sample is ready for clean up process.	<ol style="list-style-type: none">1.ultrasound assisted extraction is highly efficient and rapid.2.it is used for the production of various botanical extracts.	 <p>The diagram illustrates the experimental setup for ultrasound-assisted extraction. It features an ultrasonic generator on the left, connected by a cable to a sonotrode. The sonotrode is positioned vertically inside a glass beaker that contains a blue liquid. The beaker sits on a hotplate. The entire apparatus is housed within a rectangular protective enclosure. Labels with leader lines identify the 'Ultrasonic generator', 'Sonotrode', and 'Hotplate'.</p>

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