
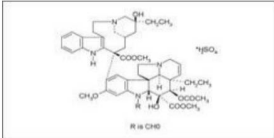

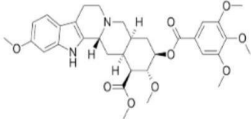

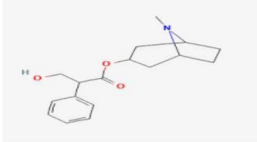

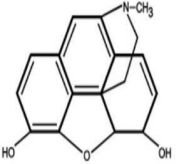


Alkaloid


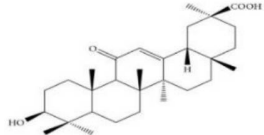

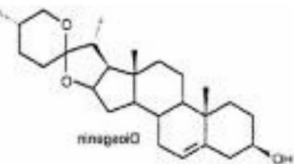

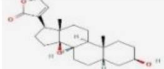
The alkaloid is commonly used to designate basic heterocyclic nitrogenous compounds of plant origin that are physiologically active

Name of the drug & Synonym	Biological source and family	Chemical constituents And uses	Extraction process
<p>Vinca (periwinkle)</p> 	<p>Whole plant of <i>cantharanthus roseus</i> or <i>vinica rosea</i> (Apocyanaceae)</p>	<p>Vincristine, vinblastine Uses-In cancer chemotherapy, acute leukemia</p> 	<p>It is extracted from leaves of <i>cantharanthus rosea</i></p>
<p>Rauwolfia (chottachand, sarpangandha)</p> 	<p>Roots of <i>rauwolfia serpentina</i> (Apocyanaceae)</p>	<p>Reserpine, Rescinnamine Uses-antihypertensive drug used to promote sleepiness</p> 	<p>It is extracted by using soxhlet app. with chloroform for 5-hr per day and continued for 3-Days</p>
<p>Belladonna-(deadly night shade, or European belladonna)</p> 	<p>Leaves of <i>Atropa belladonna</i> or <i>Atropa acuminata</i> (Indian belladonna) (Apocyanaceae)</p>	<p>L-hysoamine, atropine, homotropine Uses-anticholinergic and antispasmodics agent</p> 	<p>By maceration of the plant material in a solution of water and alcohol</p>
<p>Opium-(poppy latex, gum opium)</p> 	<p>Latex of exudate of unripen fruit of <i>papaver somniferous</i> (Papaveracea)</p>	<p>Morphine, codeine, thebaine Uses-sedative, hypnotic, analgesic</p> 	<p>Pow. Opium ↓ Shaken with calcium chloride solution and filtered ↓ Filtrate. conc. 10% NaOH solu. ↓ Filtrate (morphine, codeine) Ppt gives (narcotine, papaverine)</p>


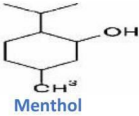

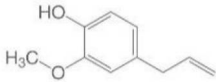

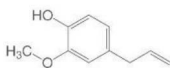

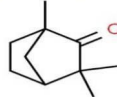

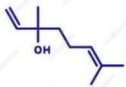
Steroids, cardiac glycosides and Triterpenoids

Glycosides : a compound formed from a simple sugar and another compound by replacement of a hydroxyl group in the sugar molecules

Triterpenoids : Triterpenoids are compounds with a carbon skeleton based on six isoprene units which are derived biosynthetically from the acyclic C₃₀ hydrocarbon, squalene.


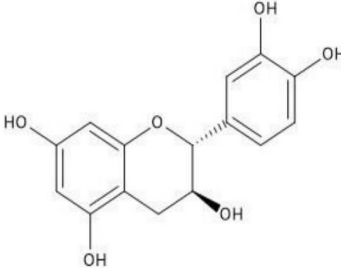

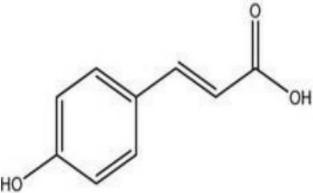

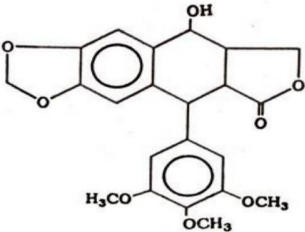
Name of the drug and synonyms	Biological source and family	Chemical constituents	Extraction
<p>Liquorice Synonym: Mulethi, Yasti</p> 	<p>Dry peeled or unpeeled roots and stolon of glycyrrhiza Family: Fabaceae</p>	<p>Pentacyclic Triterpenoids saponin, glycyrrhizin. Uses= use as antigastric</p> 	<p>1) Triterpenoids saponin is Glycyrrhizin is converted into K and Ca salt of Glycyrrhonic acid 2) then it gives Glycyrrhonic acid</p>
<p>Discorea Synonym: Yam plant</p> 	<p>Dry tubers of Discorea deltoidea belonging Family Discoreaceae</p> 	<p>It contains 75% of starch in rhizome, the main active constituent is Diosgenin by hydrolysis of Discocin Uses= it use as a precursor for corticosteroid and sex hormone</p>	<p>1) The tubers are cut in to small pieces and dried under sun light. 2) Then the dried tuber is subjected to make a powder form and extracted with ethyl alcohol or methyl alcohol two times for six-eight hours. This solution is filtered.</p>
<p>Digitalis Synonym: Foxglove leaves</p> 	<p>It is obtained from dried leaves of digitalis purpurea & family: scrophulariasis</p>	<p>It contains both 1&2 glycosides Primary glycosides = Genin, Digitoxose Uses= use as cardiac stimulant</p> 	<p>1) Purpurea Glycosides A converted to digitoxin + glucose 2) then it converted into digitoxigenin + 3 molecules of</p>

Volatile oil-Volatile oils are products which are generally complex in composition, consisting of the volatile principles contained in plants


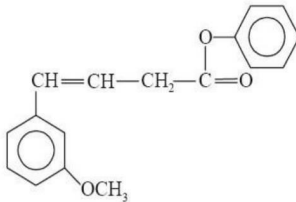

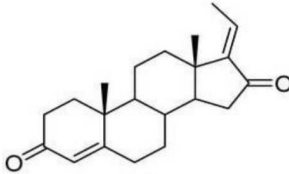

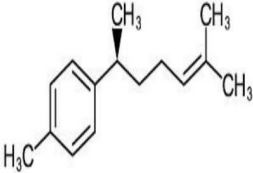
Name of drug and synonyms	Biological source & Family	Chemical constituents	Uses	Method of extraction
<p>1. Mentha Peppermint oil, oleum Mentha</p> 	<p>Flowering tops of Mentha piperita Family- Labiatae</p>	<p>Menthol, pulegone, ,menthofuran</p>  <p>Menthol</p>	<p>Carminative, stimulant, flavouring agent, mild antiseptic, perfume</p>	<p>Dried plants ↓ Charged into galvanized iron or mild steel ↓ Stem under pressure pass through drug ↓ 80% oil distilled off ↓ Condensation Mentha oil</p>
<p>2. Clove Clove flower, clove buds</p> 	<p>Dried flower buds of Eugenia caryophyllus Family-Myrtaceae</p>	<p>Eugenol</p> 	<p>Dental analgesic, carminative, Flavouring agent, antiseptic</p>	<p>Powered sample ↓ hydro distillation Volatile distillate ↓ saturated with NaCl Hydro and ether layer ↓ anhydrous sodium sulphate 60°C ↓ Eugenol</p>
<p>3. Cinnamon Cinnamon bark, Kalmi-Dalchini, and Ceylon cinnamon.</p> 	<p>Inner bark of shoot of coppiced tree of zeylanicum Family-Lauraceae)</p>	<p>Volatile oil should NLT 1% w/v 60-70 % Cinnamaldehyde and 5-10 % Eugenol</p> 	<p>carminative, stomachic, and mild astringent, anti-inflammatory, anti-diabetic</p>	<p>Powered sample ↓ hydro distillation Volatile distillate ↓ saturated with NaCl Hydro and ether layer ↓ anhydrous sodium sulphate 60°C ↓ Eugenol</p>
<p>4. Fennel Large fennel, Sweet fennel, Fennel fruit</p> 	<p>Fennel is the dried, ripe fruits of the plant Foeniculum vulgare Mill Family- Umbelliferae</p>	<p>50-60% phenolic ether and 18-20% fenchone as its major constituents</p>  <p>Fenchone</p>	<p>stimulant, aromatic, stomachic, carminative, emmenagogue, and expectorant.</p>	<p>Dried fruit + distilled water in Clevenger apparatus ↓ hydrodistillation Essential oil ↓ Dried with anhydrous sodium sulphate ↓ Fenchone</p>
<p>5. Coriander Coriander fruits, Chinese parsley, and Indian parsley</p> 	<p>Coriander is the fully dried ripe fruits of the plant Coriandrum sativum Family-Umbelliferae.</p>	<p>Volatile oil should NLT 0.3% w/v 90 % D-linalool (Coriandrol)</p>  <p>Coriandrol</p>	<p>The fruits and volatile oil are aromatic, carminative, stimulant and flavouring agents.</p>	<p>Dried fruit ↓ extraction using hexane and ethanol Extract ↓ Gas chromatography Oil Coriandrol</p>


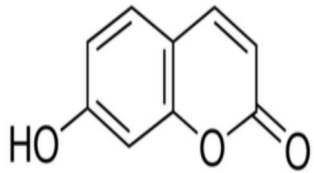

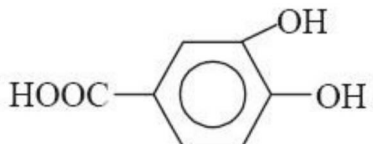

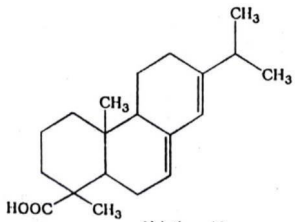
Phenylpropanoids- The phenyl propanoids are a family of a organic compound with an aromatic ring and 3 carbon propane tail of coumaric acid and synthesized by plants from amino acids phenylalanine and tyrosine via shikimic acid pathway.

Flavonoids- Flavonoids are secondary metabolites of plants and fungus. Chemically flavonoids contain 15 carbon skeleton which consist 2 phenyl rings and a heterocyclic ring.


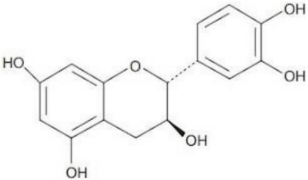

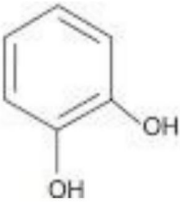

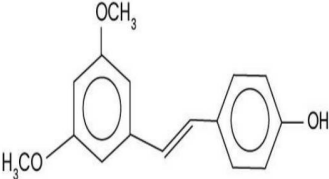
<p>TEA</p>  <p>USES: - 1. Antioxidant 2. Used in weight loss</p>	<p>SYNONYM: - Camelia Thea</p> <p>BIOLOGICAL SOURCE: - It consist of dried leaves and leaf bud of Thea sinesis.</p> <p>FAMILY: - Theaceae.</p>	<p>EXTRACTION: -</p> <ol style="list-style-type: none"> 1. Extracted with aqueous solvent by counter current procedure. 2. Separation from the extract. 3. The spent tea leaf is acidified. 4. Tea leaf is further extracted with aqueous 	<p>Chemical constituents: -</p>  <p>Catechin</p>
<p>RUTA</p>  <p>USES: - 1. Anti-rheumatic 2. In arthritis</p>	<p>SYNONYM: - RUE</p> <p>BIOLOGICAL SOURCE: - It consist of fresh and dried leaves of Ruta Graveolens.</p> <p>FAMILY: - Rutaecae</p>	<p>EXTRACTION:-</p> <ol style="list-style-type: none"> 1. Extraction coupled with fractional separation. 2. Concentrate the active principles. 3. Extraction process and cooling the first separator. 4. An efficient extraction and fractionation was obtained. 	<p>Chemical constituents: -</p>  <p>p-Coumaric Acid</p>
<p>LIGNANS (Podophyllum)</p>  <p>USES: - 1. In breast cancer</p>	<p>SYNONYM: - May apple Root</p> <p>BIOLOGICAL SOURCE: - It consist of dried rhizomes and roots of podophyllum Peltatum.</p> <p>FAMILY:- Berberidacea.</p>	<p>EXTRACTION: -</p> <ol style="list-style-type: none"> 1. Grinding process of FLAXSEEDS 2. Oil removing by Defatting 3. Extraction of lignans 4. Alkaline hydrolysis 	<p>Chemical constituents: -</p>  <p>Podophyllotoxin</p>

RESINS: -Resins is applied to more or less solid amorphous product of complex chemical nature. These are the amorphous mixture of essential oil oxygenated product of terpenes and carboxylic acid.

<p>BENZOIN</p>  <p>USES: - 1. Used on canker sores in and around the mouth.</p>	<p>SYNONYM: - Loban BIOLOGICAL SOURCE: - It is a balsamic resin obtained from incised stem of styrax benzoin.</p> <p>FAMILY: - Styraceae</p>	<p>EXTRACTION: -</p> <ol style="list-style-type: none"> 1. Steam is dried after making incision on it. 2. Styrax oil is extracted by SOLVENT EXTRACTION. 3. Final extract is obtained by STEAM DISTILLATION. 	<p>Chemical constituents: -</p>  <p>Coniferyl Benzoate</p>
<p>GUGGUL</p>  <p>USES: - 1. Anti-inflammatory 2. In the treatment of hyperthyroidism</p>	<p>SYNONYM: - Indian belledium BIOLOGICAL SOURCE: - It is gum resin obtained by incision of the bark of Commiphora Mukul.</p> <p>FAMILY: - Burseraceae</p>	<p>EXTRACTION: -</p> <ol style="list-style-type: none"> 1. The resin dried, then powdered. 2. Prepared by COLD MACERATION. 3. Filtered, conc. It. 4. Finally dried in a vacuum desiccator. 	<p>Chemical constituents: -</p>  <p>E-Guggulsterone</p>
<p>GINGER</p>  <p>USES: - 1. Used Motion sickness 2. In diarrhea</p>	<p>SYNONYM: - Adarak, Zingiber. BIOLOGICAL SOURCE: - It consist of rhizomes of Zingiber officinal.</p> <p>FAMILY: - Zingiberaceae</p>	<p>EXTRACTION: -</p> <ol style="list-style-type: none"> 1. Powdering ginger by size reduction 2. Solvent extraction 3. Solvent removal 4. GINGER OLEO-RESIN 	<p>Chemical constituents: -</p>  <p>Zingiberene</p>


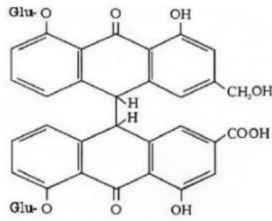

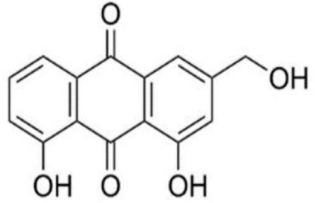
<p>ASAFOETIDA</p>  <p>USES: - 1.Flavoring Agent 2.As antidote of opium</p>	<p>SYNONYM: - Heeng BIOLOGICAL SOURCE: - It is oleo gum resin obtained by incising the living rhizomes and roots of ferula foetida. FAMILY: -Umbeliferae</p>	<p>EXTRACTION: -</p> <ol style="list-style-type: none"> 1. Dry Zingiber officinale stem 2. Aspiration to release seeds. 3. Sorting, Cleaning and Drying. 4. Pulverization or Sieving 5. Powdered species 	<p>Chemical Constituents: -</p>  <p>Umbelliferon</p>
<p>MYRRH</p>  <p>USES: - 1.In indigestion 2.In Lung congestion</p>	<p>SYNONYM: - Chir BIOLOGICAL SOURCE: - It is solid residue obtained after distilling oleo resin from various species of Pinus maritime. FAMILY: -Pinaceae</p>	<p>EXTRACTION: -</p> <ol style="list-style-type: none"> 1. Production of essential oils 2. Steam distillation 3. Solvent extraction 4. Cold press extraction 	<p>Chemical Constituents: -</p>  <p>Protocatechuic Acid</p>
<p>COLOPHONY</p>  <p>USES: - 1. Used as a processing aid and binder in paints and inks.</p>	<p>SYNONYM: - Chirr BIOLOGICAL SOURCE: - It is solid residue obtained after distilling oleo resin from various species Pinus maritima. FAMILY: -Pinaceae</p>	<p>EXTRACTION: -</p> <ol style="list-style-type: none"> 1. Water washing and solubilization of the extracted resin. 2. Filtration for removal of solid residues. 3. After purification, the colophony and turpentine were separated using a Soxhlet extractor. 	<p>Chemical Constituents: -</p>  <p>Abietic Acid</p>

Tannins:- Tannins are class of astringent, polyphenolic biomolecules that bind to end precipitate proteins and various other organic compounds including amino acids and alkaloids.

<p>CATECHU</p> <ul style="list-style-type: none"> • Pale catechu  <p>USES: -</p> <ol style="list-style-type: none"> 1.Astringent 2.Expectorant 	<p>SYNONYM: - Gambier</p> <p>BIOLOGICAL SOURCE: - It consist of dried aqueous extract prepared from the leaves of Uncaria Gambier</p> <p>FAMILY: - Rubiaceae</p>	<p>EXTRACTION: -</p> <ol style="list-style-type: none"> 1. Leaves and twings are boiled in water. 2. Extract is cooled and filtered. 3. During cooling a semisolid pasty mass is formed. 4. Then final extract is placed in different dies. 	<p>Chemical constituent: -</p>  <p>Catechin</p>
<ul style="list-style-type: none"> • Black catechu  <p>USES: -</p> <p>Digestant Used in diarrhoea</p>	<p>SYNONYM: - Kattha</p> <p>BIOLOGICAL SOURCE: - It consist of dried aqueous extract prepared from heart wood of Acacia Catechu.</p> <p>FAMILY: - Leguminosae</p>	<ol style="list-style-type: none"> 1. Boil the wood of acacia catechu in water. 2. Evaporation. 3. Dried extract of drug 	 <p>Catechol</p>
<p>PTEROCARPUS</p>  <p>USES: -</p> <p>Anthelmintic Used in treatment of elephantiasis</p>	<p>SYNONYM: - Pterocarpus marsupium</p> <p>BIOLOGICAL SOURCE: -It consist of dried juice obtained by making vertical incision to the stem bark of the plant Pterocarpus marsupium.</p> <p>FAMILY: - Leguminosae</p>	<p>EXTRACTION: -</p> <ol style="list-style-type: none"> 1. Dried heart-wood was grounded into a moderately coarse powder. 2. Powdered drug was boiled with water and filtered hot. 3. Filtrate then lyophilized by continuous freeze-drying process. 4. The extract was stored in a desiccator. 	<p>Chemical constituents: -</p>  <p>Pterostilbene</p>

GLYCOSIDES: - Organic natural compounds present in a lot of plants and some animals, these compounds upon hydrolysis give one or more sugars (glycone) and non-sugar (aglycone) are called Genin.

Glycosides are the compounds formed by the ether linkage or an oxygen bridge between a sugar and non-sugar compounds.

<p>SENNA</p>  <p>USES: - Purgative Cathartic</p>	<p>SYNONYM: - Senna leaf</p> <p>BIOLOGICAL SOURCE: - It consist of dried leaflets of <i>Cassia angustifolia</i>.</p> <p>FAMILY: - Leguminosae</p>	<p>EXTRACTION: -</p> <ol style="list-style-type: none"> 1. Leaves are dried and powdered. 2. Extracted with benzene. 3. Filter and dry with 70% methanol 4. Extract marc with methanol-toluene mixture and ammonia. 5. Treated with CaCl₂ 6. Calcium salt of sennoside A & B 	<p>Chemical constituents: -</p>  <p>Sennoside - A</p>
<p>ALOES</p>  <p>USES: - Anti-inflammatory agent</p>	<p>SYNONYM: - Musabbar</p> <p>BIOLOGICAL SOURCE: -It is obtained from dried juice of the leaves of <i>Barbadense miller</i>.</p> <p>FAMILY: - Asphodelaceae or Liliaceae</p>	<p>EXTRACTION: -</p> <ol style="list-style-type: none"> 1. Aloe vera gel was extracted by simple drain procedure. 2. 2-4 leaves of aloe were cut at about ½ inch from the base so as to drain out all the yellow sap material. 3. The sap flows freely with the pressure of the epidermal cells and all other cellular structures above it. 	<p>Chemical constituents: -</p>  <p>Aloe emodin</p>

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SUBJECT :- Pharmacognocny and Photochemistry II

TOPIC :- Pharmacognocny of Secondary Metabolites

CLASS :- T.Y.B.Pharm

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