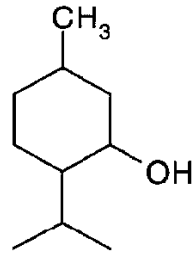
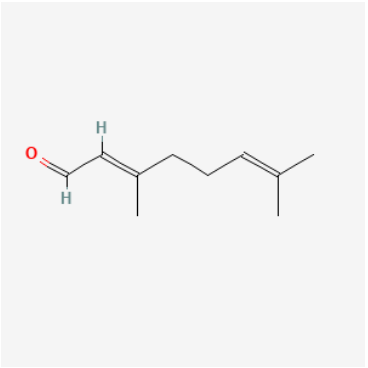
Terpenoids

Defination: Terpenoids are volatile substance which give plants and flower their fragrance. They are widely in the leaves and fruit of higher plants, confifers, citrus and eucalpyptus.

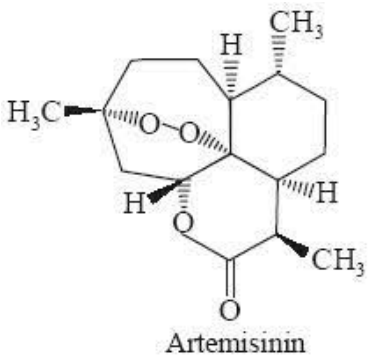
Example: Menthol, Citral, Artemisinin

Drug Name	Biological source	Family	Isolation	Identification Test
1)Menthol 	1) It is obtained from diverse type of mint oil or peppermint such as menthe piperita ,var. vulgaris; white pipermint, M . arvensis; M. Canadensis var etc.	Lamiaceae • Structure Menthol 	1)It is extracted by hydrodistillation or steam distillation of fresh arial parts just before flowering. 2)It is extracted under room temperature 35°-40°C and below 70° C	1 mg methanol ↓ dissolved 1 ml methanol ↓ Spot applied on silica gel –G plate and eluated in pure chloroform ↓ Dried plate sprayed 1% vanillin H2so4 ↓ heat 110°c 10 min

				Rf value

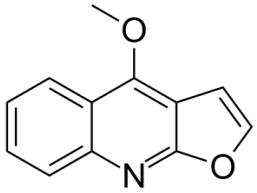
2)CItral 	1) It is obtained from a natural source. 2)It is mixture of two geometric isomers geranial and neral.	Graminae • Structure 	1)It is extracted in case lemongrass fresh plant material is hydrodistillated to obtained lemon grass oil.	1mg citral ↓ Dissolved 1ml of methanol ↓ Spot applied silica –gel-G plate ↓ TLC plate eluted in pure chloroform ↓ Dried plate sprayed with 2,4-dinitrophenyl hydrazine ↓ Yellow to orange spot ↓

				RF value

3)Artemisinin 	1) It is obtained from the leaves and the closed ,unexpanded flowe heads of Artemisia annuna linn.	Asteraceae • Structure  Artemisinin	Leaves of a annua air dried ↓ Coarsely powdered ↓ extraction (40-60°) Petroleum ether ↓ Concentrated extract dry ↓ Dry extract ↓ Redissolved chloroform ↓ ppt.inert plants consist ↓ chromatographic	Artemisinin or extract +dissolved chloroform ↓ colour measure at 560nm Spot of the sample and standard on silica gel G plate ↓ Plates eluted in solvent petroleum ether ethyl acetate ↓ Dried plate sprayed p-dimethyl-amino benzaldehyde ↓ Heat 80°c ↓ Produce colour ↓ 2% solution vanillin

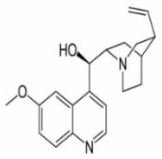
			fractionation(chloroform 8-ethyl acetate fraction of Artemisinin  crystallization by cyclohexane or 50%ethanol	sulphuric acid produce

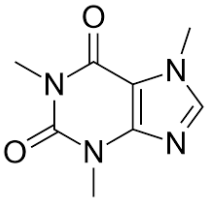
Alkaloids: These are alkaline compounds which have one or more heterocyclic nitrogen atoms . [Page no- alkaloids -300-319]

Drug	Biological source	Family	Isolation	Identification/Analysis
Atropine 	Atropine is tropane alkaloids from the members of the solanaceae family.It is present in atropa belladonna.	Solanaceae  Atropine	1)Atropine is isolated from juice or powdered drug. 2]Hyoscyamus muticus is preferred source for the manufacture of the atropine because it has high alkaloidal content with D.Stramonium next in order.	1% solution of atropine ↓ Dissolve 2N acetic acid spotted over silica gel plate in solvent system of strong ammonia solution ↓ The TLC plate sprayed with an acidified iodoplatinate solution ↓ Atropine gives the Rf value 0.80 in solvent system of acetone and NaCl. ↓ Sprayed Rf value 0.70.

Quinine:

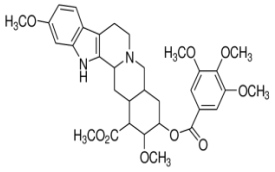
Quinine and Quinidine are diastereoisomers which full under the quinoline group of alkaloids. These alkaloids are present in the dried bark of the steam or in the roots of the cinchona succirubra and of many other species and their hybrids.

Drug	Biological source	Family	Isolation	Identification test
Quinine 	Obtained by dried bark of the steam.	Rubiaceae  Quinine	1]Cinchona bark is dried to 12-15% moisture and then ground to fine powdered of about 60 meh	Pure cinchona alkaloid or extract ↓ Dissolve Methanol ↓ Solution of cinchona alkaloid when treated with bromine and ammonia
	It is present along with	Rubiaceae	1]Drug material extracted with boiling water aq extracted filtered with	

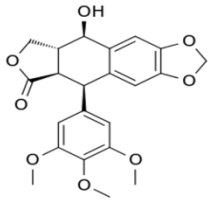
Caffeine 	related to theophylline and theobromine coffee, tea cocoa.	 Caffeine	hot H_2o 2] the fine powdered leaves are extract with ethanol soxhlet extract, then adsorbed on magnesium oxide.	1mg of caffeine ⬇ Dissolved 1ml of chloroform or methanol ⬇ Sample spotted on TLC plate and is eluted in ethyl acetated methanol acetic acid ⬇ dried TLC plates is seen by exposure to iodine vapour ⬇ RF value 0.91

Reserpine:

Reserpine is an indole alkaloid obtained from the roots of Rauwolfia Serpentina family Apocyanaceae and also from other different species of rauwolfia such as a R Micrantha. [Pg-319-327]

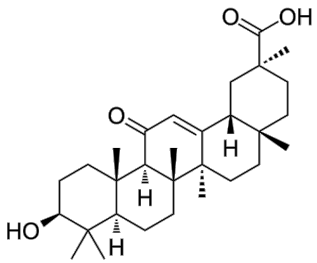
Drug	Biological source	Family	Isolation	identification
Reserpine 	Obtain from the root of rauwolfia	Apocynaceae  Reserpine	1]Rauwolfia root powder is exhaustively extracted with 90 % alcohol by a sutable method of extraction	1] 1mg rauwolfia alkaloidal extract ↓ Dissolved methanol ↓ The spots applied over TLC plate ↓ Plate dried sprayed with dragedorff's reagent ↓ Orange spot given by alkaloidal components of rauwolfia ↓ RF value 0.72

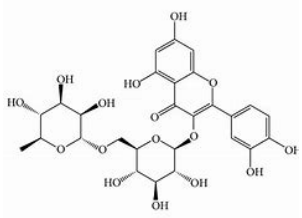
Resin: Solid or highly viscous substance of plant or synthetic origin that is typically convertible into polymers.

DRUG	Biological source	Family	Isolation	Identification
1)Podophyllotoxin 	It is the major constituent of podophyllum resin obtained from the dried rhizomes and roots American Mandrake podophyllum peltatum.	Barberidaceae  Podophyllot Oxin	1]It is extracted from dried rhizomes and roots by percolation with alcohol and addition of acidified water. 2] It contains not less than 40% of podophyiium resin and not more than 50% of hexane insoluble matter.	Podophyllum resin+podophyllotoxin ⬇ dissolve Methanol ⬇ Spots silica gel G plate and are chloroform methanol(90:10) upto 6cm. ⬇ Only glycosides are separated but aglyconespodophyllotoxins remains the region. ⬇ TLC plate again eluted with weaker polar solvents chloroform acetate time upto 12cm. ⬇ During second stage elution glycosides do not migrate but the aglycone move. ⬇ The dried plate is sprayed with sulphuric acidanhydried. ⬇ glycosides correspond to their standards.1mg curcumin

2)Curcumins	It is obtained from the dried rhizomes of turmeric, curcuma longa.	Zingiberaceae  Curcumins	1]It is obtained by different processes.. The acetone extract is conc. and dried to yield curcumin.	dissolve ⬇ 1ml methanol ⬇ Plate is eluted in chloroform ethanol glacial acetic acid. ⬇ plate and visualized under 366mm light. ⬇ Rf value 0.79. ⬇ 1mg curcumin ⬇ Dissolve 1ml methanol ⬇ Plate is eluted in chorofom ethanol glacial acetic acid ⬇ Evalute plate and visualized under 366mm light ⬇ RF value 0.79

Glycosides: It is an organic compound obtained from plant origin yield on hydrolysis of sugar and non sugar moiety [Pg-328-333]

Drug	Biological source	Family	Isolation	Identification test
1)Glycyrrhetinic acid 	It is obtained from the roots and stolones of glycyrrhiza glabra	Leguminoseae  Glyrrhetinic acid	Glycyrrhetinic acid can be extracted from the crude drug by following procedure - Crude drug ⬇ Ext. Chloroform ⬇ Chloroform extracted is discarded ⬇ The marc is again extracted in 0.5M H2So4 ⬇ Glycyrrhizin is hydrolysed to glycyrrhetinic acid durin extraction with H2So4.	1mg glycyrrhtinic acid ⬇ Dissolve 1ml methanol chloroform mixture ⬇ Spots are applied over silica gel G plate and eluted in solvent system toluene ethyl acetate glcial acetic acid. ⬇ Dried plates are sprayed with 1% vanillin sulphuric acid ⬇ Heated for 10min Give purplish spot

2)Rutin 	It is obtained from various plant sources fagopyrum esculentum	Polygonaceae  Rutin	1)Rutin extracted from 5gm of the powder seeds,leaves and 1gm from powder callus by soxhlet apparatus with 250ml of 80% ethanol till exhaustion.	1mg of rutin ⬇ Dissolve Methanol ⬇ Silica gel G plate is spotted with sample and eluted in the solvent system 10%Nacl ⬇ It gives yellow spot with RF value 0.43.

REFERENCE:- V.D rangari volume -II

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