ISOLATION, IDENTIFICATION AND ANALYSIS OF GLYCOSIDES (Glyccyrrhizinic acid and Rutin)

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GLYCYRRHETINIC ACID

Biological source - It is obtained from the roots and subterranean stems of *Glycyrrhiza glabra*

Family – Leguminosae

Chemical Constituents – A major component is sweet triterpenic saponin glycoside , glycyrrhizin

Glycyrrhizin – It is a potassium and calcium salt of Glycyrrhizic acid

Glycyrrhetinic acid is a Pentacyclic triterpenoid aglycone. It is used as an antiulcer.

ISOLATION

- The Liquorice / Glycyrrhiza coarse powder is extracted with chloroform.
- Filter and discard the filtrate.
- Extract the marc with 0.5 M Sulphuric acid for a few hours
- Filter and extract the filtrate with three portions of chloroform
- Separate and combine the chloroform layers
- Distill off the chloroform extract to yield a dry residue of glycyrrhetinic acid.
- White crystalline powder, insoluble in water, soluble in chloroform, benzene, ether etc

IDENTIFICATION AND ANALYSIS

1. Chemical tests – Liebermann test and

   Liebermann – Burchard test

2. Thin layer chromatography (TLC)

T.L.C Method

Sample preparation – Dissolved about 1mg of Glycyrrhetinic acid in 1ml of methanol- Chloroform (1:1)

Stationary phase - Silica gel –G

Detecting agent – 1% vanillin- Sulphuric acid and heat for 10 minutes at 110^0 C

Mobile phase – Toluene–Ethyl acetate-Glacial acetic acid (12.5:7.5:0.5)

Reference drug - Glycyrrhetinic acid

RF Value – Purplish – 0.41

RUTIN

RUTIN

- There are around 200 types of Quercetin, Flavanoid glycosides, among this the rutin is the one of most important type.
- It is chemically Quercetin-3- rutinoside . On hydrolysis , it yields the aglycone quercetin and the sugars glucose and rhamnose.
- It is used as a Vitamin P OR Capillary fragility factor

SOURCES OF RUTIN

- 1. Fagophyrum esculentum- (Polygonaceae)
- 2. Rhubarb – (*Rheum emodi*- (Polygonaceae)
- 3. Tobacco – (*Nicotiana tobaccum* –(Solanaceae)
- 4. Ruta – (*Ruta graveolens* – (Rutaceae)
- 5. Tea – *Thea sinensis* – (Theaceae)
- 6. Eucalyptus macroryncha (Myrataceae)

ISOLATION

- **Source -**
- Eucalyptus macroryncha (Myrataceae)
- Boil the powder drug with boiling water.Filter while hot and collect the filtrate . Cool for the precipitation of the rutin.
- Recrystallize it from boiling water , dry the product.
- **Greenish yellow crystalline powder**

IDENTIFICATION AND ANALYSIS

1. Chemical tests – Shinoda test
2. Thin layer chromatography (TLC)

T.L.C Method

Sample preparation – Dissolved about 1mg of Rutin in 1ml of methanol

Stationary phase - Silica gel –G

Mobile phase – 10 % aqueous sodium chloride solution

Standard drug - Rutin

RF Value – Yellow spot – 0.43


Thank you
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