

Exp. No. 2

[Lab.3] Anthraquinone Glycosides

Anthraquinone and related glycosides, are stimulant cathartics, exert their action by increasing the tone of the smooth muscle in the wall of colon and stimulate the secretion of water and electrolytes into the large intestine.

After the oral administration, the anthraquinone glycosides are hydrolyzed in the colon by the action of enzymes of the micro flora, to the pharmacologically active free **aglycones** which usually produce their effect in **8 -12 hrs**. After administration, these agents are indicated for constipation in patient who do not respond to milder drugs and for bowel evacuation before investigational procedure or surgery.

Stimulant laxative are habit forming so the long-term use may result in laxative dependence and loss of normal bowel function. The glycosides of anthranols and anthrones elicit a more drastic reaction than do corresponding anthraquinone glycosides and cause discomforting and gripping action. The drugs mostly used are **cascara, frangula, hypericum and Senna**.

Aloe and **Rhubarb** are not recommended due to their irritating actions which increase the chance for gripping effect. The anthraquinone hydrolyzed to give **aglycone** which are **di, tri, or tetra –hydroxyanthraquinone** .Also there are **antherone, dianthrones and oxanthrones**.

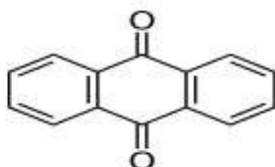


Fig (1): Chemical structure of anthraquinone

Isolation and identification of the anthraquinone glycosides:

1. Extraction:

Aim: To isolate the anthraquinone glycosides.

Reagents:

- ❖ Conc. HCl acid.
- ❖ Chloroform.
- ❖ 60% w/v ferric chloride solution.

Procedure:

Method of extraction: Decoction.

Plant used: Senna Cassia acutifolia, Cassia angustifolia

Family Leguminosaea.

Part used: Dry leaves.



Senna

Extraction procedure

Place **0.5 gm** of powdered dry leaves of Senna in **50 ml** of **water**

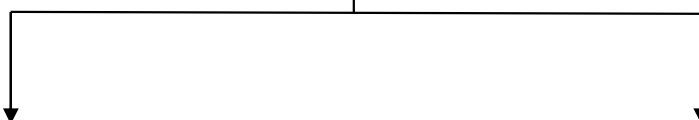
↓ Boiling (**15 min_s**)

Cool & filter



Place the filtrate (20 ml) in separatory funnel and extract by shaking with

[**10 ml of Chloroform**] two times



Upper layer

(**Aqueous layer**)

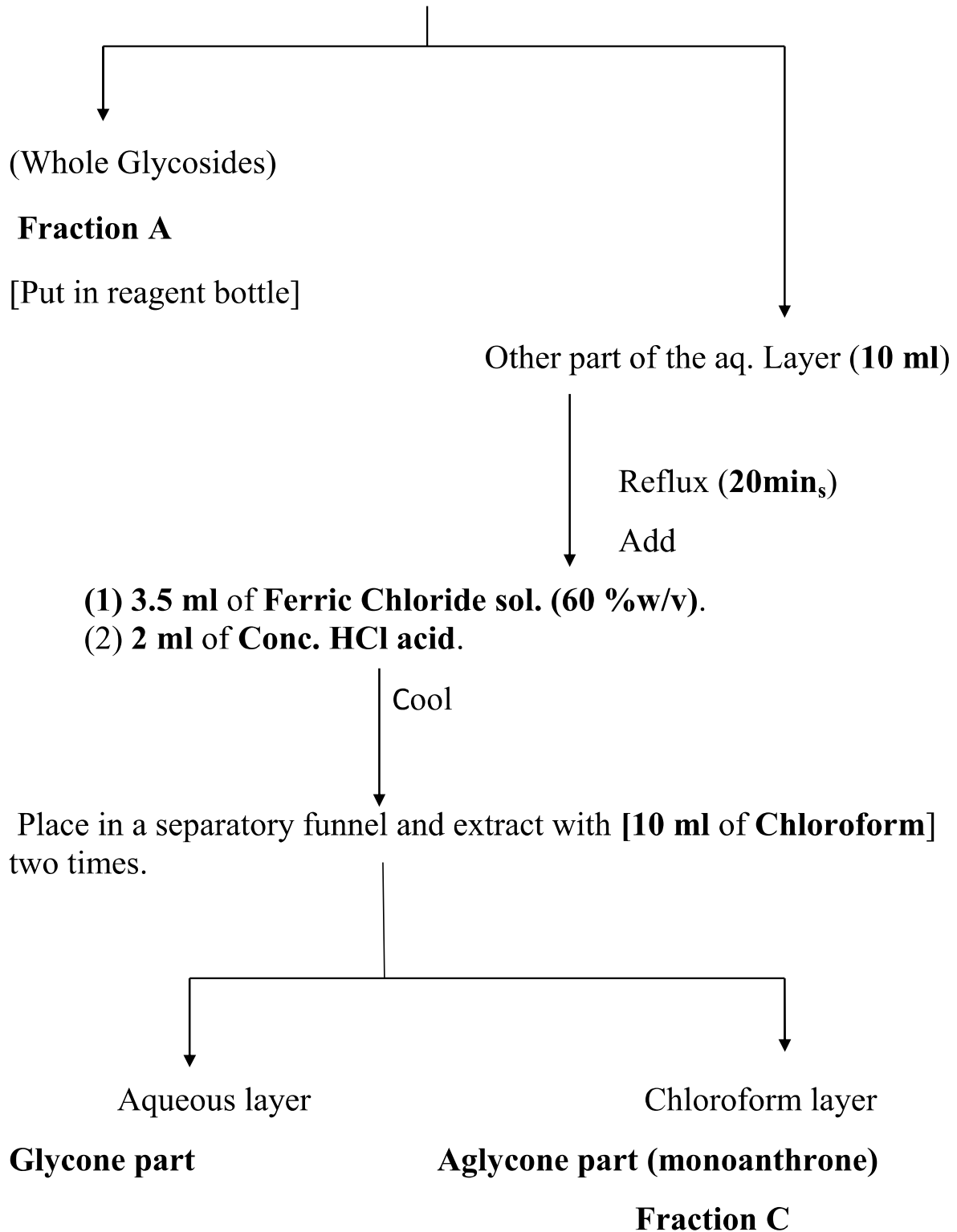
Combine lower layer

(**Chloroform layer**)

[Free aglycone (dianthrone)]

Fraction B

The upper aqueous layer will be divided into two parts



2. Results:

Fraction A: Contain the whole glycosides.

Fraction B: Contain the aglycone (dianthrone).

Fraction C: Contain the aglycone part (monoanthrone).