

# GLYCOSIDES

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## Aloe - Liliaceae

Definition: Aloes are the solid •  
residue obtained by evaporating the  
liquid which drains from the  
transversely cut leaves of various  
*Aloe* species

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The juice is usually concentrated  
• by boiling and solidifies on cooling  
Official varieties are the Cape Aloes •  
from SA and Kenya (*Aloe ferox*),  
and the Curacao Aloes from West  
54 Indies (*Aloe barbadensis*)

# Aloes – Constituents

C-glycosides

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Resins

Glycosides

Aloin –

Barbaloin

Isobarbaloin

Aloe-emodin

Cape Aloes: Also Contain

Aloinoside A & Aloinoside B (O-glycosides  
of barbaloin)

## Aloe Constituents & Chemical Test

Unlike C-glycosides, O-glycosides of *Aloe*  
are not hydrolysed by heating with dilute  
acids or alkali

Can be decomposed with ferric chloride &  
dilute HCl

NB: Modified Borntrager's Test  
– oxidative hydrolysis. Anthraquinones give  
a red colour when shaken with dilute  
ammonia

*Aloe* - Uses

Purgative •

Seldom prescribed alone – activity is  
increased when administered with small  
quantities of soap or alkaline salts;

Carminatives moderate griping  
tendency

.Ingredient in Friar's Balsam •

## **Chemical test**

**Borntrager's : and Modified Borntrager's test**

**For Aglycones**

**Extract plant material with organic solvent**

**Shake with NH<sub>4</sub>OH OR KOH**

**:For O-Glycosides**

**Boil plant material with dil. HCl for 10 min, filter and shake with**

**(.organic solvent )Ether or Benzene**

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**Separate the organic solvent**

**Shake with NH<sub>4</sub>OH OR KOH**

**:For C-Glycosides**

**Boil plant material with dil. HCl/FeCl<sub>3</sub>, filter and shake with**

**(.organic solvent )Ether or Benzene**

**Separate the organic solvent**

**Shake with NH<sub>4</sub>OH OR KOH •**

**Positive result indicated by *Rose Red colour* in the aqueous alkaline layer**

# Saponin Glycosides

. Parts of plants containing saponins are used as detergents

;For example

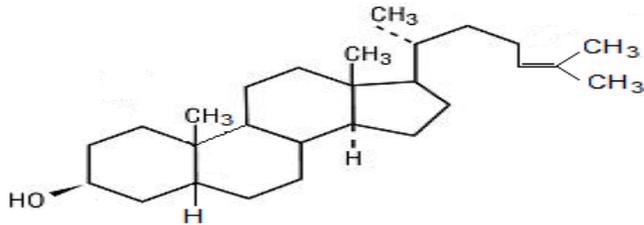
Root of *Saponaria officinalis*

**:Types**

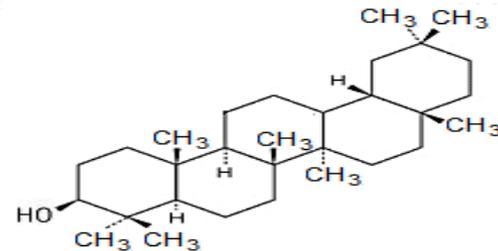
;Aglycone may be of two types

*Steroidal*

*Tri terpenoidal*



**Steroidal skeleton**



**Tri-terpenoidal skeleton**

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## **Glycyrrhiza**

**:Botanical origin**

*Glycyrrhiza glabra*

**:Family**

*leguminosae*

**:Part used**

*Dried rhizome and root*

## **Chemistry**

*Glycyrrhiza contains **Glycyrrhizic acid***

*;Upon hydrolysis, it produces*

*Glycyrrhizic acid*

*molecules of glucuronic acid 2*

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*;In addition to this, it contains*

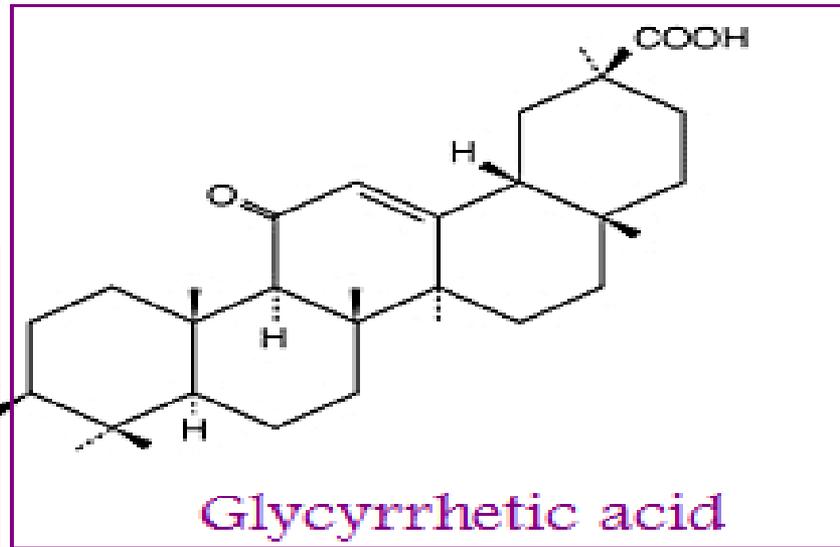
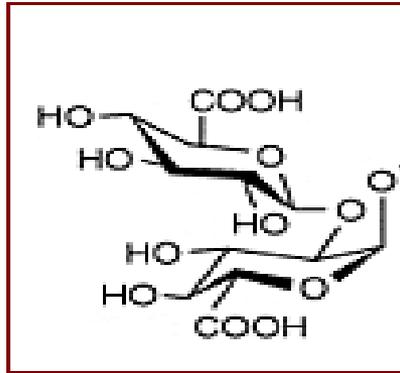
*Flavonoid glycosides*

*Mannitol*

*Glucose*

*starch 20%*

**Glucuronic acid**



**Glycyrrhetic acid**

## **Glycyrrhizic acid**

### Uses:

1. *Flavoring agent in Pharmaceutical preparation.*
2. *Demulcent and expectorant.*
3. *Treatment of peptic ulcer.*
4. *Treatment of Rheumatoid arthritis and Inflammatory conditions*
5. *Treatment of liver diseases*

## Cyanophore Glycosides

Wild cherry

**:Botanical origin** *Prunus serotina*

**:Family** *Rosaceae*

**:Part used** *Dried bark*

**Chemistry**

*.Active principle is **Prunasin***

*.It is formed from partial hydrolysis of **amygdalin***

*In addition to this*

*it contains Tannins, Volatile oil, Benzoic acid*

**Uses:** *Astringent, Sedative, Flavoring agent, Anti-tussive*

**Quassia**

**:Botanical origin** *Picrasma excelsa*

**:Part used** *Dried stem wood*

**Chemistry**

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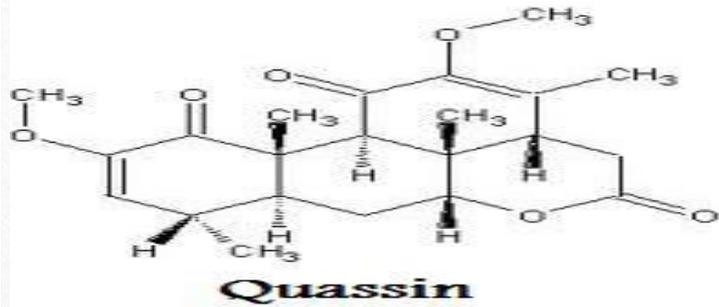
*Active principle is*

*.Quassin*

*;Quassin is complex of*

*Picrasmin*

*Neoquassin*



**Uses:**

*Bitter tonic, Insecticide, Anthelmintic*

**Dioscorea**

**:Botanical origin**

*Dioscorea bulbifera*

*Dioscorea composita*

**:Family**

*Dioscoreaceae*

**:Part used**

*Dried rhizome and root*

## **Chemistry**

*Active principle is **Dioscin***

*Upon hydrolysis, it produces*

*Diosgenin*

*Sugars ( 1 molecule of D-glucose + 2 molecules  
of L-rhamnose*

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### **Uses:**

*Synthesis of cortisone and steroidal  
drugs*

## Essential Oil

An essential oil is a concentrated hydrophobic liquid containing volatile aromatic compounds from plants.

Essential oils are also known as volatile oils, ethereal oils, aetherolea,

They are used in perfumes, cosmetics, soaps and other products, for flavoring food and drink, and for adding scents to incense and household cleaning products

Oil	Tonnes
Sweet orange	12,000
<i>Mentha arvensis</i>	4,800
Peppermint	3,200
Cedarwood	2,600
Lemon	2,300
<i>Eucalyptus globulus</i>	2,070
<i>Litsea cubeba</i>	2,000
Clove	2,000
Spearmint	1,300

# Phenylpropanoids

The **phenylpropanoids** are a diverse family of organic compounds that are synthesized by plants from the amino acid phenylalanine

Phenylpropanoids are found throughout the plant kingdom, where they serve as essential components of a number of structural polymers, provide protection from ultraviolet light, defend against herbivores and pathogens, and mediate plant-pollinator interactions as floral pigments and scent compounds.

Thank you.....

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