

# GLYCOSIDES

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# Glycosides

- Compounds that contain a carbohydrate and a noncarbohydrate
- Glycosides are present in vacuoles in inactive form
- Glucosinolates: found primarily in the mustard family to give the pungent taste

There are four type of linkages present between glycone and aglycone:

C-linkage/glycosidic bond, O-linkage/glycosidic bond  
N-linkage/glycosidic bond S-linkage/glycosidic bond



## **Classification**

- a) Cardioactive glycosides: Digitalis, Strophanthus and white squill
- b) Anthraquinone glycosides: Cascara, Aloe, Rhubarb, Cochineal and Senna
- c) Saponin glycosides: Glycyrrhiza, Sarsaparilla

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- d) Cyanophore glycosides: Wild cherry
- e) Isothiocyanate glycosides: Black Mustard)
- f) Lactone glycosides: Cantharide
- g) Aldehyde glycosides: Vanilla
- h) Miscellaneous glycosides: Gentian, Quassia, Dioscorea

- Introduction
- A glycoside is an organic compound, usually of plant
- origin, that is composed of a sugar portion linked to a

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- .non-sugar moiety
- Sugar portion ..... Glycone
- Non-sugar portion..... Aglycone / Genin
- Linkage between sugar and non-sugar is
- ”usually an “oxygen linkage



## Types

Based on atoms involved in  
glycosidic  
linkage

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O- glycosides

C- glycosides

S- glycosides

N- glycosides

Types

According to Sugar moiety

Glucosides

Ribosides

Rhamnosides

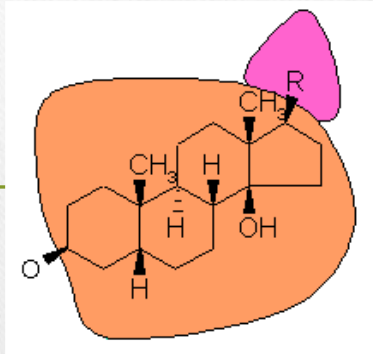


# Cardiac glycosides

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- Glycosides that exert a prominent effect on heart muscle or heart rhythm are called cardiac glycosides. Example: digitoxin from *digitalis purpurea*. Their action specifically on myocardial contraction. As usual these are also composed of glycone and aglycon moieties. The aglycone moiety is steroidal and it referred as cardenolide

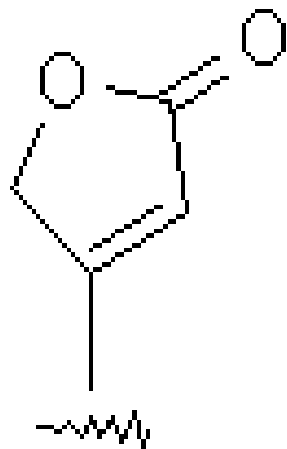
- Aglycone is steroidal



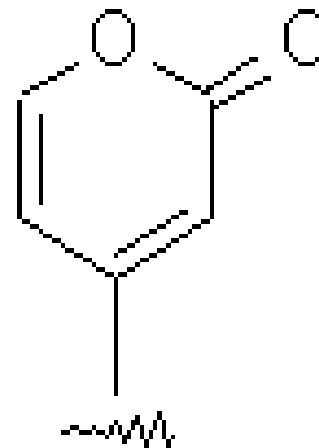


Aglycone may be  
(Cardenolide (5-membered lactone at place of R  
(Bufanolide (6-membered lactone at place of R

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Cardenolide



Bufanolide

Digitalis

synonym: Foxglove leaf

**:Botanical Origin**

*Digitalis purpurea*

~~*Digitalis lanata*~~

**:Family**

Scrophulariaceae

**:Part used**

*Dried leaves*





*Digitalis purpurea*



*Digitalis lanata*

**Derivatives *D. purpurea* *D. lanata***

***Digitoxigenin* *Digitoxin***

*Glucodigitoxin*

*(Digitoxin + 1 glucose)*

*Acetyl digitoxin*

*Lanatoside A*

*(Acetyl digitoxin + 1 glucose)*

***Gitoxigenin* *Gitoxin***

*Glucogitoxin*

*(Gitoxin + 1 glucose)*



*Lanatoside B*

*( Acetyl gitoxin + 1 glucose(*

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*Gitatoxinigenin Gitatoxin Lanatoside E*

*(Acetyl Gitatoxin + 1 glucose(*

*Digoxigenin Digoxin*

*Acetyl digoxin*

*Lanatoside C*

*(Acetyl digoxin + 1 glucose(*

*Deslanoside*

*(Digoxin + 1 glucose*

- **White squill**
- **:Botanical Origin**
- *Urginea maritima*
- **:Family**

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- *Liliaceae*
- **:Part used**
- *Dried fleshy scales of bulb*
- **:Uses**
- *Emetic*
- *Expectorant*
- *Cardiac tonic*



Thank you.....

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