



## SNS COLLEGE OF PHARMACY AND HEALTH SCIENCES

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# CARDIOTONICS



***DIGITALIS***

*Environmental Weeds  
of Australia*

## SYNONYMS

Digitalis leaves , foxglove leaves

## BIOLOGICAL SOURCE

it consist dried leaves of *Digitalis Purpurea*

## FAMILY

*Scrophulariaceae*

Should contain not more than 5% moisture, dried below 60 0 C

## GEOGRAPHICAL SOURCE

it is cultivated in England, Europe, USA, India

## CULTIVATION AND COLLECTION

It is propagated by seeds.

it requires calcareous, acidic, sandy soil for growth.

seeds are very small in size i.e 100 seeds weigh 40 to 70 mg.

seeds are mixed with fine sand and sown in nursery beds in march/april. young seedlings are transplanted in sep/november.

crop is manured and kept free from weeds.

In first year plant bears rosette leaves and in second year sessile leaves. Leaves collected in second year by handpicking when 2/3 rd of flowers are fully developed.

leaves immediately dried in vacuum driers.

dried leaves containing not more than 5% moisture are packed in airtight containers with dehydrating agents.

Presence of moisture deteriorates glycosides. If dried above 60 °C potency lost due to chemical degradation.

## ***MACROSCOPIC CHARECTERS***

**Colour-** dark greyish green

**odour-** slight

**taste-** bitter

**size-** 10 to 40 cm long and 4 to 20 cm wide

**shape-** ovate- lanceolate(shape like lance head or tapering to a point at each end) to broadly ovate( like egg)

### **Extra feature**

Leaves are slightly pubescent on both surfaces, pinnate venation,(one main [vein](#) extending from the base to the tip of the leaf and smaller veins branching off the main vein.) generally leaves are broken and crumbled.( break in small fragments)

## *Microscopic characters*

Dorsiventral leaf.(two surfaces differing from each other in appearance and structure,)

covering and glandular trichomes on both surfaces.

covering trichomes are uniseriate,( arranged in single series) 3 to 4 cells long, having collapsed cells, acute apex and warty( hard rough lump growing on) cuticle.

glandular trichomes are short, unicellular stalk and bicellular or unicellular head.

it has anomocytic stomata (irregular celled) Starch grains are present in endodermis.

**collenchyma present at upper and lower epidermis and pericyclic** ( is a cylinder of parenchyma or sclerenchyma cells that lies just inside the endodermis and is the outer most part of the stele of plants.)**part.**



## ***Chemical constituents***

**0.2 to 0.45% cardenolides -**

**purpurea glycoside A and B,**

**glucogitaloxin.**

**Other-**

odoroside H,

gitaloxin,

verodoxin,

glucoverodoxin

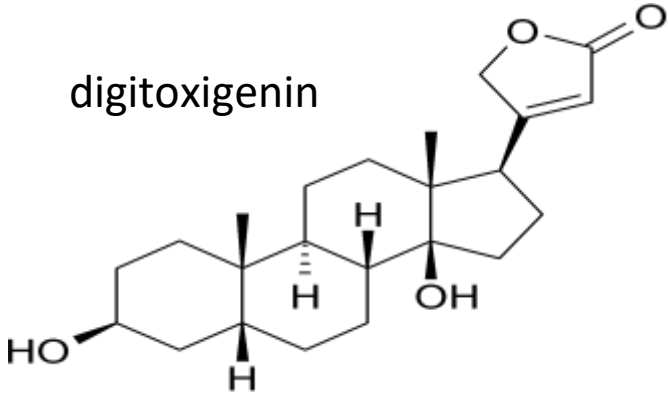
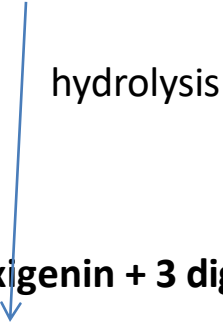
**Saponin glycosides-**

digitonin,

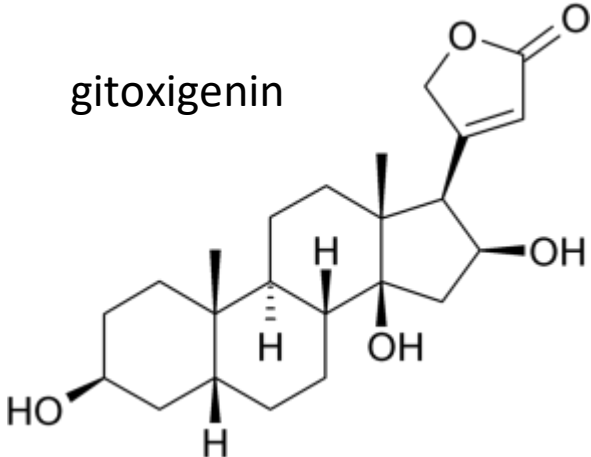
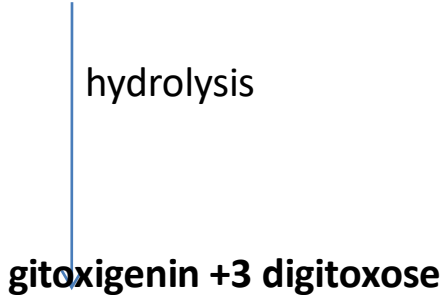
gitonin

# Hydrolysis products of purpurea glycosides

## Purpurea glycoside A



## Purpurea glycoside B



## *Uses*

***Congestive heart failure,*** ([heart](#) is unable to pump sufficiently to maintain [blood flow](#) to meet the needs of the body) ***artrial fibrillation*** ( common type of abnormal heartbeat. The heart rhythm is fast and irregular in this condition.),

***artrial flutter,*** ( [abnormal heart rhythm](#) that occurs in the [atria](#) of the [heart](#). When it first occurs, it is usually associated with a fast heart rate  
or [tachycardia](#) (beats over 100 per minute))

***supraventricular tachycardia***

