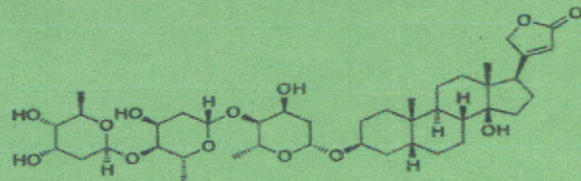
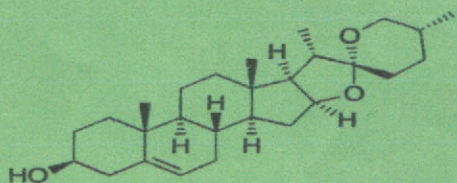


**M.G.V.C.ARTS,COMMERCE AND SCIENCE COLLEGE**

**MUDDEBIHAL**

**DEPARTMENT OF BOTANY**

**PROJECT WORK ON STEROIDS**



**FROM : B.Sc SECOND SEMESTER STUDENTS-2019-20**



M.G.V.C.ARTS, COMMERCE AND SCIENCE COLLEGE

MUDDEBIHAL 586212

CERTIFICATE

DEPARTMENT OF BOTANY



Examination Seat. No: 51827638

Class- B.Sc Second Semester

This is certify that Mr/ Miss Bhagyaa C. Bhauikatti

..... Has satisfactorily completed the project work on "Steroids" Under my supervision in M.G.V.C. Arts, Comm and Science college Muddebihal during the year 2019-2020.

Staff member Incharge

Head Department of Botany  
Head of the Department of Botany  
M.G.V.C. College, MUDDEBIHAL-586212  
Dist: Bijapur.

VALUED  
Examiner's Date:  
1. 11-4-19  
2. 11/4/19

Co-ordinator,  
Internal Quality Assurance Cell  
M.G.V.C. Arts, Com. & Science College,  
MUDDEBIHAL - 586212 Dist- Bijapur.

PRINCIPAL,  
M.G.V.C. Arts, Com. & Science College  
MUDDEBIHAL - 586212



## Pharmacologically Active Compounds

- Pharmacologically active compounds in the environment and their chirality

Pharmacologically active compounds including both legally used pharmaceutical and illicit drugs are potent environmental contaminants. Extensive research has been under taken over the recent years to understand their environmental fate and toxicity.

The one very important phenomenon that has been over looked by environmental research studying in the fate of pharmacologically active compounds in the environment is their chirality. Chiral drugs can exist in the form of enantiomers, which have similar physic chemical properties but differ in their biological properties such as distribution, metabolism and excretion as these processes [due to stereo specific interactions of enantiomers with biological systems], usually favor one enantiomer over the other .

Additionally, due to different pharmacologically activity, enantiomers of chiral drugs can differ in toxicity. Furthermore degradation of chiral drugs during waste water treatment and in the environment can be stereo selective and can lead to chiral products of varies toxicity.

The distribution of different enantiomers of same chiral drug in the aquatic environment and biota can also be stereo selective, biological process can lead to stereo selective environment or deflection of the enantiomeric composition of chiral drugs. As a result the very same drug might reveal different activity and toxicity and this will depend on its origin and exposure to several factors governing its fate in the environment



# Pharmacologically Active Constituents

## Steroids

A steroid is a biologically active organic compounds with four rings arranged in a specific molecular configuration .Steroids have two principle biological functions as important components of cell membranes which alter membrane fluidity and as singling molecule

## Diosgenin

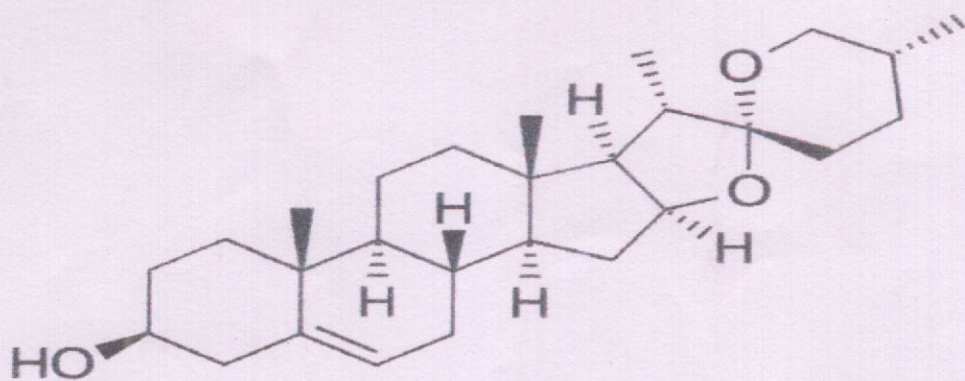
Diosgenin a phytosteroid saprogenin, is the product of hydrolysis by acids, strong bases or enzymes of saponins, extracted from the tubers of dioscorea wild yam, such as kokora. The sugar free product of such hydrolysis

## Properties:

Formula:  $C_{27}H_{42}O_3$

Molar mass:  $414.630g/mol^{-1}$

## Structure of Diosgenin





## Sources

It is present in detectable amount in *costus speciosus*, similar *menispermoides*, species of pairs, *Aletris*, *trigonella* and *trillium* and in extractable amounts many species of *dioscorea-D*, *Athlaeoides*, *colleti*, *comyxsita*, *floribunda*, *futschauensis*, *gracillima*, *hospida*, *hypoglauca*, *Mexicana*, *nepponica*, *panthaica*, *parviflora*, *septemloba*, and *zingiberbnis*.

## Industrial Uses

Diosgenin is a precursor for several hormones starting with the marker degradation process, which include synthesis of progesterone. The process was used in the early manufacturing of combined oral contraceptive pills.

# Digitoxin

Digitoxin is a cardiac glycoside it is phytoestrogenic, digitoxin is eliminated from the body via of the kidney so could be used in patients with poor or erratic kidney function. It is known rarely used in used in western medicine practice while proportionally used to treat heart failures.

## History

Oswald schimedeberg is obtaining pure sample in 1875.

First structural analytic made by Adolf Otto and Reinhold windows in 1925. It is used as poison or murder weapon.

Example: Elizabeth peters "die for love"

## Industrial Uses In Cancer:

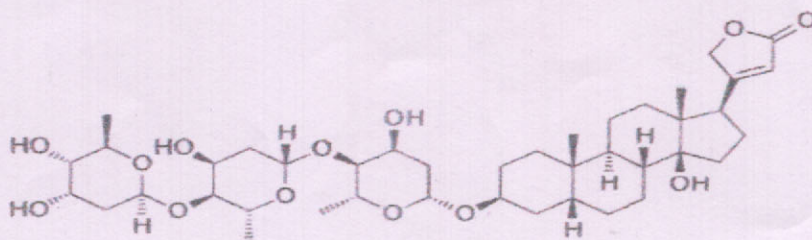
Digitoxin and related display potent anti cancer activity against a range of human cancer cell lines in vitro but the clinically it bits restricted by its narrow therapeutic index antibody drug conjugate known as extra cellular drug conjugate as first it is use to treat cancer by biotechnology company centrose.

## Properties:

Formula:  $C_{41}H_{64}O_{13}$

Molar mass:  $764.939 \text{ g/mol}^{-1}$

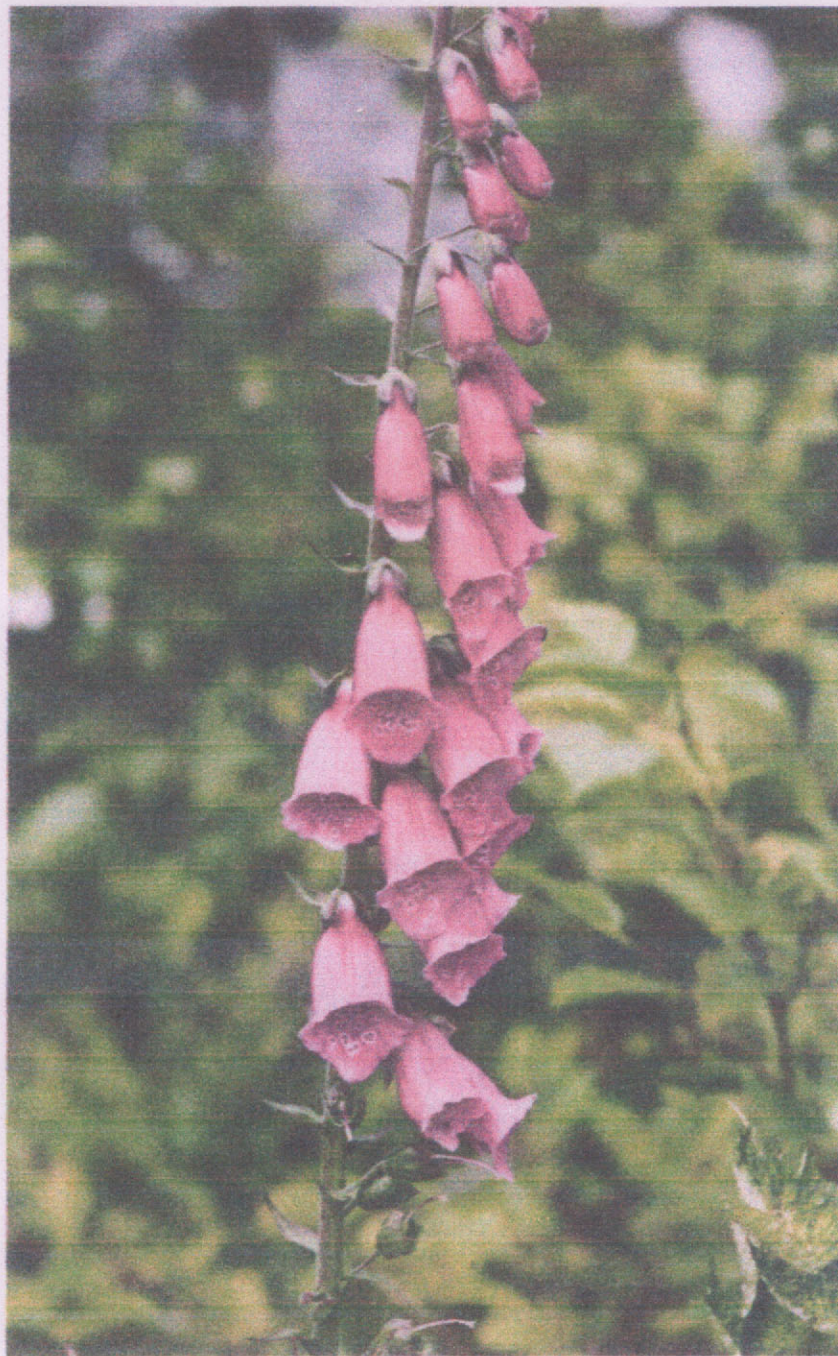
### Structure of Digitoxin





# Extracted Plant

## Foxglove Pur Purea Plant



## Toxicity

It over close cause nausea, vomiting, diarrhea. Some the result in xanthopsia [yellowish vision], abnormal heart rate collapse weakness. It also reduce appetite some people use this as weight loss acid

Cause heart block on bradycardia [low heart rate] tachycardia [high heart rate]

## Extraction In Lab:

Rosen hary 1948, digitals leave from plant extracted with cutin with water lower alcohol mixture contain at least 50% alcohol. The extracted treated with Pb acetate to precipitate toxins etc.

The precipitate removed the digitoxin is extracted with a water immiscible solvent such are chlorothianyl mixture then soon extracted with dilute  $\text{Na}_2\text{CO}_3$  to remove gelatin and dig toxin in the solvent selectively precipitated with petroleum ether.

## Side Effects:

Dizziness, anxicity nausea, vomits, diorrehea, headache, rash change in rude and mental alertness confusion depression and may cause death.