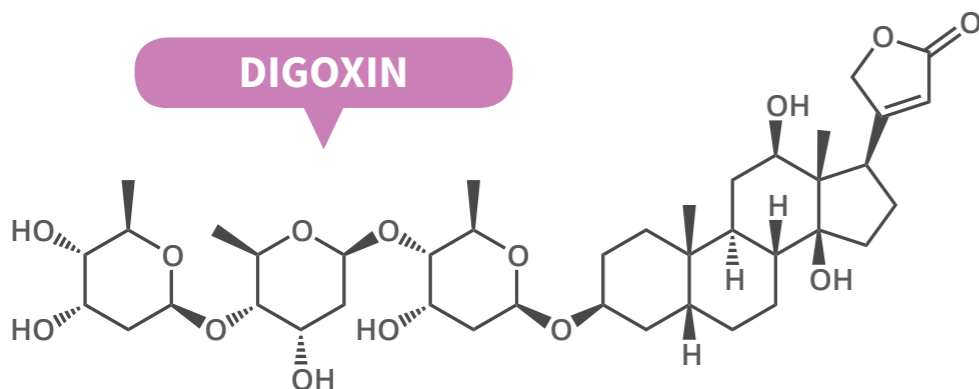


# THE CHEMISTRY OF FOXGLOVES

The vibrance of foxgloves belies their poisonous nature; but the same compounds that make them poisonous can also be used in medicine.

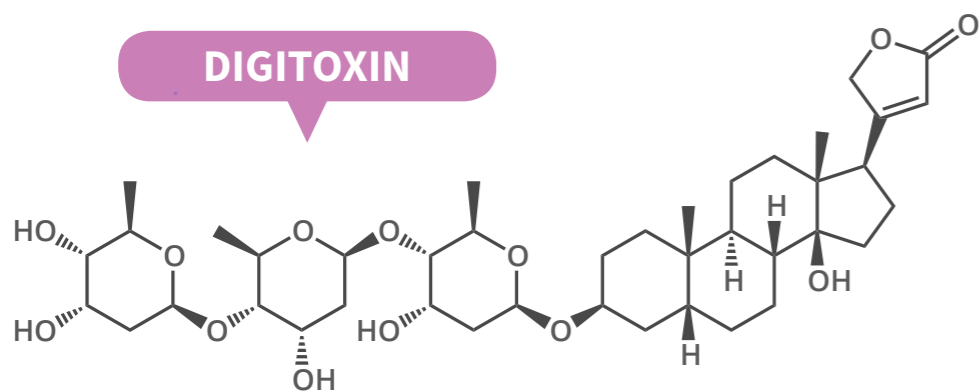
## POISONOUS FOXGLOVES

### DIGOXIN



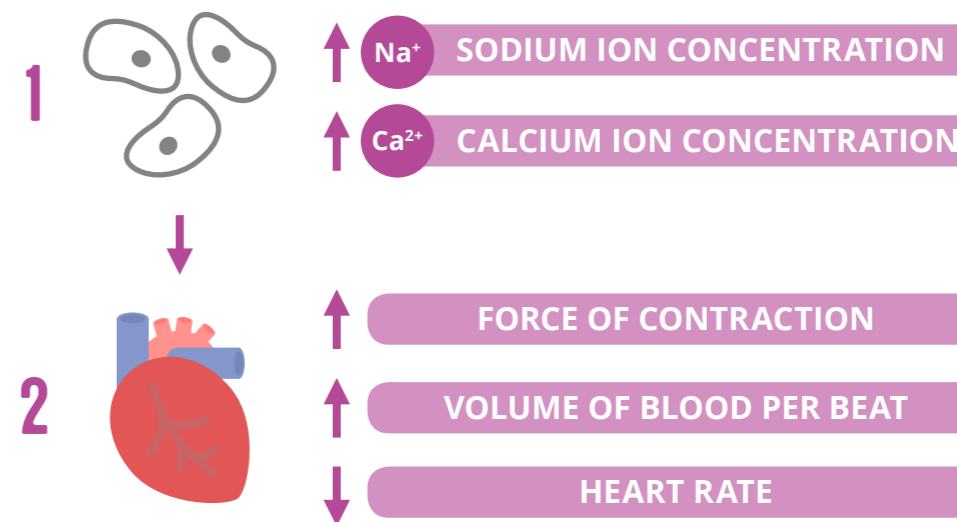
All parts of the foxglove contain compounds called cardiac glycosides, including the structurally similar digoxin and digitoxin. Ingestion of these compounds can cause nausea, vomiting, diarrhoea, and an irregular heart beat. They disable cell sodium-potassium ion pumps, leading to increased cell sodium and calcium ion concentration. This slows the heart rate, which can lead to a heart attack and death.

### DIGITOXIN



## FOXGLOVES IN MEDICINE

Though poisonous in large amounts, in small doses digoxin can be used to manage some heart conditions, including abnormal heart rhythms and heart failure. It increases the force of the heart's contraction and consequently the volume of blood pumped with each beat, and also causes the heartbeat to slow.



0.8-2.0  
Nanograms per  
millilitre of blood

THERAPEUTIC  
RANGE

>2.0  
Nanograms per  
millilitre of blood

TOXIC  
LEVEL

The therapeutic levels of digoxin don't differ greatly from those at which toxic effects are seen, and as such dosages must be carefully monitored.

