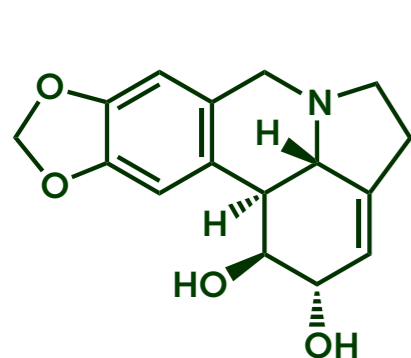


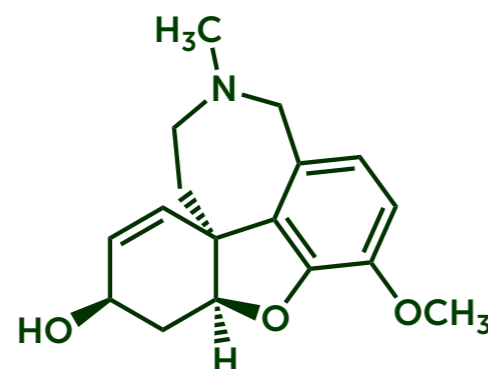
# Snowdrops, Alzheimer's & chemical warfare

## Poisonous snowdrops

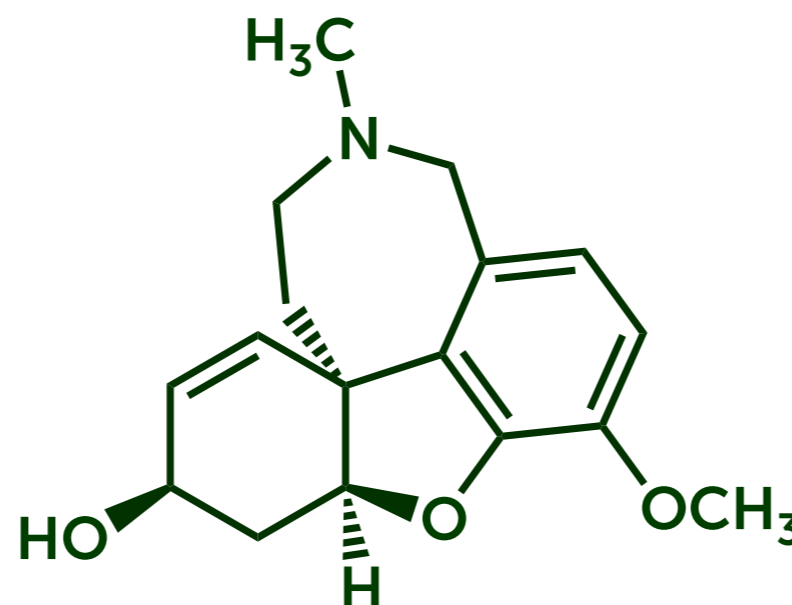
Snowdrops contain poisonous alkaloids, including galantamine and lycorine, particularly in their bulbs. Ingestion can cause vomiting and diarrhoea.



## Lycorine



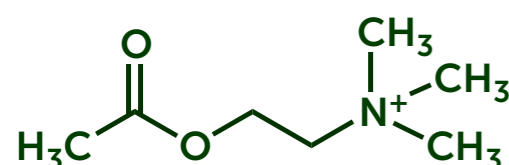
## Galantamine



## Galantamine

## Treating Alzheimer's

Falling levels of the neurotransmitter acetylcholine are linked to symptoms of Alzheimer's disease. Galantamine stops an enzyme (acetylcholinesterase) breaking down acetylcholine, increasing availability.



## Acetylcholine (ACh)

## Alzheimer's

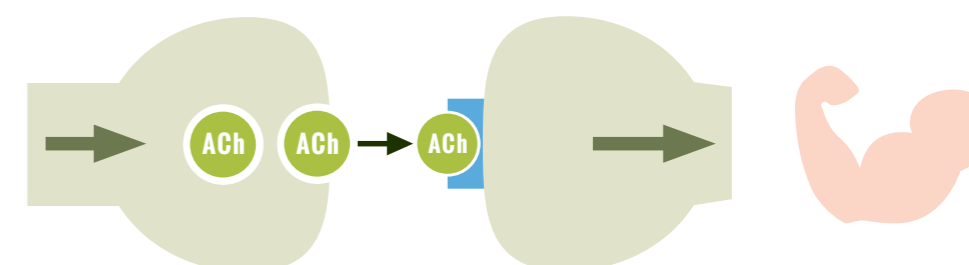
**acetylcholine**

## Galantamine

**acetylcholine**

## Nerve agent poisoning

Acetylcholine (ACh), released by nerve endings, controls muscle contraction when it binds to receptors.



The enzyme acetylcholinesterase (AChE) controls ACh levels by breaking it down. Organophosphate (OP) nerve agents stop this, causing convulsions and death.



Galantamine also latches on to AChE and stops it working, but it does so reversibly. This blocks the nerve agents from binding to it irreversibly and so prevents poisoning.