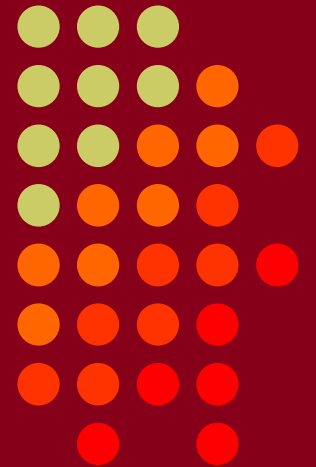


Nux Vomica

Spinal poison

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MD FM



Strychnos nux- vomica



- **Nux vomica**
- **Poison Nut**
- **Semen strychnos**
- **Quaker Buttons,**



Fruits

- Glossy Orange
- Rough and hard
- Contain White jelly like yellow pulp
- 3-5 seed per fruit

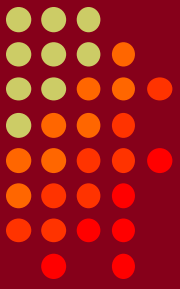


Seeds

- Ashe grey Colour
- Disc shape like button



Active Principle



- Strychnine
- Brucine
- loganin (glucoside)

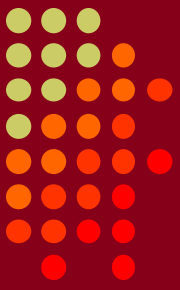
Fatal Dose: 1-2 seed

30 -100 mg strychnine

Fatal Period: 1-2 hrs

- The seeds contain alkaloids approximately 1.8 to 5.3% strychnine and Brucine .
- The dried blossoms contain Strychnine 1.023%.
- The tree's Root, Stem, leaves and bark also contains brucine and other poisonous compounds.

Pharmaceutical Applications: Strychnine



- Appetite stimulant and general tonic in small doses.
- Used for Liver cancer, vomiting, heartburn, certain heart disease, eye disease, problems related to menopause,
- *Specific Medicine Nux Vomica and Tinctura Nucis Vomicae*
- Pesticide / Vermin killer.
- Rodenticide & killing stray dog
- Brucine used for treatment of Pruritus, local anodyne in inflammation.

Pharmacokinetics

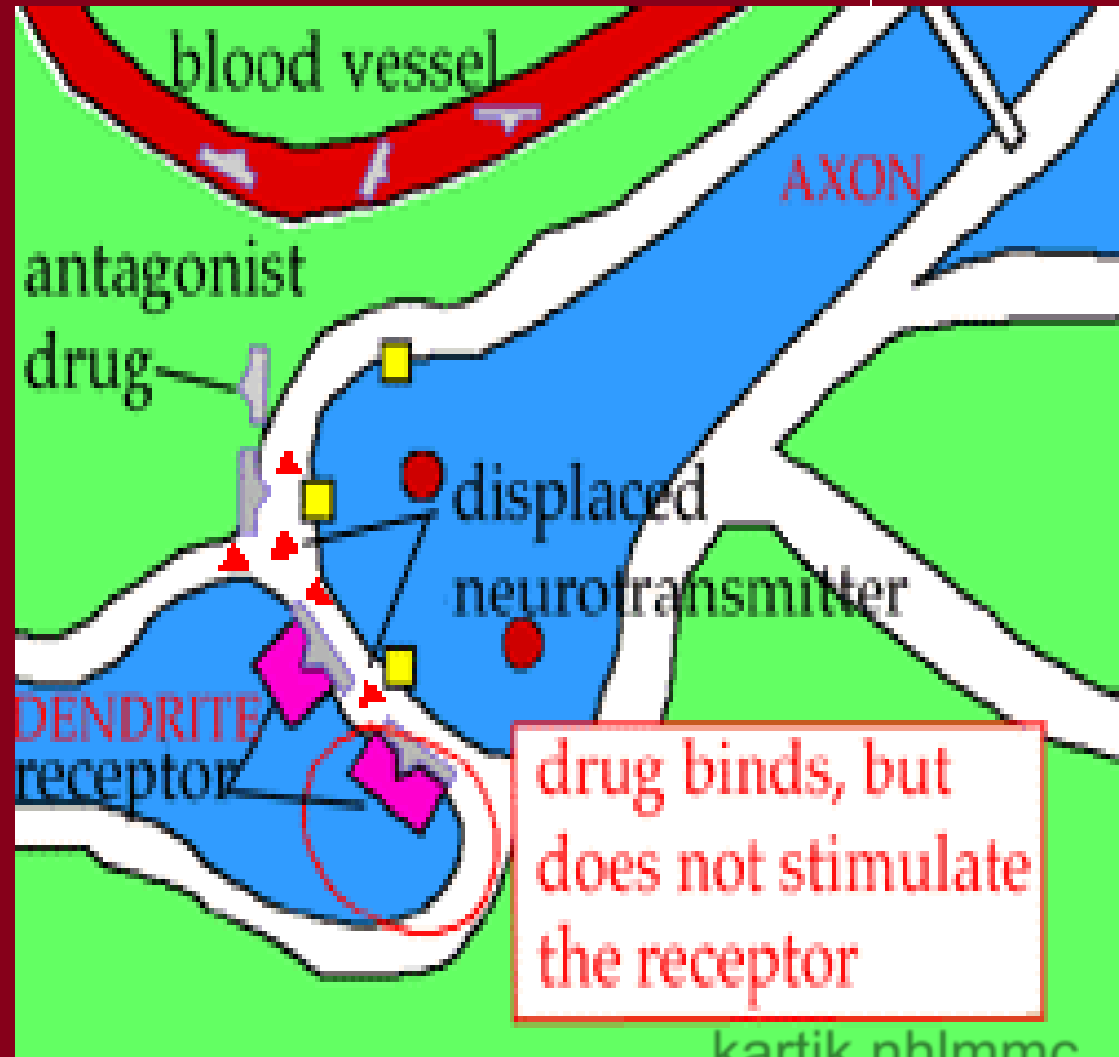


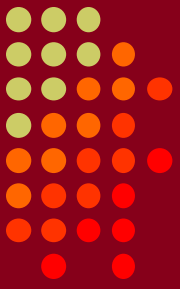
- Rapidly entry from all portal enteries
- Rapidly metabolized in the liver
- Highest conc. Liver, kidney & blood.
- Released – liver & muscles into blood stream after reducing conc.
- 15% appear from unchanged in urine – 24 hrs
- Traces appear in bile , milk & saliva
- Elimination half life – 10h
- Cadaver up to 4hrs

Mechanism of Action



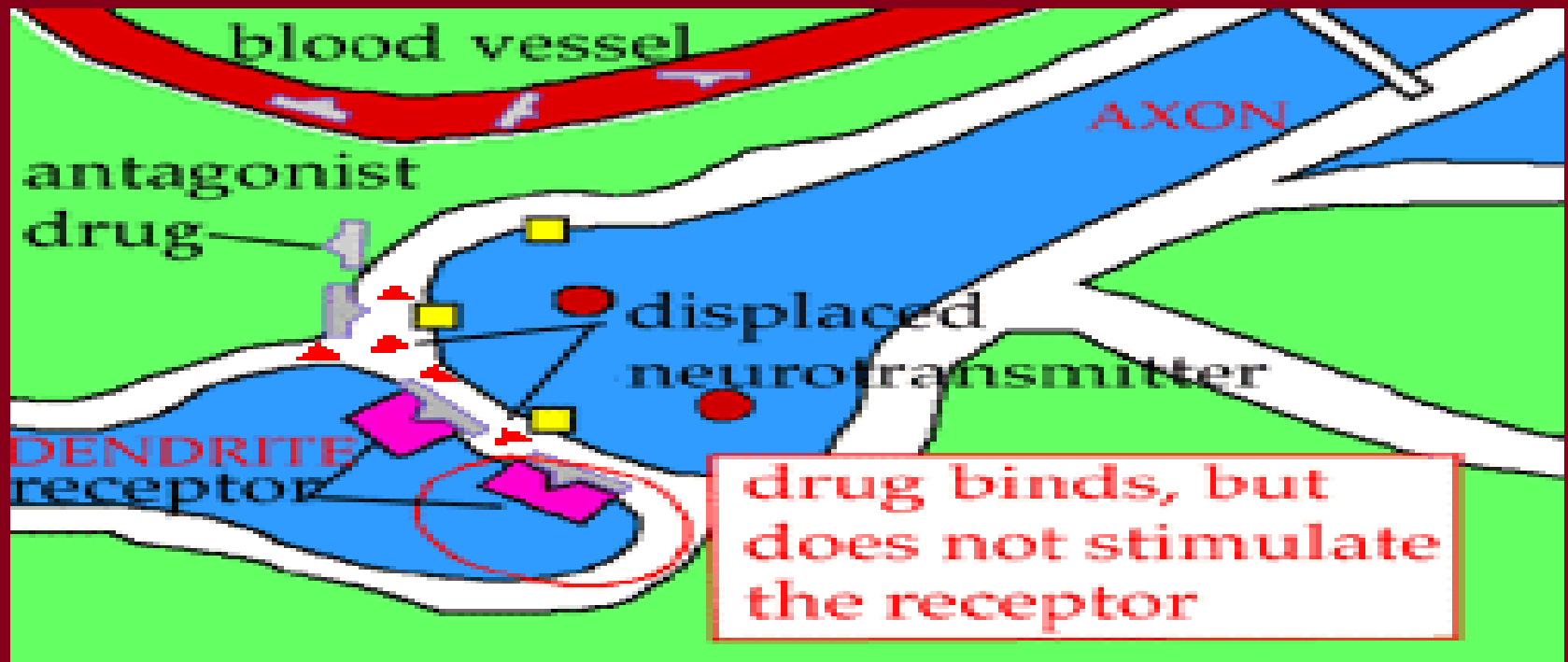
- Site & Action:
Anterior (ventral) horn
cell of spinal cord

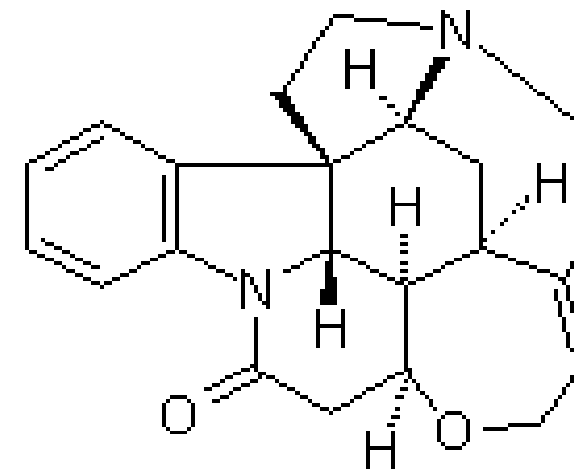
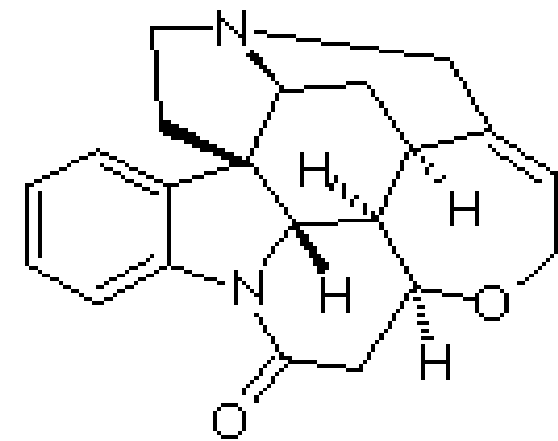
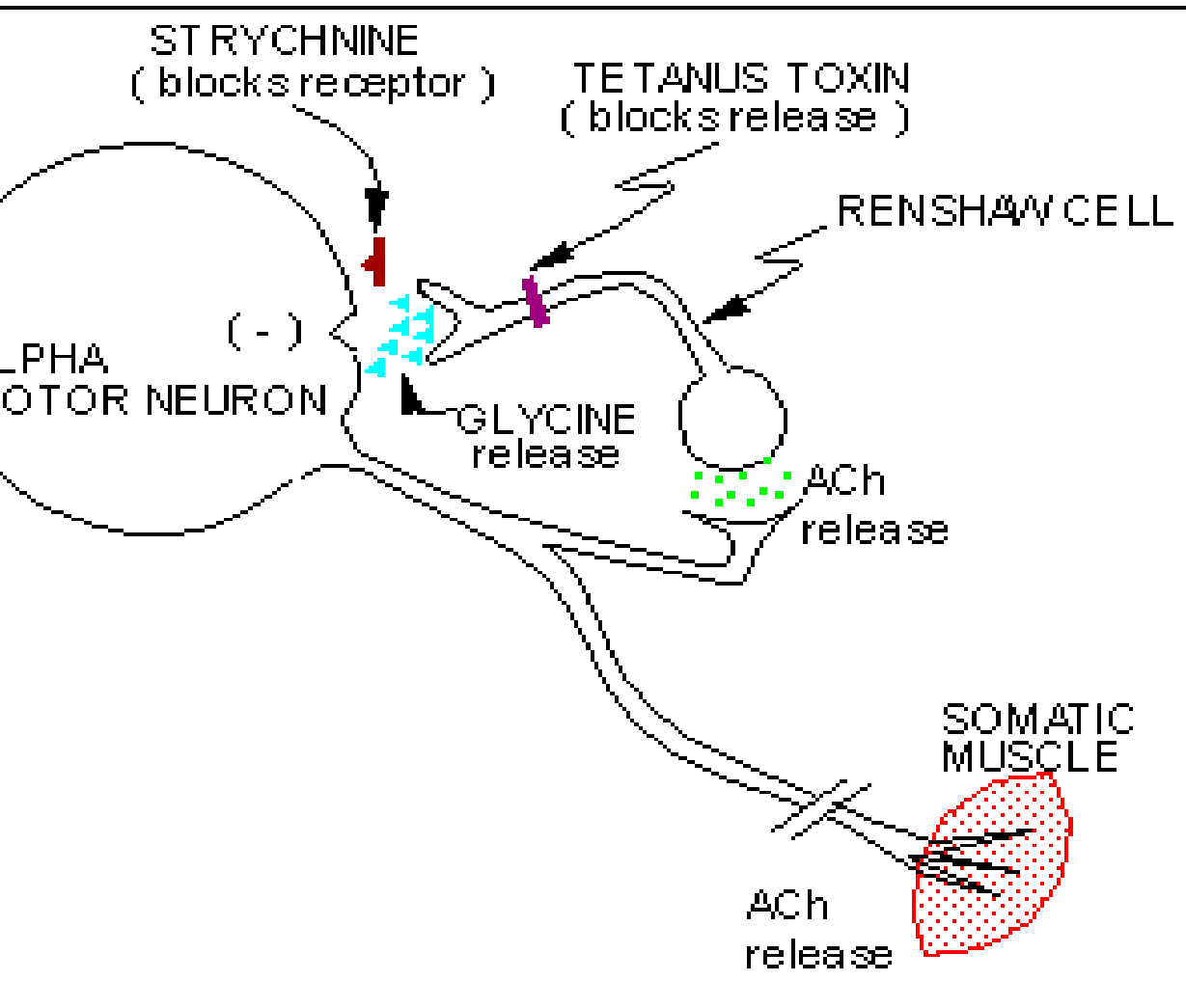




Mechanism of Action

- An antagonist of Glycine a major inhibitory neurotransmitter in the mammalian nervous system



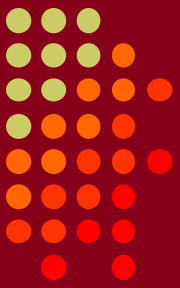


Strychnine blocks the receptors of inhibitory circuits in the spinal reflex systems. Tetanus toxin blocks release of the inhibitory transmitter.

Mechanism of Action



- Increased reflex action, increased rate of respiration and enlargement of the capacity of the lungs
- Increased force, rate, and volume of the pulse, raised arterial pressure, increased sharpness to sight, hearing, and smell, and general irritation



Signs and symptoms:

uncrushed seed

crushed seed

Dermal exposure

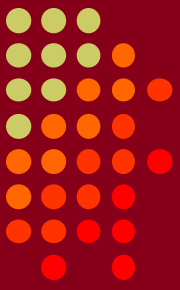


Signs and symptoms:

Ingestion:

Symptoms

- Bitter taste in mouth
- Sense of uneasiness
- Restlessness
- Feeling of suffocation
- Fear and difficulty in swallowing



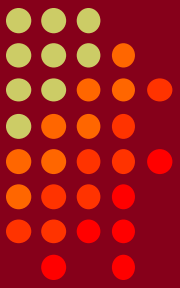
Signs and symptoms:

Prodromal symptoms before convulsion:

- ❖ increased acuity of perception
- ❖ increased rigidity of muscles
- ❖ muscular twitching
- ❖ Convulsion:

contraction of jaws and facial muscles in which the corners of the mouth are drawn back later become tonic •

Face cyanosed, anxious look ,eyes staring , eye balls prominent , pupils are dilated •



Signs and symptoms:

❖ Convulsion:

contraction of jaws and facial muscles in which the corners of the mouth are drawn back later become tonic •

Face cyanosed, anxious look ,eyes staring , eye balls prominent , pupils are dilated •

Mouth : froth or blood stained froth

Duration : ½ to 2 min



Signs and symptoms:

- Awful, bitter taste
- Clonic-tonic convulsions

Opisthotonos:	Arching back
Emprosthotonos:	Arching forward
Pleurothotonus:	Bending sideward
Risus Sardonius:	Evil fixed grin

- Dilated pupils
- Hyperreflexia
- Mind and consciousness are maintained
- Death results due to asphyxia or exhaustion

Signs and symptoms:



Mnemonic to remember signs and symptoms by:

CRAMPing of muscles lead to exhaustive death of the person in strychnine poisoning.

Therefore:

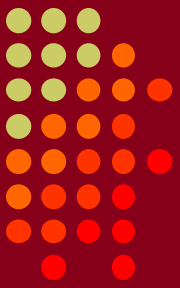
Convulsions

Reflex increased

Awful taste

Mind is conscious

Pupils dilated



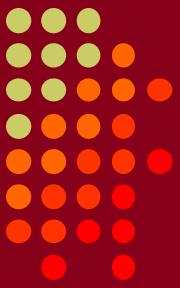
Treatment:

- Based on two principles:

Prevention of convulsions

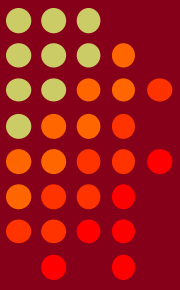
Removal of poison

- Keeping patient in a dark and quiet room.
- By giving I/V barbiturates, diazepam.
- Glucose saline I/V to replenish depleted glycogen.
- Oxygen therapy for supportive treatment.
- Stomach wash with warm water and potassium permanganate.



Postmortem Findings:

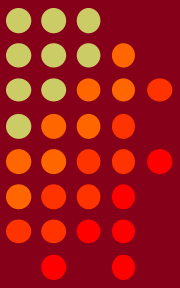
- Suggestive of asphyxia.
- Brain, Lungs, spinal cord congested.
However, *heart is contracted and empty.*
- Rigor mortis : early onset but lasts longer.
- Seeds can be recovered from stomach.



Medico-legal implications:

- Aphrodisiac.
- Cattle Poison
- Arrow Poison
- Homicidal
- Accidental Poison
- Suicidal poison : Painful death occurs.
- Although a poison, in relatively low doses can be used as a medical stimulant for respiration.

Tetanus can be differentiated from Strychnine poisoning in that:



- In tetanus there is a history of injury
- Onset is gradual in tetanus vs. sudden in strychnine poisoning.
- Tetanus follows convulsion first in the muscles of neck, then lower jaw resulting in lock jaw meaning convulsions are non-generalized vs. strychnine convulsions are generalized.
- The course of patient is not steady in tetanus vs. steadiness, either to improving or deteriorating side, is seen in strychnine poisoning.
- Death follows after several days in tetanus whereas in strychnine poisoning, it can be within a few hours.