

Pharmacognosy

Alkaloids

lec6

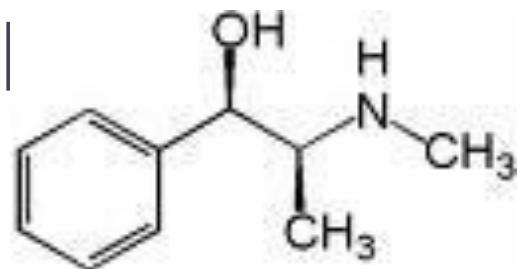
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Protoalkaloids (biological amine)

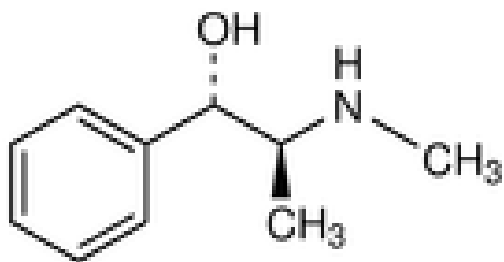
- The nitrogen is outside the heterocyclic ring.
- The nitrogen at the side chain.
- They are derived from the common amino acids, phenylalanine or tyrosine.
- Some of the alkaloids in this category whose biosynthesis has been studied using labeled precursor include mescaline, ephedrine, cathinone and colchicin.

Ephedrine

- Ephedrine is derived from *Ephedra sinica*, *Gnetaceae*.
- Ephedrine possess CNS stimulatory, vasoconstrictor and bronchodilatory properties.
- Ephedrine has two stereogenic (chiral) centres and therefore has four possible isomers.
- Ephedrine is used for severe asthma while pseudoephedrine is used in cough preparations for its bronchodilatory properties.



Ephedrine



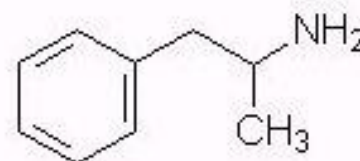
Pseudoephedrine (isomer)
less stimulant in effect

Note - the nitrogen is in the side chain, not the heterocyclic ring!

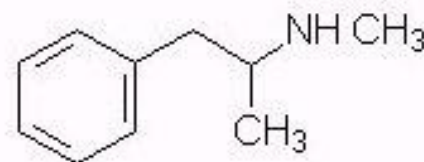


Ephedra sinica,
Ma Huang

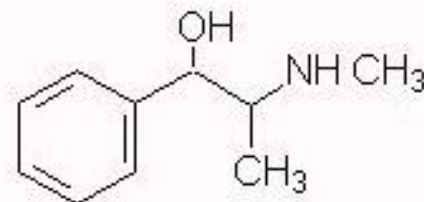
- Herbal *Ephedra* has recently gained notoriety as herbal ecstasy due to the high similarity in structure of ephedrine and ecstasy, these herbal preparations are dangerous and should therefore be avoided.



Amphetamine



Methamphetamine



Ephedrine

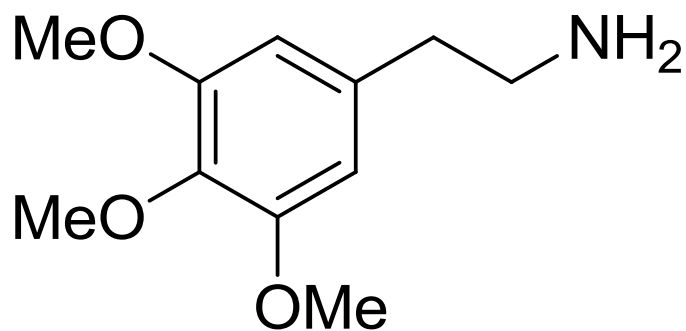
This is why the sale of pseudoephedrine may be banned....ephedrine is already tightly controlled

Mescaline

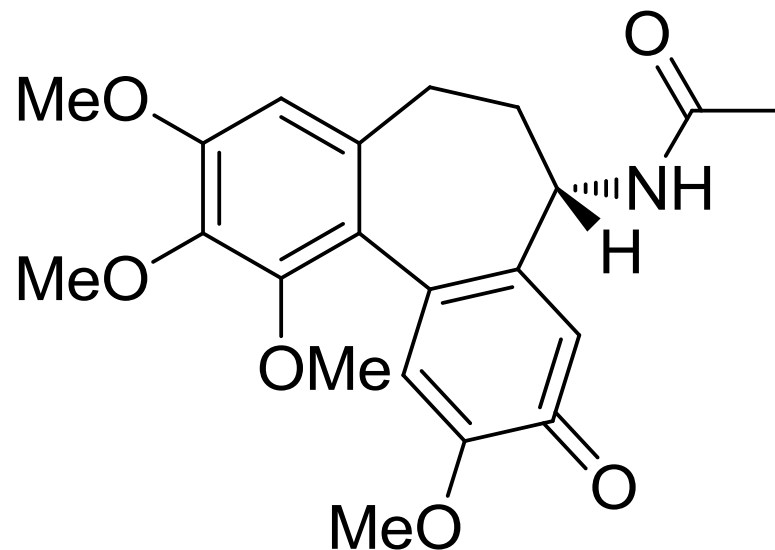
- Mescaline is the biologically active natural product present in cactus peyote which is responsible for its hallucinogenic property.
- Ingestion of pure mescaline fails to give the same response as consumption of peyote which is possibly due to the contribution of other compounds present in the plant material.



- Colchicine used in the treatment of gout, it is highly cytotoxic and antimitotic.



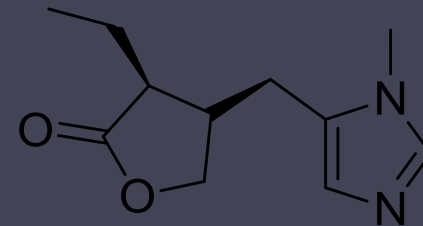
Mescaline



Colchicine

Imidazole alkaloids

Pilocarpine is cholinergic agent and is used to stimulate muscarinic receptors of the eye in the treatment of Glaucoma



Pilocarpine



Thank you for listining
The end