

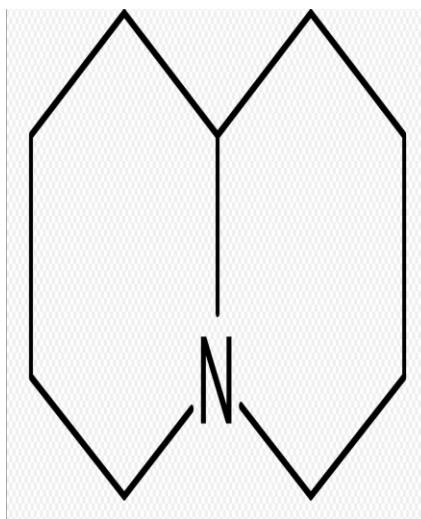


Pharmacognesy III

From textbooks: (*Pharmacognesy and Pharmacobiotechnology, 9th ed, Robbers JE, Speedie MK, Tyler VE.*)

Quinolizidine alkaloids

- Quinolizidine alkaloids (QAs) are a group of alkaloids possessing a quinolizidine ring or a piperidine ring.
- QAs occur mainly in the family Leguminosae, especially in the genera *Lupinus*.



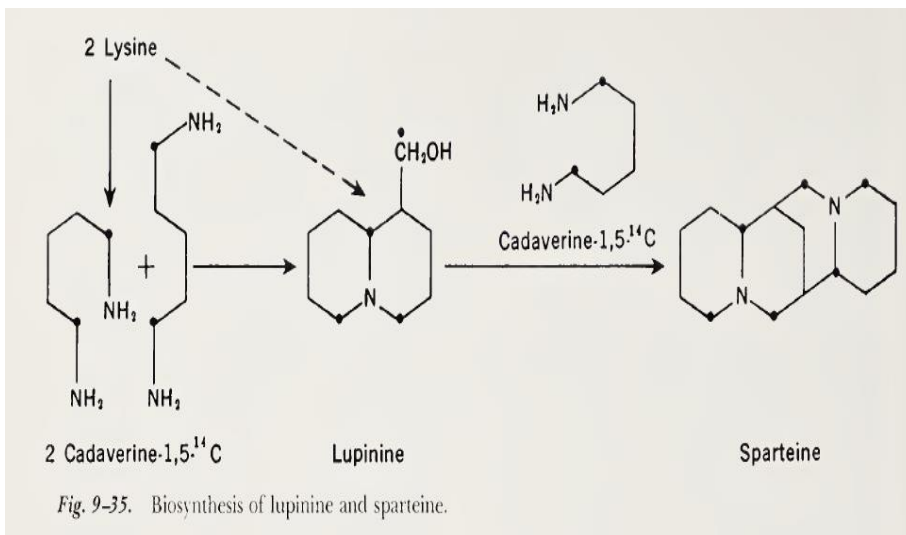
LUPINANE ALKALOIDS

- LUPINANE ALKALOIDS are among the most common QAs, these may include :

1- **Sparteine**, which is a liquid alkaloid, and is the only medicinal representative of this group that is derived from *Scoparius*.

2- **Lupinine**, a crystalline alkaloid, and is obtained from *Lupinus luteus* Linne (F. Leguminosae) and other species.

- Lupinine is biosynthesized in *Lupinus luteus* from two molecules of lysine or its metabolic equivalent, cadaverine.
- Three molecules of these same precursors combine to form sparteine.
- Experiments involving radioactive precursors and subsequent degradation of the products have revealed labeling patterns in the alkaloids which are consistent with this biosynthetic route.
- It remains to be determined, however, if lysine can be utilized directly or if cadaverine is a necessary step in the biosynthesis.



Plants containing lupinane alkaloids

- **Scoparius or Broom Tops** consists of the dried tops of *Gytisus scoparius (Linne) Link* (F. Leguminosae).
- The plant is a shrub growing in Europe and western Asia and naturalized in the United States.
- The drug contains sparteine (up to 1.5%) and two minor alkaloids, sarothamnine and genisteine.
- In Europe, maximum alkaloid content in the tops occurs in May and then declines after flowering in June.

- **Sparteine Sulfate**, occurs in colorless rhombohedral crystals or white crystalline powder, is odorless and somewhat bitter in taste.
- **Sparteine Sulfate** is employed as an oxytocic.



THANK U