

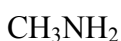
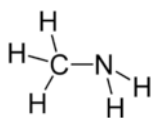
CHAPTER 7

AMINES

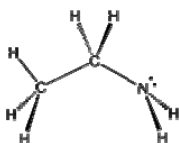
Many amines are found in natural products and many of them are biologically active when ingested or injected. There has been a long-standing interest in these compounds and they are collectively referred to as **alkaloids**, because of the basic (alkaline) properties resulting from the amine group. Morphine, quinine, lysergic acid, mescaline, and strychnine are just a few of the best known alkaloids that have been isolated from various plants. Amine drug compounds are often very bitter and are often combined with something very sweet to partially cover the bitterness (as in cough syrups) or taken in capsule form so that they aren't tasted at all.

7.1 NAMING

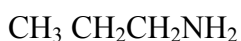
Primary amines



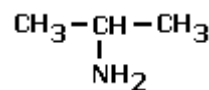
aminomethane



aminoethane



1-aminopropane

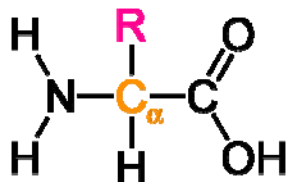


2-aminopropane

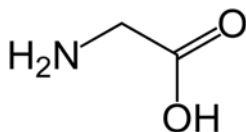
(Numbers are optional in the first two molecules because there are no alternative possibilities).

Molecules containing both amine groups and carboxylic acids are common biological molecules. Alpha amino acids are the building blocks of proteins.

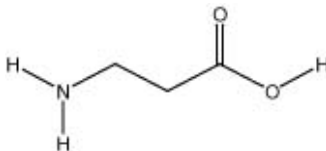
The general structure for an alpha amino acid is:



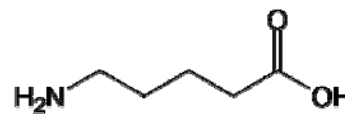
Naming amino acids:



2-aminoethanoic acid



3-aminopropanoic acid



5-aminopentanoic acid

Glycine

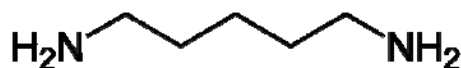
An alpha(α) amino acid

a β amino acid

a δ amino acid

The carboxylic acid functional group takes precedence over the amino group for being assigned the lowest number.

Multiple amine groups are treated similar to previous functional groups.



Systematic: 1,4 diaminobutane

Common: putrescine

1,5 diaminopentane

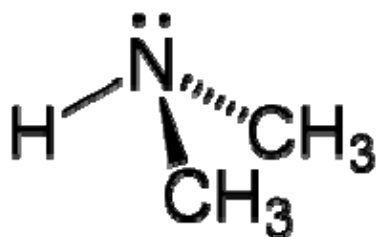
cadaverine



These two diamino compounds are formed by bacterial action on proteins particularly in meat. They contribute to the smell of spoiled meat and can cause food poisoning if one eats spoiled meat.

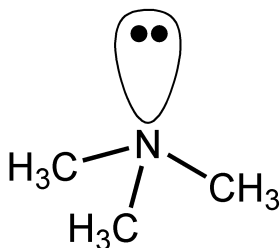
Naming Secondary and Tertiary Amines

When there is more than one alkyl chain on the N atom, the method of naming changes:



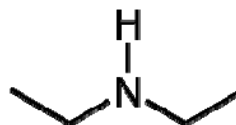
CH₃
H-N-CH₃

dimethylamine



CH₃
CH₃-N-CH₃

trimethyl amine



H
-C-C-N-C-C-

diethylamine.