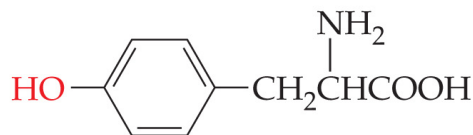
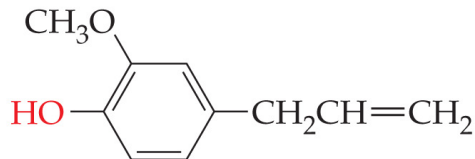


Ch14: Some Compounds with
O, S, or a Halogen

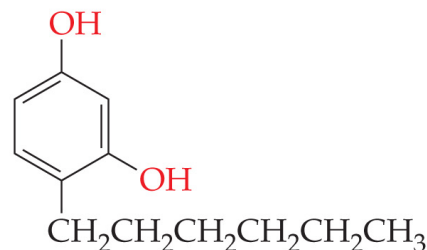
Some Phenol Compounds



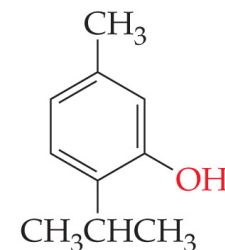
Tyrosine
(an *amino acid*)



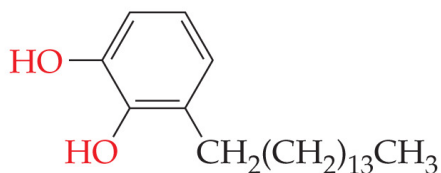
Eugenol
(in cloves, bananas, and other fruits; used for toothache pain)



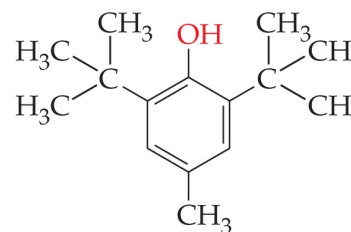
4-Hexylresorcinol
(a topical anesthetic)



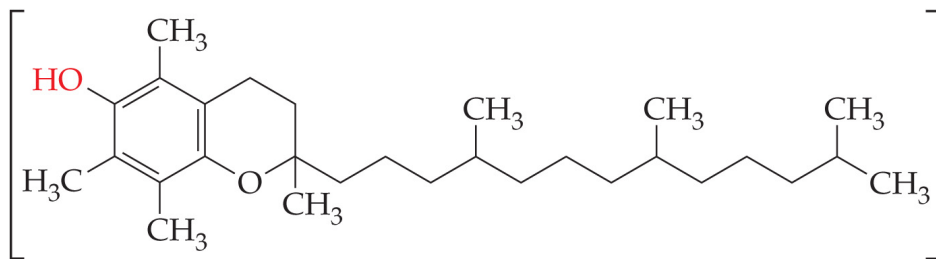
Thymol
(a topical anesthetic; occurs naturally in the herb thyme)



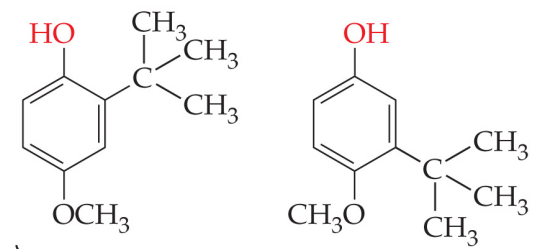
A urushiol
(skin irritant in poison ivy)



Butylated hydroxytoluene
(BHT)

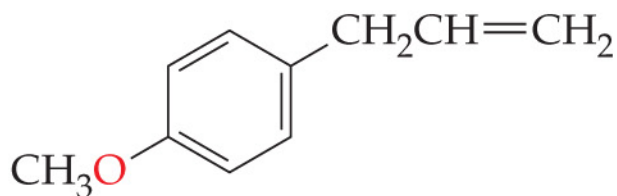


Vitamin E (a naturally occurring antioxidant)



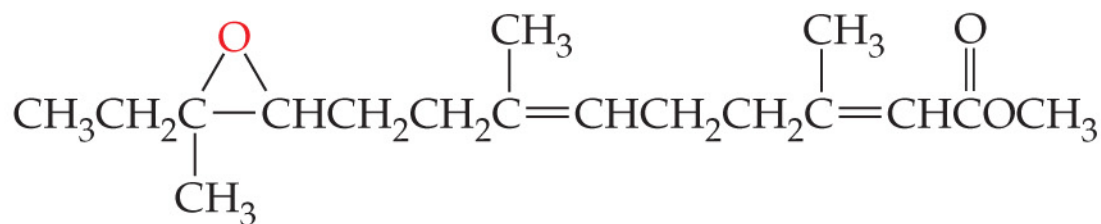
Butylated hydroxyanisole
(BHA)

Some Ether Compounds

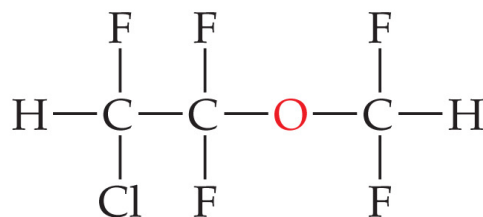


Anethole—a flavoring agent
found in anise and fennel

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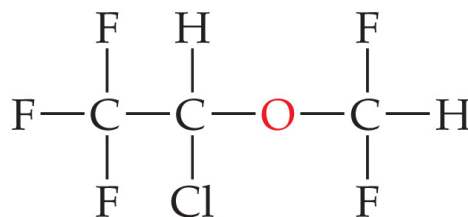


Juvenile hormone—an insect hormone
found in the silkworm moth



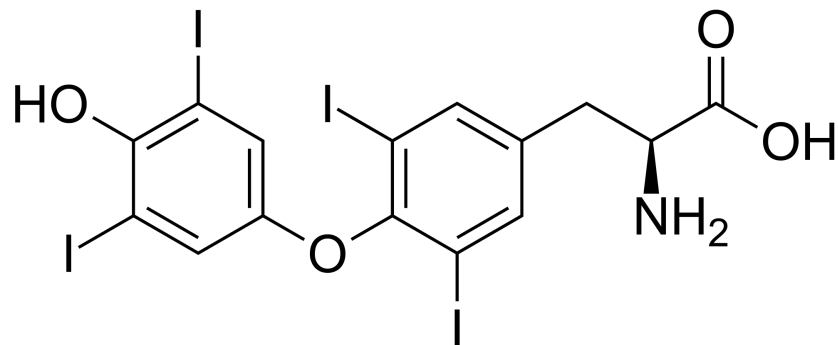
Enflurane

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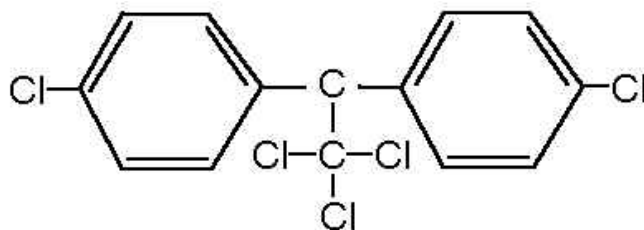


Isoflurane

Some Halogen-Containing Compounds



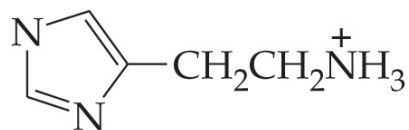
Thyroxine (thyroid gland hormone)



DDT (dichlorodiphenyltrichloroethane)

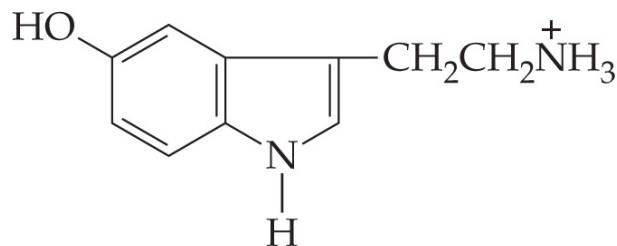
Ch15: Amines

Some Amine Compounds

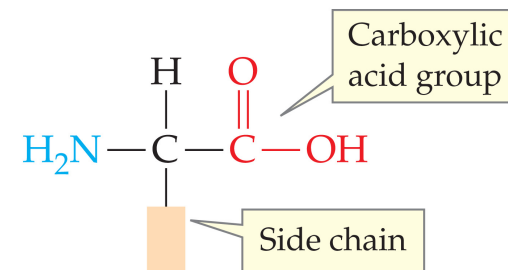


Histamine
(causes allergic reaction)

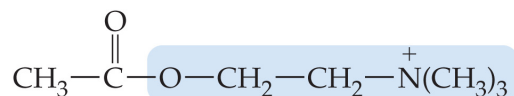
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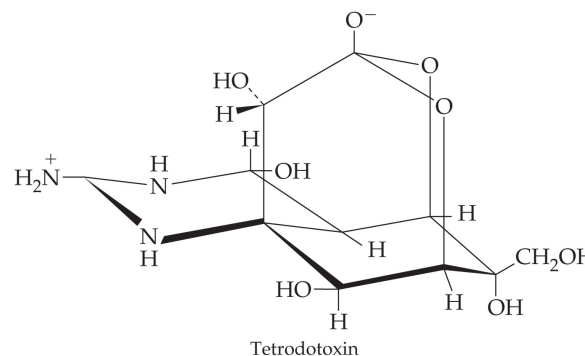
Serotonin
(a neurotransmitter active in the brain)



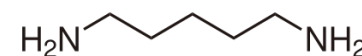
An amino acid



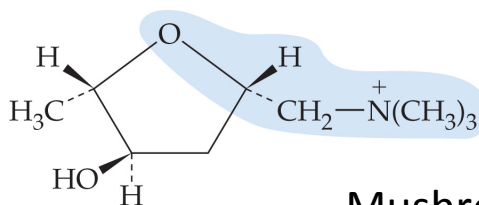
Acetylcholine (ACh)
(a neurotransmitter)



Tetrodotoxin



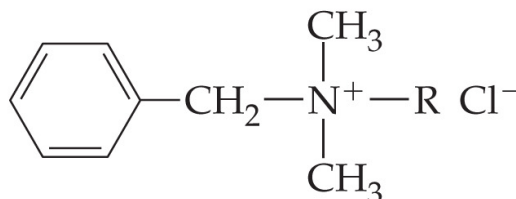
cadaverine



Muscarine
(a poison)

Mushroom neurotoxin

Puffer fish neurotoxin



Benzalkonium chloride
(an antiseptic and disinfectant)

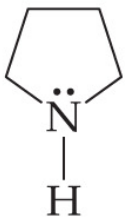
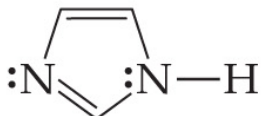
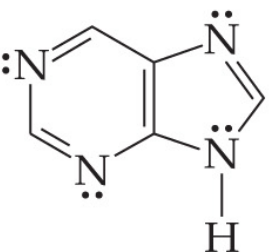
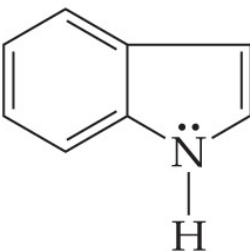
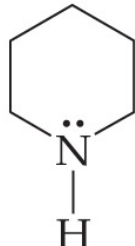
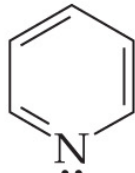
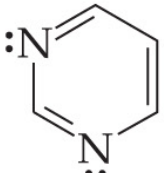
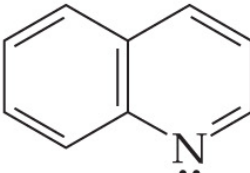


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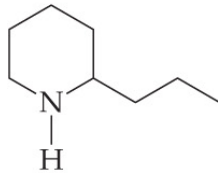
15.3 Heterocyclic Nitrogen Compounds

TABLE 15.2 Some Heterocyclic Nitrogen Compounds

 <p>Pyrrolidine (in nicotine and other alkaloids)</p>	 <p>Imidazole (in histamine)</p>	 <p>Purine (nitrogen ring system in DNA; present in anticancer drugs)</p>	 <p>Indole (in many alkaloids and drugs)</p>
 <p>Piperidine (in many drugs)</p>	 <p>Pyridine (in several B vitamins)</p>	 <p>Pyrimidine (nitrogen ring present in DNA and in some B vitamins)</p>	 <p>Quinoline (in antibacterial agents)</p>

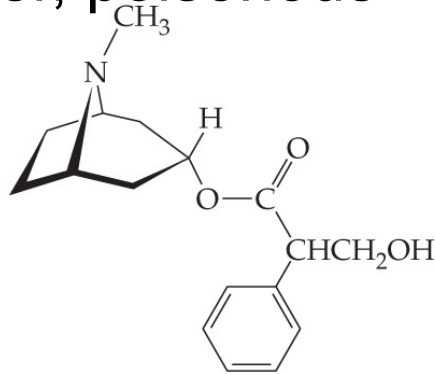
Alkaloids: Nitrogen-Containing Compounds from Plants

Often basic, bitter, poisonous



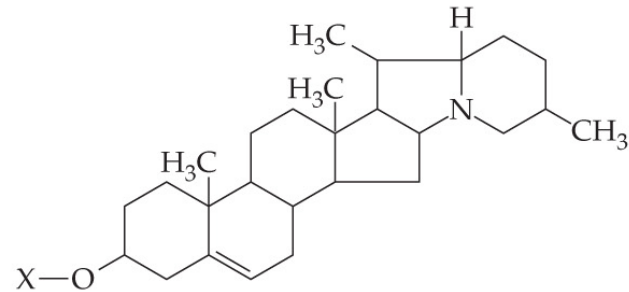
Coniine

poison hemlock,
Socrates



Atropine

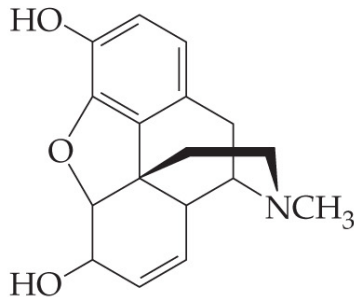
belladonna (deadly
nightshade)



Solanine

(X = a group of three sugar molecules)

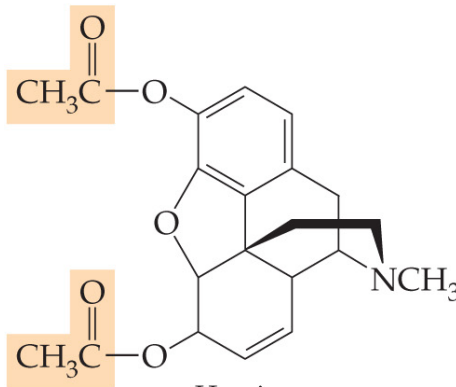
potatoes and tomatoes



Morphine

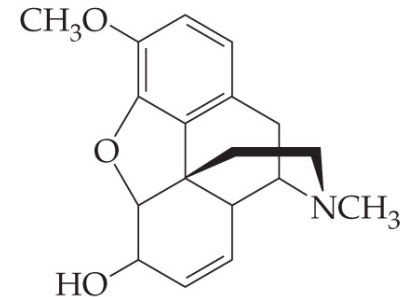
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poppy



Heroin

(synthetic)



Codeine

poppy