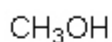


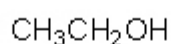
Dr. Davies  
Functional Groups

Functional Group: Specific arrangements of atoms that portray unique reactivity and physical properties.

**Alcohols**: R-OH (R = Rest of the molecule)



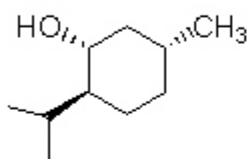
Methanol  
(Wood alcohol)



Ethanol  
(Grain alcohol)



Isopropanol  
(Rubbing alcohol)



Menthol  
(flavoring)

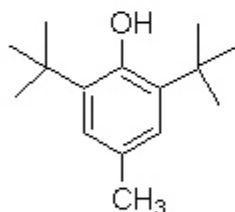


Glucose  
(a sugar)

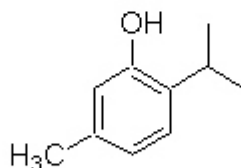


Ethylene Glycol  
(Antifreeze)

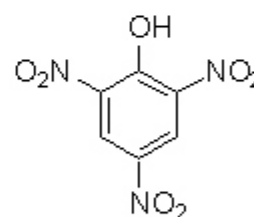
**Phenols**: Ar-OH



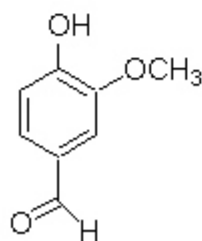
BHT  
(antioxidant)



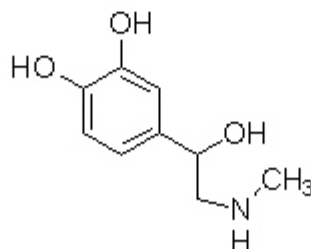
Thymol  
(antioxidant)



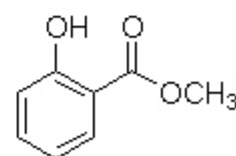
Picric acid  
(explosive)



Vanillin  
(flavoring)

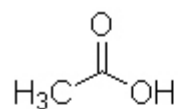


Epinephrine  
(adrenaline)

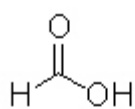


Methyl salicylate  
(wintergreen)

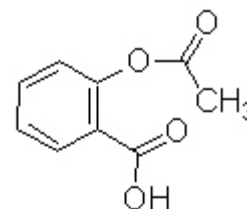
**Carboxylic Acids:**  $\text{RCO}_2\text{H}$



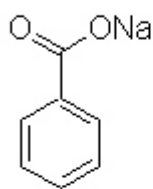
Acetic Acid  
(vinegar)



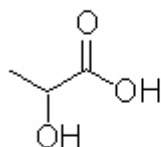
Formic Acid  
(ants)



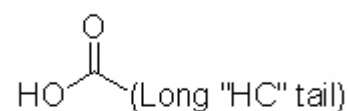
Aspirin



Sodium Benzoate  
(preservative)



Lactic Acid  
(over exercise)



Fatty acids

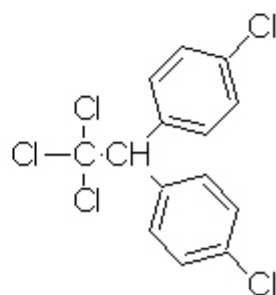
**Alkyl Halides:**  $\text{R-X}$ ,  $\text{X} = \text{F}, \text{Cl}, \text{Br}, \text{I}$

$\text{CF}_3\text{CHClBr}$   
Halothane  
(anesthetic)

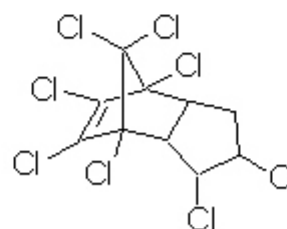
$\text{CHCl}_3$   
Chloroform  
(solvent)

$\text{CCl}_4$   
carbon tetrachloride  
(Solvent)

$\text{CF}_2\text{Cl}_2$   
CFC's  
(freon-12)



DDT  
(insecticide)



Chlordane  
(kills termites)

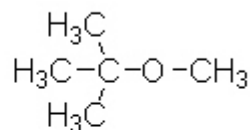
**Ethers:** R-O-R



Diethyl ether  
(solvent)

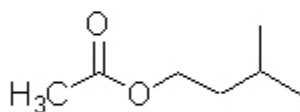


Tetrahydrofuran, THF  
(solvent)

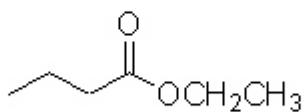


tert-butyl methyl ether, MTBE  
(gasoline additive, solvent)

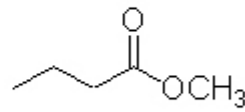
**Esters:** RCO<sub>2</sub>R



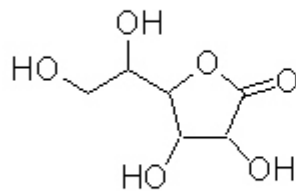
Isoamyl acetate  
(banana)



Ethyl butyrate  
(pineapple)



Methyl butyrate  
(apple)

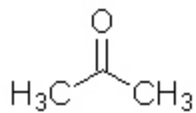


Ascorbic acid  
(Vitamin C)

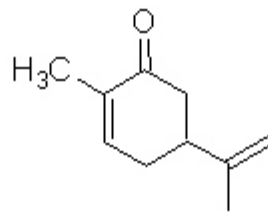
Erythromycin - Antibiotic

Polyester - Polymer (textiles)

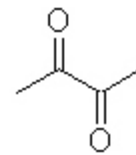
**Ketones:**  $RC(O)R$



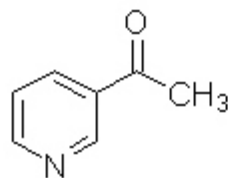
Acetone  
(fingernail polish  
remover)



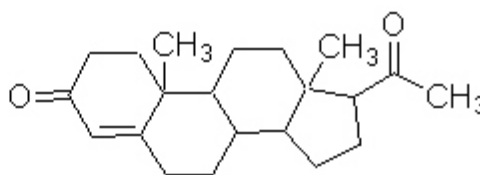
Carvone  
(spearmint oil)



Butanedione  
(cheese, sweat)

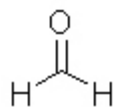


(popcorn)

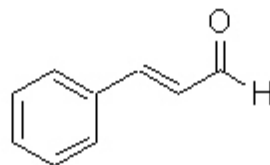


Progesterone  
(female sex hormone)

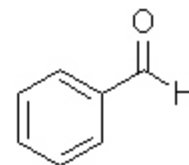
**Aldehydes:**  $RC(O)H$



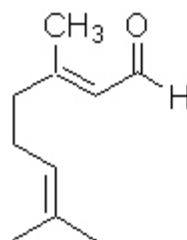
Formaldehyde  
(embalming)



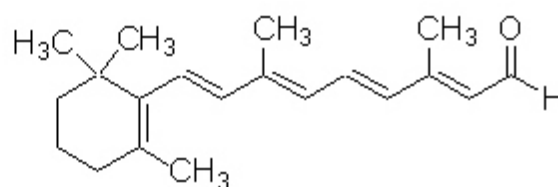
cinnamaldehyde  
(cinnamon)



Benzaldehyde  
(almonds / cherries)

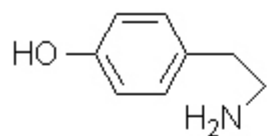


Citral  
(lemon)

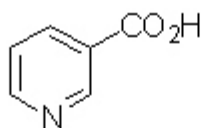


Vitamin A (aldehyde)

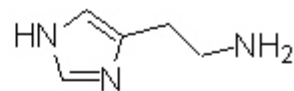
**Amines** (Alkaloids):  $\text{RNH}_2$ ,  $\text{R}_2\text{NH}$ ,  $\text{R}_3\text{N}$



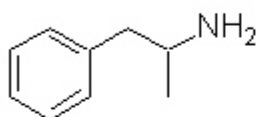
Dopamine  
(neurotransmitter)



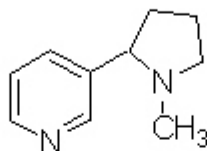
Niacin  
(vitamin)



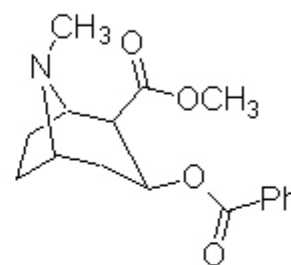
Histamine  
(dilates blood vessels)



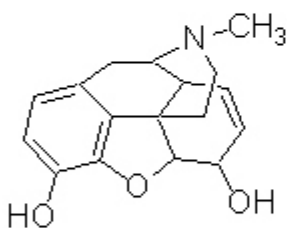
Amphetamine  
(addictive drug)



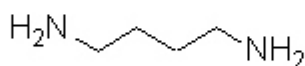
Nicotine



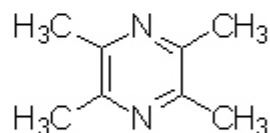
Cocaine



morphine

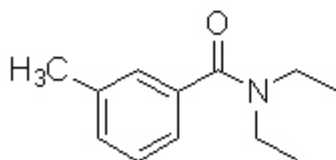


putrescine  
(decaying flesh)

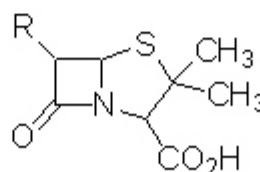


chocolate

**Amides**  $\text{RC(O)NH}_2$



DEET  
(insect repellent)



Penicillin  
(antibiotic)

Amino Acids (Proteins)

Nylon (polyamide)