

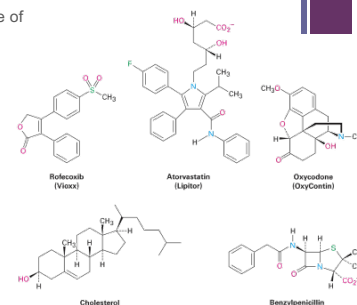


Chapter 1 Structure and Bonding; Acids and Bases

Mrs. Dormer

What is Organic Chemistry?

- Living things are made of organic chemicals
- Proteins that make up hair
- DNA, controls genetic make-up
- Foods, medicines
- Examine structures to the right



Organic Chemistry in Your Life

- The reactions and interactions of organic molecules allow us to see, smell, fight, and fear.
- Organic chemistry provides the molecules that feed us, treat our illnesses, protect our crops, and clean our clothing.

Origins of Organic Chemistry

Foundations of organic chemistry from mid-1700's.

Compounds obtained from plants, animals hard to isolate, and purify.

Compounds also decomposed more easily.

It was thought that organic compounds must contain some "vital force" because they were from living sources.

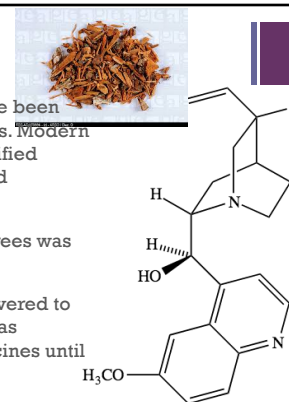
Vitalism

- The concept of vitalism was also called the vital force theory.
- Organic matter was given a vital force that distinguished it from inorganic compounds.

Chinchona Bark

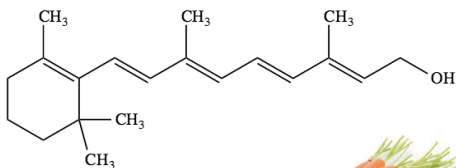
- Organic compounds have been known and used for years. Modern organic chemistry is purified components of plants and derivatives.

- The bark of Chinchona trees was chewed to treat malaria.
- The bark was later discovered to contain quinine, which was commonly used in medicines until the 1940s.

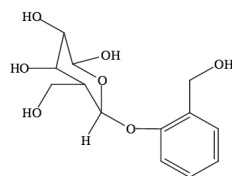


Vitamin A

- Ancient Egyptians ate roasted ox liver to try and improve their vision at night.



- Ox liver contained Vitamin A which is useful in maintaining healthy eyesight.

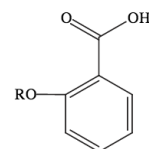


An ancient treatment included chewing on willow bark to lower a fever. This bark was later found to contain glycoside salicin. This has an origin of salicylic acid.



People soon learned to create their own organic compounds in the middle of the 19th Century.

Acetylsalicylic acid was created, commonly called aspirin.



By the mid-1800's it was apparent that there was no fundamental difference between organic and inorganic substances.

Origins of Organic Chemistry

- Organic chemistry is study of carbon compounds.
- Why is it so special?
- 90% of more than 30 million chemical compounds contain carbon.
- Examination of carbon in periodic chart answers some of these questions.
- Carbon is group 4A element, it can share 4 valence electrons and form 4 covalent bonds.

Group 1A																										8A	
H																											He
Li		Be											B	C	N	O	F	Ne									
Na		Mg											Al	Si	P	S	Cl	Ar									
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr										
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe										
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn										
Fr	Ra	Ac																									

Why This Chapter?

- Review some general principles in chemistry:
 - Atoms
 - Bonds
 - Molecular geometry
 - Acids and bases