

CHM 425
CYTOLOGY FOR CHEMIST
PART IV

Cellular Organisation

Nutrition

Respiration

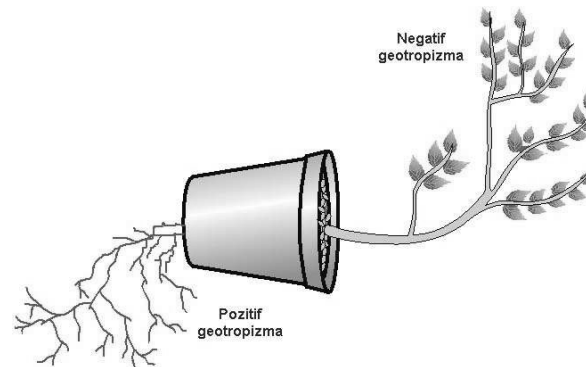
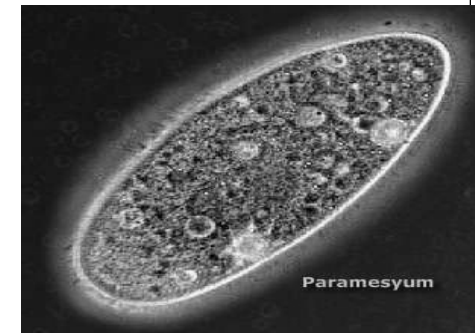
Excretion

Reproduction

Growth and development

Movement

Response to environment



Elements in Biological Organisms.

Element	%	Element	%
Oksijen	65,0	Potasyum	0,35
Karbon	18,5	Kükürt	0,25
Hidrojen	9,5	Klor	0,20
Azot	3,3	Sodyum	0,15
Kalsiyum	1,5	Magnezyum	0,05
Fosfor	1,0		

Organic ingredients

- a) Carbohydrates**
- b) Proteins, amino acids and peptides**
- c) Enzymes**
- d) Lipids**
- e) Nucleotides and nucleic acids**
- f) Porphyrins**
- g) Hormones**
- h) Vitamins**

Inorganic substances

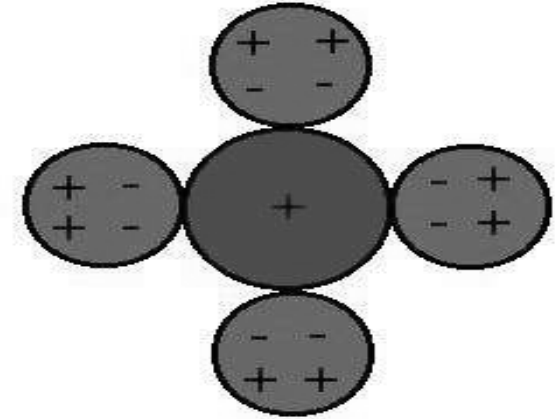
- a) Minerals**
- b) Water**

Chemical Bonds

- Covalent bonds
- Hydrogen bonds
- Ionic Interactions
- Van der Waals interactions
- Hydrophobic interactions
- Di-sulfide bonds

İyon-iyon etkileşimleri

- İki yüklü parçacık arasındaki elektrostatik etkileşimlerdir.
- Kovalent olmayan etkileşimlerin en güçlüsüdür.



WATER

- Water, the basis of life, makes up more than 60% of body weight. Water is the most important nutrient after oxygen for human beings to survive. Water plays a central role in all chemical reactions in life.

The functions of water in the organism

- Being a Solvent: It has taken on the task of solving for components in the blood.
- Transport: The main component of blood, urine, sweat and extracellular fluids is water.
- Maintaining body temperature: Water served as a regulator of the body's temperature system
- Tissue lubrication: Water is the largest component of fluid in joints, cell walls and tissues covered with fluid.

Molecular Structure of WATER

- Since the electronegativity of the oxygen atom is higher than that of hydrogen, water is a polar molecule. Partial negative charges occur on oxygen and partial positive charges occur on hydrogens. For this reason, there are $+$ and $-$ poles in the molecule and the molecule has a very large dipole moment such as 1.83 D.

