

Seventh directed work of biochemistry

Structure and physicochemical properties of proteins

Exercise 1.

a. Natural amino acids are characterized by the following general properties:

- Their degree of hydrophobicity depends on the nature of their side chain.
- They have a carboxylic function and an amine function each carried by a carbon atom.
- Alanine cannot be synthesized by the body; it must be provided by food.
- Tyrosine is a precursor of catecholamine biosynthesis.

b. Regarding the structure of proteins, which of the following statements is (are) correct?

- All proteins have a quaternary structure.
- Disulfide bonds are essential to the tertiary structure of proteins.
- Globular proteins have a structural role.
- A primary structural protein is a native (biologically active) protein.

Exercise 2.

Here is a list of amino acids that can be found involved in proteins: Aspartate, Leucine, Lysine, Serine and Phenylalanine.

1. Give their structural formulas.
2. Classify them into groups of decreasing polarity of the radical
3. Specify those whose radical is ionizable

Exercise 3. Consider the following structure of a protein, in which certain regions of amino acid residues have been represented:



1. List the different types of bonds presented in this structure.
2. Specify the types of covalent bond and non-covalent bond.