

Faculty Name: Dr. Kumari Sushma Saroj

Department: Zoology

College: Dr. L. K. V. D College, Tajpur, Samastipur

Class: B.Sc Part –III (Hons.)

Paper: V

Group – A

Topic: Proteins —Structure

PROTEINS; STRUCTURE

Proteins represent the structural composition of all living organisms. All living organisms, from the biggest animal to the most microscopic organisms, are mainly made up of proteins. Proteins contribute to the biochemical processes that preserve life.

Proteins are complex macromolecules (polymers). They have high molecular weight and are made up of structural units (monomers) called amino acids.

Amino acids are the protein's building units. They are organic compounds made up of hydrogen, oxygen, carbon and nitrogen atoms.

Amino acids are made up of a basic group (amino group NH_2), an acidic group (carboxyl group COOH), a hydrogen atom, and a terminal group R which differs from one amino acid to another.

Proteins are made up of repeated units of amino acids which link with each other via peptide bonds.

The combination of two amino acids is called a dipeptide compound, and the protein chain formed of several amino acids is called a polypeptide.

When protein is being formed, it is not conditional for the combination to occur among similar amino acids. Therefore this gives us many varying ways to form proteins, depending on the types, order, and number of amino acids in the chain. About 20 amino acids participate in building the proteins such as **glycine, alanine, and valine.**

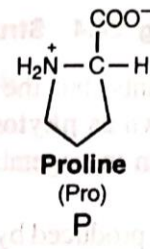
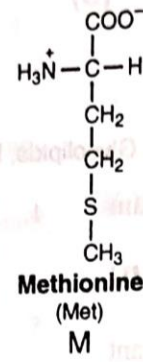
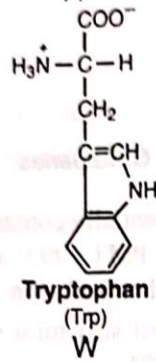
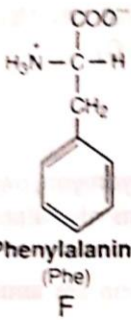
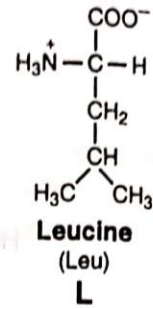
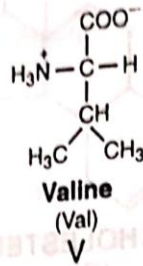
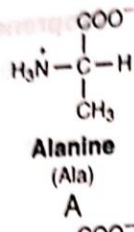
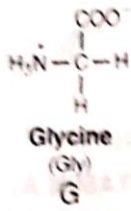
There are several ways to classify the amino acids:

- i. Common amino acids found in proteins
- ii. Uncommon amino acids
- iii. Amino acid not found in proteins.

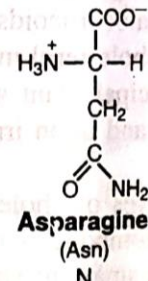
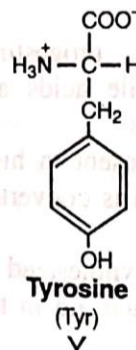
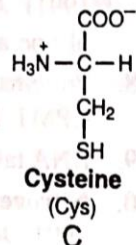
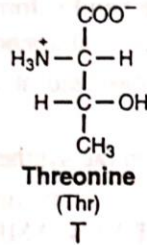
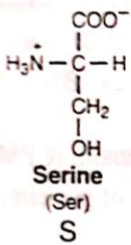
Common amino acid found in proteins are grouped into

- i. Nonpolar (hydrophobic) amino acid
- ii. Polar amino acids (neutral amino acids)
- iii. Acidic amino acids and
- iv. Basic amino acids

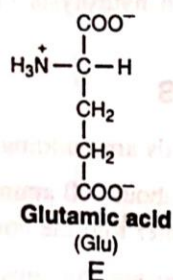
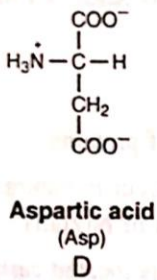
NONPOLAR (HYDROPHOBIC) AMINO ACIDS



POLAR AMINO ACIDS WITH HYDROXYL, SULPHYDRYL OR AMIDE GROUPS



ACIDIC AMINO ACIDS



BASIC AMINO ACIDS

