International Scholars Journals

Advanced Journal of Microbiology Research ISSN 2736-1756 Vol.16 (3), pp.001-002, September, 2022. Available online at www.internationalscholarsjournals.com © International Scholars Journals

Perspective

An evaluation of the major biochemical procedures and metabolic routes

Ahmad Khan Shah*

Department of Biology, Public University in Melbourne, Melbourne, Australia.

Received: 31-Aug-2022, Manuscript No. AJMR-22-76350; Editor assigned: 02-Sep-2022, PreQC No. AJMR-22-76350 (PQ); Reviewed: 16-Sep-2022, QC No. AJMR-22-76350; Revised: 23-Sep-2022, Manuscript No. AJMR-22-76350 (R); Published: 30-Sep-2022

DESCRIPTION

Metabolism is the collective name for the set of chemical reactions that sustain life in organisms. The transformation of dietary energy into cellular energy, the formation of proteins, lipids, nucleic acids, and certain carbohydrates, and the elimination of metabolic wastes are the three main tasks of metabolism. The word "metabolism" can also be used to describe the full range of chemical reactions that occur within living things, including digestion and the flow of substances inside and outside of cells. In this context, the collection of internal cell processes mentioned above is referred to as intermediate metabolism.

The chemical processes of metabolism are arranged into metabolic pathways, where one molecule is changed into another by a sequence of stages, each of which is aided by a different enzyme. Because they couple desired energy-consuming activities that organisms want to drive with energy-releasing spontaneous events, enzymes are essential to metabolism. Enzymes function as catalysts, speeding up reactions, and they also allow for the modulation of metabolic reaction rates, for instance in response to environmental changes or messages from other cells. Which compounds an organism will find nourishing and which harmful depends on its metabolic system. For instance, even though hydrogen sulphide is harmful to animals, some prokaryotes use it as nutrition. The quantity of energy used by all of these chemical reactions is measured by an organism's basal metabolic rate.

Key biochemical

Amino acids, carbohydrates, nucleic acids, and lipids are the four fundamental types of molecules that make up the majority of the structures in animals, plants, and microorganisms.

Amino acids and proteins: Amino acids are organised in a linear chain and connected by peptide bonds to form proteins. Enzymes, which make up many proteins, catalyse the chemical processes involved in metabolism. Other proteins perform structural or mechanical tasks, such as those that make up the cytoskeleton, a network of support structures that keeps cells in the proper shape. Amino acids also play a role in cellular energy metabolism by acting as a carbon supply for the citric acid cycle, which is particularly important when glucose is a limited primary energy source or when cells are under metabolic stress.

Lipids: The most varied class of bio-chemicals is lipids. Their primary structural applications are as a component of internal and external biological membranes, such as the cell membrane. They can also be exploited for their chemical energy. Lipids are fatty acid polymers that have a long, non-polar hydrocarbon chain and a tiny, polar area with oxygen. Lipids are typically referred to as biological molecules that are hydrophobic or amphipathic, although they can dissolve in organic solvents like ethanol, benzene, or chloroform. The term "fats" refers to a broad class of substances that include fatty acids and glycerol; a triacylglyceride is a glycerol molecule connected to three fatty acids by ester bonds.

Carbohydrates: Aldehydes or ketones with several hydroxyl groups attached make up carbohydrates, which can be found as straight chains or rings. The most prevalent biological molecule, carbohydrates serve a variety of functions, including the storage and transportation of energy and the formation of structural elements. Galactose, fructose, and glucose are the three main monosaccharides, or building blocks of carbohydrates. There are countless ways to join monosaccharides to create polysaccharides.

Nucleotides: DNA and RNA are polymers of nucleotides, as are the other two nucleic acids. Each nucleotide is made up of a nitrogenous base connected to a ribose or deoxyribose sugar group that has a phosphate attached to it. The storage and utilisation of genetic information, as well as its interpretation during the processes of transcription and protein production, depend on nucleic acids. DNA repair processes guard this information, while DNA replication spreads it.

*Corresponding author. Ahmad Khan Shah, E-mail: ahmadks555@gmail.com.