OPEN ACCESS Freely available online

ISSN: 1948-5948
Journal of Microbial & Biochemical Technology

Short Communication

Metabolism and Enzyme-Catalysed Reactions in Living Organisms

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DESCRIPTION

The series of chemical processes referred to as metabolism support life in organisms. The three primary roles of metabolism are: converting food's energy into cellular-useable energy; transforming food into the components of proteins, lipids, nucleic acids, and some carbohydrates; and eliminating waste. These enzyme-catalyzed processes allow organisms to maintain their structural integrity, grow and reproduce, and react to their environment. In this case, the series of reactions previously described within the cells is referred to as intermediary metabolism. The term metabolism can also refer to the totality of chemical reactions that take place in living organisms, including digestion and the transportation of substances into and between different cells [1].

Anabolic reactions are those that increase the amount of a compound, whereas catabolic reactions break it down. Anabolism typically uses energy, while catabolism typically produces energy. Organized into metabolic pathways, which involve a series of steps in which one chemical is changed into another chemical with the help of a particular enzyme, are the chemical reactions that make up metabolism. Enzymes play a crucial role in metabolism because they allow organisms to drive energy-intensive, desirable reactions that would not take place on their own. Instead, they couple these reactions to energy-releasing spontaneous reactions. In addition to acting as catalysts to speed up reactions, enzymes also enable the regulation of a metabolic reaction's rate, for instance in response to alterations in the cell's environment or signals from other cells [2].

Some prokaryotes, for example, use hydrogen sulphide as a nutrient, but this gas is toxic to animals. The amount of energy consumed by all of these chemical reactions is measured by an organism's basal metabolic rate [3]. The similarity of basic metabolic pathways among vastly different species is a striking feature of metabolism. For example, the set of carboxylic acids best known as intermediates in the citric acid cycle can be found in all known organisms, including the unicellular bacterium *Escherichia coli* and massive multicellular organisms like elephants [4]. These metabolic pathway similarities are most likely due to their early appearance in evolutionary history, and their persistence is most likely due to their efficacy.

Normal metabolism is disrupted in a variety of diseases, including type II diabetes, metabolic syndrome, and cancer. Cancer cells' metabolism differs from that of normal cells, and these differences can be used to identify targets for therapeutic intervention in cancer.

The majority of the structures found in animals, plants, and microbes are composed of four basic types of molecules: amino acids, carbohydrates, nucleic acids, and lipids [5]. Because these molecules are essential for life, metabolic reactions either focus on making them during cell and tissue construction or on breaking them down and using them to obtain energy *via* digestion.

CONCLUSION

This biochemical can be combined to form polymers such as DNA and proteins, which are necessary macromolecules for life. Amino acids and proteins are composed of amino acids linked together in a linear chain by peptide bonds. Many proteins are enzymes that catalyze metabolic chemical reactions. The most diverse group of biochemical is lipids. Their primary structural applications are as components of internal and external biological membranes, such as the cell membrane.

Their chemical energy can be used as well. Carbohydrates are aldehydes or ketones with numerous hydroxyl groups that can exist as straight chains or rings. Carbohydrates are the most abundant biological molecules and play a variety of roles, including energy storage and transport, as well as structural components.

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Received: 02-Feb-2023, Manuscript No. JMBT-23-20129; **Editor assigned:** 06-Feb-2023, Pre QC No. JMBT-23-20129 (PQ); **Reviewed:** 20-Feb-2023, QC No. JMBT-23-20129; **Revised:** 27-Feb-2023, Manuscript No. JMBT-23-20129 (R); **Published:** 06-Mar-2023, DOI: 10.35248/1948-5948.23.15:542

Citation: Sara A (2023) Role of Microorganism for Enhancing the Availability of Plant Nutrition. J Microb Biochem Technol.14:542.

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