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Commentary

AN OVERVIEW OF BIOSYNTHESIS OF CHEMICAL COMPOUNDS

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DESCRIPTION

Natural products exist in the form of primary and secondary metabolites and are compounds or substances isolated from living organisms. Terpenes, phenolic compounds, and nitrogen compounds are secondary metabolites. Biosynthesis of secondary metabolites derives from the primary metabolic pathway, which consists of the tricarboxylic acid circuit (TCA), the methylerythritol phosphate pathway (MEP), and mevalonic acid, and the shikimate pathway. This article provides an overview of the diversity of phytochemicals in plants, their diverse biological functions, and their multifaceted cultural history.

Biosynthesis is a multi-step enzyme-catalyzed process that transforms a substrate into a more complex product in laboratory. In biosynthesis, simple compounds are modified, converted to other compounds, or combined to form macromolecules. This process often consists of metabolic pathways. Some of these biosynthetic pathways are located in a single organelle, while others contain enzymes located in multiple organelles. In practice, the synthesis of preselected compounds is made possible by the fact that certain functional groups undergo conversions that depend on the conditions applied to the compound, but little on the structure of the rest of the molecule. Become. Therefore, the combination of knowledge of the structure of the compound to be synthesized and knowledge of the common types of conversions that the compound undergoes enables the planning of synthesis. A general, minimal approach is to study the structure of the final product of interest (eg Z) and estimate the structure of the (slightly simple) compound (eg Y). A known type of reaction. Similarly, a possible precursor of Y is searched, thus extending the chain of connections until connection A, which is available for work, is reached. Then the necessary conversions that start with A and end with Z are performed. Most of the individual steps in the sequence make a difference to only one bond. Two bindings may change at once, but major changes are rare.

Biosynthesis is usually synonymous with anabolic action. Chemical synthesis involves building complex compounds from simple ones. Synthesis is usually done for one of three reasons. The first reason is to meet the industrial demand for products. For example, ammonia is synthesized from nitrogen and hydrogen and is used specifically to produce ammonium sulfate, which is used as a fertilizer. Vinyl chloride is made from ethylene and is used in the production of polyvinyl chloride (PVC) plastics. In general, a variety of compounds are synthesized for applications such as textiles and plastics, pharmaceuticals, dyes, herbicides, pesticides, and other products. The basic requirements for biosynthesis include precursor compounds, chemical energy (ATP, etc.), and catalytic enzymes that may require coenzymes (NADH, NADPH, etc.). These elements form the monomers that make up the macromolecules. Some important biopolymers include proteins composed of amino acid monomers linked by peptide bonds, and DNA molecules composed of nucleotides bound by phosphodiester bonds.

The formation of organic compounds in the body is called biosynthesis. Biosynthesis represents the production of complex compounds from simpler precursors of an organism. This usually includes enzymes and energy sources (such as ATP) that catalyze the reaction. Examples of biosynthesis include photosynthesis, chemical synthesis, amino acid synthesis, nucleic acid synthesis, and ATP synthesis. More specifically, photosynthesis is the synthesis of complex organic materials using light energy (from sunlight) captured by light-absorbing dyes such as carbon dioxide, water, inorganic salts, chlorophyll, and other accessory pigments. Chemical synthesis is the synthesis of biological compounds (such as carbohydrates). Amino acid synthesis is the synthesis of amino acids and is used in the synthesis of proteins and

peptides. ATP synthesis is the synthesis of ATP, the source of intracellular biological energy.

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CONFLICT OF INTEREST

The author declares that there are no conflicts of interest.