

Biochemistry: Modern Frontier Science with an Interdisciplinary Character

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Introduction

It is a modern day science with a great interdisciplinary character. It has very close links with different branches of chemistry like analytical chemistry, colloidal chemistry. It is the study of chemical processes from within & relating to all biotic things. Its main aim is to focus on understanding the chemical basis of life which allows different biological components to come together so that it give rise to the processes that occurs within all living cells & between different kinds of cells. Biochemistry in deed helps us to know and explore molecular biology so that we can understand the life better. It is closely related to molecular biology, which deals with the mechanism of different molecules of biological importance. A vast portion of biomolecules deals with different structures, bonds that exist between the molecules, its various functioning, multiple sort of interaction that exists between different biological macro molecules such as proteins, nucleic acids, carbohydrates, lipids [1]. These macromolecules support all the life processes. They provide the basic structure of the cell & make life to sustain. Cells chemistry heavily depends on the reaction of different very small molecules as well as on different positive and negative charged ions. These small molecules are sometimes inorganic substances such as the water & different metal ions but often these small molecules are organic substances such as different sorts of amino acids which are generally useful in the synthesis of different structures of protein such as primary structure, secondary structure & tertiary structure. All the various structures of proteins are nothing but the arrangement of their molecules in different orders & forms. Nowadays the outcomes of biochemistry are applied globally in different spheres of life such as in the field of medicine, agriculture & nutrition. Generally, we see that in the field of modern medicine biochemistry is used to investigate different disorders & diseases & gives answer in the form of new cure or treatment. In modern days biochemistry is playing a crucial role in investing soil profile & assessment of different fertilizers for the proper growth of plants, biochemistry is significantly used for crop cultivation, crop storage, pest control & hence benefiting the farmers & the society. If we peep in the history of biochemistry we find it as far as ancient Greeks. But modern biochemistry that we study became a part of modern science in the beginning of the 19th century. Some people say that with the discovery of first enzyme diastase (now called amylase), in 1833 by Anselme Payen the studies of biochemistry has begun. While other group of biochemists heavily argued and put forward their notion that Mr. Eduard Buchner's famous demonstration of a very complex biochemical process that is alcoholic fermentation led the founding stones of biochemistry, some say that It was Mr. Antoine Lavoisier who made a significant discovery of explaining all the process of respiration which led interest of many people from scientific periphery to start working on this field. The term biochem is derived from the merger of two words biology & chemistry. In the initial days of science it was believed that life & its materials had some essential substances in it & have some unique properties (often people describe it as vital force or the vital principle) distinct found from any other non-living matter. Classification: The four major or main classes of molecules in biochemistry (referred as biomolecules) are lipids, proteins, nucleic acids & carbohydrates. Some biomolecules are referred as polymers: in

this terminology, monomers are very small or very tiny macromolecules that are linked together to create very large macromolecules known as polymers. Some biomolecules are known as the energy source in most of the living forms. For example polysaccharides are further broken up into small monomers by certain enzymes (glycogen phosphorylase) removes all the glucose left/residues from glycogen, a polysaccharide).

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