

Current Status of Plant Biochemistry Research

Sarker SD* and Nahar L

Medicinal Chemistry and Natural Products Research Group, Liverpool John Moores University, United Kingdom

Editorial

Volume 1 Issue 1

Received Date: November 04, 2016

Published Date: November 15, 2016

***Corresponding author:** Satyajit D Sarker, Medicinal Chemistry and Natural Products Research Group, School of Pharmacy and Biomolecular Sciences, Liverpool John Moores University, James Parsons Building, Byrom Street, Liverpool L3 3AF, United Kingdom, E-mail: S.Sarker@ljmu.ac.uk

Editorial

Plant Biochemistry is one of the key areas in Biochemistry that deals with chemical processes and molecular functions of plants. Simply, it helps understanding how biological molecules give rise to the processes that occur within living plant cells. Research in this particular area of plant science contributes significantly to resolve agricultural and pharmaceutical problems, predominantly by controlling information flow through biochemical signaling and the flow of chemical energy through metabolism in plants. Plant Biochemistry is also closely related to Plant Molecular Biology that deals with the study of the molecular mechanisms by which genetic information encoded in DNA is able to result in the processes of life in plants.

Plant Biochemistry was developed from fundamental studies looking into both primary and secondary metabolites of plants, and exploring their biosynthetic pathways and related enzyme systems, and trying to understand other related biochemical processes in plants. Plant Biochemistry has advanced, especially since the middle of the 20th century, with the development of various techniques such as chromatography, X-ray diffraction, dual polarization interferometry, NMR spectroscopy, radio isotopic labeling, electron microscopy, molecular dynamics simulations, molecular biology techniques, and genetics.

Over the years this particular area of science has evolved remarkably to embrace research in a variety of related areas, for example, biochemical mechanisms of plant hormones, herbicide actions, biochemical basis of gene silencing or co suppression, photosynthetic pathways, regulation of isoprenoid defense mechanisms, regulation of phenolics productions in legumes, oxylipin metabolism in plants, storage mechanisms of carbohydrates, proteins and lipids, plant

growth and survival, biochemical processes of fruit ripening, controlling, manipulating and redirecting of biosynthesis of plant secondary metabolites, biochemical processes of nitrogen and water use efficiency in plants, drought resistance and salt tolerance mechanisms in plants, disease and herbivore resistance in plants, biofuels, biochemical processes of seed germination, genetic engineering of plants, plant breeding, plant metabolomics, metabolic engineering, regulation of metabolic processes and transcriptional regulation of metabolic pathways, just to mention a few. Modern research in Plant Biochemistry also incorporates molecular genetics and/or gene expression studies linked to biochemical analysis in plants, production of renewable resources as replacements for fossil fuels, improvement of the nutritional quality of plant based foods to improve the health of humans, and novel and environmentally safe approaches for protecting plants from pathogens and insects as well as climatic stresses. Research into Plant Biochemistry contributes to sustainability of our way of life, feeding an increasing world population, and maintaining a safe environment, by taking advantages of the cutting edge genomics technologies, genetic approaches, metabolite analysis, metabolic flux analysis, enzyme analysis, and structural analysis of proteins. It also involves various aspects of research related to plant biotechnology.