

Preface

Plant science or botany refers to the holistic study of plants including plant structure, plant reproduction, evolutionary relationships, plant growth, plant taxonomy, plant diseases, plant differentiation, etc. It is a vast subject, which includes methods like optical microscopy, electron microscopy, live cell imaging, etc. to better understand the evolution and processes of plants. The book studies, analyses and upholds the pillars of plant science and its utmost significance in modern times. Different approaches, evaluations and methodologies have been included in it. Such selected concepts that redefine plant science have been presented in the text. It aims to serve as a resource guide for students and experts alike and contribute to the growth of the discipline.

A foreword of all Chapters of the book is provided below:

Chapter 1 - The branch of biology which studies plants is known as botany. Genomics, proteomics and DNA sequences are new techniques that have helped in developing an exact way of classifying plants. The topics of interest related to the subject are plant growth, structure, reproduction, evolutionary relations and plant taxonomy. The chapter on botany offers an insightful focus, keeping in mind the complex subject matter; **Chapter 2** - Botany can be divided into various subdisciplines like agronomy, ethnobotany, paleobotany and bryology. Plant morphology studies the external parts of a plant whereas agronomy studies the plants used for the purpose of food, fiber and fuel. This chapter provides a plethora of interdisciplinary topics for better comprehension of botany; **Chapter 3** - Plants can be classified into different groups such as embryophyte, bryophyte, etc. Embryophytes are the most common type of green plants found on the surface of the Earth. They include mosses, liverworts, ferns, gymnosperms and lycophytes. The major classifications of plants are dealt with great details in the chapter; **Chapter 4** - Plant physiology studies the functioning of a plant. The processes studied under this subject are plant nutrition, photoperiodism, plant hormone, plant pathology and photomorphogenesis. The section on plant physiology offers an insightful focus, keeping in mind the complex subject matter; **Chapter 5** - Photosynthesis is the process that is responsible for providing nutrition to plants as well as producing oxygen. The other important aspects related to plant science are phytochemistry, seedling, tropism and flora. This chapter discusses the essential aspects of plant science in a critical manner providing key analysis to the subject matter.

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Editor