

Chapter-I: INTRODUCTION TO PLANT PHYSIOLOGY

Introduction:

Plant physiology is an interdisciplinary science. Its main aim is to get a complete and thorough Knowledge of all phenomenon occurring in plants. The Dictionary meaning of Plant physiology is the science of properties and function of plants as organism in normal condition.

Definition-

“Plant physiology is defined as the science which deals with the function of cells, tissues, organs of plants as a whole”

The plant physiology is concerned with process and functions, the response of plant to change environment and the growth and development that result from response. plant process include ion absorption, Sap movement, photosynthesis, respiration, metabolism, plant growth, growth regulators, process of flowering etc. plant structure, process and function are correlated which is basis of study of plant physiology.

1.1 Importance of Plant Physiology

Plant metabolism mainly catabolism and anabolism is studied under plant physiology which is concerned with every aspects of plant life and provide explanation to several question about the plant. How the use solar energy? How the obtained and distribute water and nutrients? How they produce flowers fruits and seed etc.

Today it has become an important branch for conservation and protection of biodiversity, sustainable development, and and improvement in crops productivity under changing climatic condition.

1.2 Scope and Application of Plant Physiology

The scope of plant physiology is well known and each and every aspect of plant and animal life it has vast scope and application in various disciplines of basic and applied science .is cover the studies right from gene level to organism level and concern with genotypic and phenotypic expression of plants. the fundamentals principals and laws of plant physiology are equally important and applicable to all unicellular and multicellular organism of either eukaryotic to prokaryotic nature.

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Cytogenetic, plant breeding, cell biology, anatomy, morphology, ecology, pathology, pharmacognosy, plant propagation and even plant biotechnology, have their bases in plant physiology. All the above branches of fundamental botany are interlinked plant physiology, the molecular and structural changes in plant, various modification in morphology, resistance of plants to diseases and a biotic stress like drought, salt, temperature, cold, flood, and heavy metal like cobalt, lead, mercury etc. The flowering and fruiting behavior, as well as yielding potential of all plants depend on their physiological.

The understanding of plant physiology is necessary for the study of all other branches of plant science. The various functional aspect of plant and microbes are studied under plant physiology and all other disciplines depend on it a pivotal branch of botany, which has prime importance in our daily life. The knowledge of physiology of microbes as well as higher plants is most importance for their efficient utilization and application in our day to day life. The growth, development, reproduction, flowering, fruiting, and other important process right from seed germination to death, about every plant is covered in plant physiology. Hence the knowledge of plant physiology has become a central point in plant science. It is not only a basic but also knowledge finds wide application in every field of commercial botany. Such as Plant Anatomy, Cytology, Genetics, Morphology, Ecology etc.

The same time, all other branches become more meaningful, because of the plant physiology. It's also help us to understand the interaction of plants with their environment. The knowledge of plant physiology plays a key role in solving the problems created by climatic changes such as global warming, effect of green house gases, increased CO₂ level, soil, water, and air pollution etc. In short its immense importance safe guarding our environment. Specificity or physiological adaptation the physiological status of plant indicate their yield, productivity, as well as adaptation to biotic and a biotic condition. Knowledge of plant physiology has very vast scopes in every field and its applications play important roles in our day to day life.

Plant physiology has great scopes in many applied science like biochemistry, biophysics, photochemistry, biostatistics, agriculture, computer and electronic science even in space science. This subject has very strong and well established links with above mentioned modern science the most amazing word of plant science is well explored and widely exploited for the benefits of man through the knowledge of plant physiology. Plant physiology is mostly an application oriented subject with great potential for national development.

Its difficult to point out the life process and improvement programmed in which plant physiology is not involved human being required essential and many other things for

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improving the quality of life, which is mainly achieved through the proper application of knowledge or principles of plant physiology.