

A SHORT REVIEW OF PLANT PHYSIOLOGY

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Abstract

Plant Physiology is the study of the structure, processes and functions of plants. What exists and occurs in plants so that the plants can live and breed. At first glance it is difficult to distinguish by naked eyes between native plants and artificial (artificial / propagated), but on native plants (living), a lot of processes that occur in it which is invisible but interesting to study and learn. For example, the presence of water and salts dissolved in it is engaged in plant body up through a special carriage path from the root to the stem, the leaves and the leaf into the atmosphere. Physiology is part of biology that studies all related to the process of living organisms. In studying physiology, required basic science understanding of the other, the particular chemistry biochemistry, physics, and mathematics. On the other hand the science of plant physiology is required for the development of applied sciences, such as agricultural science.

Key words : Plant, process, physiology, science.

Introduction

Plant Physiology learn about living activities carried out by plants and interpret life processes such that it can be used to organize his life. In addition, also learn about plant responses to environmental change, as well as the growth and development that occurs due to the response, which it differs between individual plants, related to genetics Subandi (2009); Subandi, (2011). Thus, the plant life is determined by the interaction of two factors, namely genetic and environmental factors. As living things, plants showed a number of activities Subandi (2012b), namely:

1. The plant is able to exchange the chemical compounds to the environment, but not too much to lose her constituent chemical compounds;
2. The plant is able to absorb and use the energy from the outside;
3. The plant is able to synthesize the necessary chemicals and replace material lost to the environment or damaged;
4. The plant is capable of holding most cell division or merger.

Plants have several characteristics make these plants perform physiological process that is different from other creatures, such as plants are not mobile (to move), can only use inorganic compounds as meals (autotrophs), and almost every cell that lives capable of conducting metabolism so-called have totipotensi properties.

Plant Physiology

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Ten Basic Concepts of Plant Physiology

There are ten postulate about science in general and on the physiology of plants in particular, is as follows.

1. All functions of the plant can be understood by the basic principles of physics and chemistry

The development advances in plant physiology is almost entirely dependent on progress in the field of physics and chemistry, as biology in general have a strong link with physics in turn to mathematics. Plant physiology as a branch of biological science is applied from modern physics and chemistry to understand plants. Therefore, advances in plant physiology depend on progress in the fields of physics and chemistry. We all know that technology has helped the applied physics research equipment in the field of plant physiology and the knowledge to interpret the results. The statement claimed plant physiologists known as the law of the uniformity of nature, which reads: "the environment or the same cause will produce the same effect or response". The concept of cause and effect is recognized as a hypothesis which is valid until today.

2. The botanist and plant physiology also studied members of four of the five world organisms that have recently recognized by many biologists

Biologists today have the assumption that the approach classification of living organisms into five world far better than previous efforts, which classified all organisms as plant or animal. Four of the five world organism studied by plant physiologists are Monera, protists, fungi (Fungi true), and Plantae (Subandi dan Hany HH, 2011).

3. The cell is the basic unit of life. All living organisms are composed of cells have a nucleus surrounded by a membrane or similar structure but without the membrane. There was no life in units smaller than a cell. Cells can only come from pre-existing cell division

Some of the statements above are known as cell theory. Senonistik organisms (algae, fungi,

slime fungi only) do not have organelles (mitochondria, nucleus) which is bounded by a membrane so into units called cells (Subandi and Mahmoud (2014)). .

4. The eukaryotic cells are composed of membrane-bound organelles such as chloroplasts, mitochondria, nucleus, and vacuoles, while the prokaryotes consist of no membrane organelles

Some organisms have eukaryotic cells contain a true nucleus and most of the single-celled, such as protozoa and fungi slime. Organisms that have prokaryotic cell contains no nucleus or organelles are organized, such as bacteria (Subandi,M. 2012c)

5. Cells are characterized by their special macromolecule such as starch and cellulose are composed of hundreds to thousands of sugar or other molecule. In some macromolecule such as lignin, a molecule clusters may recur or be found here and there on the molecular development (Subandi, (2012c)

Cells that contain special macromolecule is also not contained in any organism, for example cellulose found in plant cells only since as one of the building blocks of cell walls, whereas in animal cells are not found because it has no cell wall.

6. The cell is also characterized by the presence of macro molecules, such as proteins and nucleic acids (DNA and RNA), which is organized as a chain and consists of hundreds of simple molecules of various types (twenty kinds or more amino acids in a protein, and four or five types nucleotides in nucleic acids). This chain consists of the long-length with a non-repeating sequence, which is maintained and doubles when the molecules are propagated. Molecules are unique to the life they contain information. This information is transferred from cell generation to the next cell generation through DNA and from DNA to protein with the help of RNA. Information revealed on specific physical characteristics and the ability to catalyze chemical reactions in the cell.

7. In multicellular organisms, cells are arranged to form tissues and organs. Cells in multicellular organisms is not the same, often has a different function from each other. The concept of organ tissue is more difficult to apply in plants than in animals. Examples of typical plant tissue is 1.6 Plant Physiology λ epidermis, cortex, vascular tissue and pith. Is the principal organ of vascular plant roots, stems, and leaves that can be modified (eginterest) (Suban. 2012d).

8. Living organisms are structures that grow on their own

The process of development of organisms, including cell division, cell enlargement and cell

specialization, or differentiation, a plant originated from a single cell and then into a multicellular organism. Plants continue to grow throughout their lives with their meristem (Subandi, 2012). The development is a phenomenon in contemporary biology the least information.

9. The organisms grow and develop in an environment and interact with the environment or with organisms other people through a lot of ways.

For example, plant growth is affected by temperature, light, gravity, humidity, and wind.

10. In living organisms as well as on the machine is a structure that is closely associated with the function (Subandi. 2012.).

Conclusion.

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