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Editorial

Secondary growth in plants: Monocot and dicot

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DESCRIPTION

The stem upholds the plant, holding up the plant's leaves, flowers, and fruits. Inside the stem, bundles of vascular tissue comprising of xylem and phloem transport water, nutrients, food, and different chemicals substances between different plant organs. The xylem transports water and dissolved minerals from the roots to the stem and leaves. The phloem transports dissolved sugars and organic compounds from the leaves on to the stem and roots. Cambium is found between xylem and phloem. The stem of all plants is green because of the presence of hypodermal chlorenchyma in its cortex. Yet, when the stem axis, particularly the dicot stem axis, stops to elongate and goes through secondary growth development its green colour vanishes and becomes pale or deep brown in colour.

Primary growth occurs when a plant becomes taller and when it creates roots, branches, leaves, and blossoms. Plants that go through only primary growth and have delicate, green, non-woody stems are known as herbaceous plants. They normally have an annual, biennial, or perennial life cycle, implying that they to some degree or totally die after a season and need to regrow. Secondary growth occurs when dicot stems and roots develop extensively which includes the development of a woody stem that emerges from a combination of the activities of the stem's vascular cambium and cork meristem tissues. Notwithstanding, not all dicots that go through auxiliary development have woody stems yet they truly go through secondary growth. Generally, monocots do not go through secondary growth.

Assuming that they increase in girth (like palm trees and yucca plants), it doesn't result in the development of a secondary xylem and phloem, since monocots don't have vascular cambium. An increase in girth without secondary development is alluded to as anomalous thickening. Monocot trees as in Palm, increase their trunk diameter because of division and augmentation of parenchyma cells, which is named "primary gigantism" since there is no creation of secondary xylem and phloem tissues, or some of the time "diffuse secondary growth". In some other monocot stems as in Yucca and Dracaena with anomalous secondary growth, a cambium is formed, yet it produces vascular bundles and parenchyma on the internal side and just parenchyma cells on the external side.

The secondary growth development is not just liable for the change of surface colour yet in addition adds to the thickness of the axis because of the arrangement of the periderm. This is affected in the cortex by a parallel meristem called phellogen and the arrangement of secondary vascular tissues, which is affected in the stale by the vascular cambium. Periderm is liable for the change of stem colour. The periderm is the defensive tissue of secondary origin supplanting the primary structure of the tender stem, the epidermis. In a stem, the periderm is most usually shaped in the sub-epidermal layer. In certain species, nonetheless, the first periderm shows up fairly profound inside the stem. All of the living tissues over the periderm die because of the insertion of the nonliving cork between these tissues and the living internal tissues of the plant. Presently the stem surface is uncovered by the cork cells. The walls of the cork cells might be coloured brown, yellow or the cytoplasm of these cells might contain resinous or titaniferous materials. To that end the more seasoned stems show earthy colored colouration on their surface.

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