

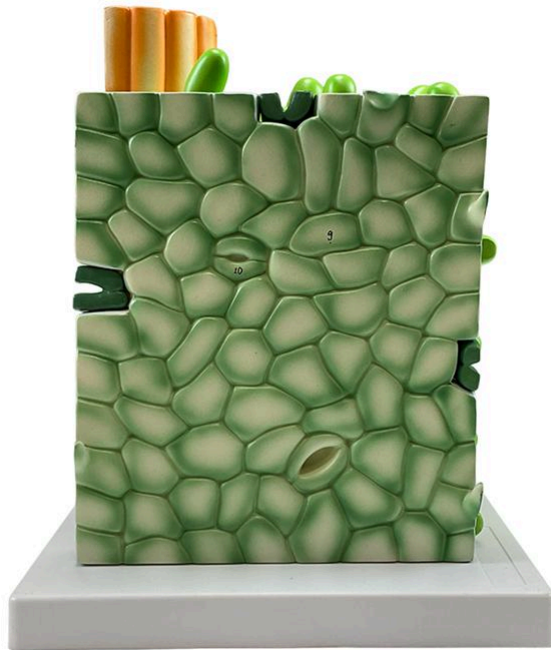


MG9226 | DICOTILEDONEA LEAF, ENLARGED 600 TIMES











This model represents a dicotyledon leaf in cross and longitudinal section, exhibiting in detail the main structures and cell types of the upper epidermis, mesophyll, and lower epidermis. It is an enlarged replica, ideal for the study of plant anatomy and demonstration of its microscopic characteristics. The model is mounted on a polymer base for easy viewing and handling.

Applications:

Ideal for teaching and research in botany, cell biology, and plant anatomy. Suitable for students of biology, agronomy, and related fields. Allows for the detailed study of the internal structure of a dicotyledon leaf, facilitating the understanding of its physiological processes.

Technical Features:

- * Resin with toxicological test approval;
- * High-precision molding;
- * Made of stable synthetic material;
- * Detailed replicas;
- * 600 times enlarged scale;
- * Numbered and hand-painted;



* Includes an information card with related structures.

3D Technology and Augmented Reality:

Our anatomical models offer a visual complement through information cards that activate 3D models viewable in augmented reality (AR). This interactive platform aids learning, allowing for comparative analysis of anatomical structures and offering resources for education in anatomy, physiology, and pathophysiology.

Technical Specifications:

* Scale: 600 times enlarged.

* Material: Synthetic resin.

Main Structures:

Companion cells: Specialized phloem cells, intimately associated with sieve tubes. They assist in the transport of sugars and other nutrients, providing metabolic energy to the sieve tubes.

Vascular bundle sheath: Layer of cells surrounding the vascular bundles (xylem and phloem) in the leaf. It plays an important role in the transport and protection of vascular tissues.

Xylem: Vascular tissue responsible for transporting water and minerals from the roots to other parts of the plant. It presents specialized cells, such as tracheids and vessel elements, which form continuous tubes for the efficient transport of raw sap.

Phloem: sieve tubes: Vascular tissue that transports sugars produced in photosynthesis from the leaves to other parts of the plant. Sieve tubes are elongated cells with sieve plates (perforations in the cell wall) that allow the passage of elaborated sap.

Cuticle: Waxy, impermeable layer covering the leaf epidermis, protecting it from water loss through transpiration and from damage caused by UV rays.

Upper epidermis: Outer layer of cells covering the upper surface of the leaf. It generally has a thick cuticle and fewer stomata compared to the lower epidermis.

Palisade mesophyll: Photosynthetic tissue of the leaf, located below the upper epidermis. Its cells are elongated and arranged vertically, maximizing light capture for photosynthesis.

Stomata: Small pores in the leaf epidermis that regulate gas exchange (CO₂ intake and O₂



and water vapor output) between the plant and the environment.

Lower epidermis: Outer layer of cells covering the lower surface of the leaf. It generally has more stomata compared to the upper epidermis.

Spongy mesophyll: Photosynthetic tissue of the leaf, located below the palisade mesophyll. Its cells are irregular, with large intercellular spaces that facilitate gas diffusion.

About Anatomical Models:

They are developed with resin replication technology, offering an alternative to natural anatomical models for teaching and research. They present the main morphological characteristics with good cost-benefit, resistance, hand painting, and numbering for precise identification of structures.

List of all visible structures:

- Companion cells
- Vascular bundle sheath
- Xylem
- Phloem: sieve tubes
- Cuticle
- Upper epidermis
- Palisade parenchyma
- Stomata
- Lower epidermis
- Spongy parenchyma