

Digitalis purpurea* L.*Digitalis Leaf*****Folium Digitalis purpureae******Scrophulariaceae***

Species of *Digitalis* were used by English herbalists and led to the discovery of the cardioactive glycoside digoxin used in medicine today. The English botanist and physician William Withering is credited with identifying digitalis as the active ingredient of a traditional herbal preparation for the treatment of dropsy (congestive heart failure). Withering's identification was made after a meticulous microscopic examination of the herbal mixture. His use of *Digitalis* for the treatment of congestive heart failure led to its incorporation into conventional medicine as a cardioactive agent and the subsequent discovery and isolation of digoxin glycosides, which are still used in medicine worldwide.

Surface view: Upper epidermal cells, irregularly shaped with slightly beaded wall thickenings; lower epidermal cells have more sinuous anticlinal walls; anomocytic stomata ~30 μm long; stomata and covering and glandular trichomes are found on both surfaces, but are more

frequent on the lower epidermis; glandular trichomes of two general types occur: (1) short (20–40 μm long) with a unicellular stalk and, typically, a bicellular head; each secretory cell has a small lateral hemispheroidal protuberance, but the head may also be unicellular or bicellular uniseriate with one hemispheroidal structure on the top of the apical cell; (2) long (up to 350 μm) with a uniseriate stalk and unicellular head; glandular trichomes occur at highly variable densities and chiefly along veins, where they are the longest; covering trichomes up to 400 μm long are uniseriate, with three to five cells, a smooth or faintly warty cuticle, and a rounded tip; often one or more of the covering trichome cells are collapsed inward; the base of covering trichomes often contacts two epidermal cells; they are frequently broken off, leaving a characteristic cicatrice; calcium oxalate is absent.

Transverse section: Bifacial; short palisade cells in one to three loose rows.

Powder: Fragments of epidermis showing anomocytic stomata, glandular trichomes with uni- and multicellular stalks, covering trichomes, and circular cicatrices from covering trichomes; broken trichomes.

