Hypericum perforatum L.

St. John's Wort Aerial parts

Herba Hyperici

Clusiaceae

St. John's wort has been used since antiquity for the treatment of melancholy, which led to its modern use for the treatment of depression, a use substantiated by numerous clinical trials. St. John's wort is also used externally as an ingredient in oils and balms for wounds, burns, and abrasions. Numerous species of *Hypericum* may be found in trade and many can be distinguished microscopically.

A. Stem

Surface view: Epidermis of slightly thickened, elongated cells with beaded cell walls; anisocytic and anomocytic stomata occur infrequently.

Transverse section: Roundish in outline with two conspicuous wings; a few rows of collenchyma may occur inside the epidermis; reddish-brown secretory glands occur in the cortex; endodermis conspicuous; xylem tissue occurs in a solid ring consisting of fibers and vessels alternating with uniseriate medullary rays; pith of pitted parenchyma cells.

Longitudinal section: Secretory glands in the cortex are axially elongated, 400–600 µm long; vessels helical, reticulate, or bordered pitted.

B. Leaf

Surface view: Cells of upper epidermis polygonal in outline with slightly sinuous and beaded anticlinal walls, anomocytic and anisocytic stomata absent or very rare; lower epidermal cells with sinuous anticlinal walls, anisocytic and anomocytic stomata abundant; under low magnification, numerous spheroidal secretory glands, ~ 70 µm diameter, are scattered over the leaf surface and margin; glands on leaf margin stain blood red with chloral hydrate solution, while the others remain colorless; trichomes and calcium oxalate absent.

Transverse section: Isobilateral; a palisade layer occurs on both the adaxial and abaxial sides of the leaf; adaxial palisade cells long and narrow, abaxial ones short; secretory glands occur in the spongy mesophyll.

C. Flower

Surface view: Sepals acute-triangular in outline, margin entire, anatomy similar to that of leaves, except secretory glands infrequent; petals assymmetrical in outline, one margin straight with few secretory glands, the other convex with numerous dark red secretory glands; petal margin crenate; secretory glands with yellow oil droplets located along major veins; epidermal cells of corolla elongated; at the tip of the anther connective, one large dark red secretory gland is located; pollen triporate, spheroidal, with a smooth exine, grains 20–30 µm diameter.

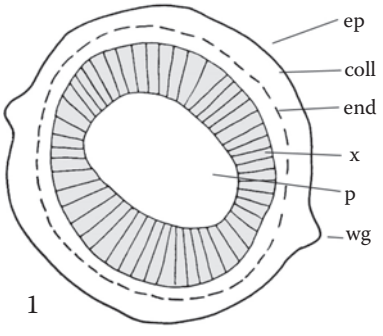
D. Fruit

Transverse section: Exocarp of polygonal, thickened, pitted cells; endocarp of fibers.

E. Seed

Surface view: Testa of isodiametric cells with thick, brown walls.

Powder (aerial parts): Fragments of stem fibers and stem epidermis with anomocytic stomata frequent; leaf epidermis with anisocytic and anomocytic stomata; leaves with secretory glands; petals and anthers; fruit and seed infrequent; helical, reticulate, or bordered pitted vessels; triporate pollen grains.



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