

***Mentha pulegium* L.**
European Pennyroyal Leaf
Menthae pulegiae Folium
 Lamiaceae

Pennyroyal has been used historically as a tea for headache, teething, restlessness, colic, and fevers in children. It is rich in essential oils and has stimulating diaphoretic activity. The highly concentrated essential oil has also been used as an abortifacient—sometimes with fatal outcomes—thus bringing the safety of the general use of pennyroyal into question. The diluted oil is popular for external use as an insect repellent against mosquitoes and fleas.

A. Leaf

Surface view: Upper epidermal cells with wavy anticlinal walls; diacytic stomata 20–25 μm long are abundant; unicellular or bicellular uniseriate covering trichomes, up to approximately 600 μm long, have thick cell walls, an acute tip, and cuticular striations or warts that are very fine or missing; three types of glandular trichomes occur: (1) those with a unicellular stalk and a unicellular ovoid head approximately 25–30 μm long; (2) those with a unicellular stalk and two secretory cells in a row; and (3) multicellular glandular scales consisting of a short stalk and, usually, eight secretory cells (diameter including the detached cuticle is approximately 70–90 μm), often with more than

eight secretory cells. Lower epidermis is similar to upper epidermis, but with more frequent glandular scales; leaf margin has numerous unicellular or sometimes bicellular covering trichomes inclined toward the leaf tip.

Transverse section: Bifacial; palisade cells occur in a single layer; spongy mesophyll with large intercellular spaces.

B. Flower

Surface view: Outer epidermis of the calyx consists of axially elongated cells with very wavy anticlinal walls and stomata and trichomes similar to those found on the leaf; glandular scales are arranged in rows between the major veins; the covering trichomes of the calyx throat are uniseriate and slender, with cuticular striations; corolla epidermal cells have wavy anticlinal walls; uniseriate thin-walled covering trichomes with cuticular striations occur on the corolla tube and lobes; glandular scales and small glandular trichomes are abundant, the latter often with an elongated unicellular head; stephanocolpate pollen grains with six furrows, spheroidal with a finely warty exine, diameter approximately 30 μm ; style has uniseriate covering trichomes with a smooth or finely striated cuticle.

Powder: Leaf fragments with diacytic stomata, fragments with uni- and bicellular covering trichomes and short glandular trichomes, fragments of long uniseriate covering trichomes; glandular scales on leaf fragments and detached from leaves.

