

EUGENIA

Vessels typically small (less than 100 μ mean tangential diameter), very small (less than 50 μ) in at least some species; ^{medium-sized (100-200 μ) in some species} typically exclusively solitary but with occasional to numerous multiples of 2 or 3 cells, and commonly with multiples of 4 or more cells in some species; vessels usually without any definite pattern, but with occasional tendency to oblique lines locally. Vessels sometimes absent from zones separating growth rings; often very numerous and crowded in woods with small vessels, e.g. more than 100 per sq. mm. in some species of *Eugenia*, but sometimes with small but relatively widely spaced vessels. Spiral thickening in some species, including *E. acuminatissima*. Perforation plates simple. Scalariform plates may occur in young stems. Intervascular pitting typically alternate and small to moderately large; vestured, pits to wood parenchyma often rare owing to presence of vasicentric tracheids, pits to ray cells usually similar to intervacular pitting where this is small, often large, oblong and simple where intervacular pitting is larger. Solid deposits of gum common; tyloses observed. Mean member length 0.3-0.8 mm.

Parenchyma of 2 intergrading types a) predominantly apotracheal as scattered cells or irregular uniseriate bands in woods with solitary vessels or b) predominantly paratracheal where vessel multiples are relatively common. Some species of *Eugenia* entirely or predominantly apotracheal. Some species entirely or predominantly paratracheal aliform to confluent. Some species intermediate in type with broad bands of indeterminate type and often with long wings from the vessels. Terminal bands sometimes present. Cells typically filled with resinous or gummy substance. Crystals fairly rare, present in chambered cells in some species. Silica grains reported in *E. densiflora* and *E. sexangulata*. Strands usually of up to 8 cells.

Rays occasionally with suggestion of being of 2 distinct sizes; typically up to 2-3 cells wide. Less than 1 mm. high usually. Uniseriates numerous, typically composed of square to upright cells only, and often only 1 or 2 cells high; composed of

mixed procumbent and upright to square cells in some species, and wholly or mostly of procumbent cells in the other species. Mostly fewer than 13 rays per mm; typically heterogeneous (Kribs Types II A and B) with 4-10 marginal rows of upright cells. Cells typically filled with a dark gummy or oily substance and without crystals. Silica reported.

Fibres typically with bordered pits, the pits varying from rather few to very numerous, usually equally distributed on both radial and tangential walls, but sometimes more numerous on the latter; rarely more numerous on radial walls. Pits simple or with indistinct borders. Walls moderately to very thick. Often containing gum, oil, or other matter giving appearance of septa. Occasional septate fibres present in some species. Mean length 0.7-2.0 mm.

Vasicentric tracheids present in most species.