

ILEX

Vessels mostly very small (less than 50 μ mean tangential diameter) and sometimes extremely small, but rather larger in some spp. of Ilex, particularly in *I. cymosa* (75 μ); radial multiples of 4 or more common in Ilex (except *I. cymosa*) and often imparting a marked radial pattern to these woods, sometimes in clusters, and with a tendency to local tangential arrangement in some spp. of Ilex. Difficult to count satisfactorily owing to the groups, fewest in *I. cymosa* (about 7 per mm.); upper limit for Ilex given as 120 per mm. more numerous at the beginning of the ring in some spp. of Ilex. Typically with well-marked spiral thickening in temperate spp. but Record and Mell in "Timbers of Tropical America" list 3 spp. without spiral thickening, and *I. cymosa* is similar. Perforation plates exclusively scalariform with more than 20 bars. Intervascular pitting opposite or sometimes scalariform in Ilex and sometimes nearly alternate in *I. aquifolium*. Pits to ray and parenchyma cells similar to intervascular pitting, but sometimes elongated or unilaterally compound. Mean member length 0.9-1.3 mm.

Parenchyma moderately abundant, apotracheal, diffuse, as scattered cells or short uniseriate lines of a few scattered cells. Strands commonly of 8 cells.

Rays of 2 distinct sizes, uniseriate or wide and multiseriate, the larger rays mostly between 4 and 10 cells wide, more than 10 cells wide in a few spp. of Ilex, e.g. *I. cymosa*, *I. hanceana* and *I. mitis*. Maximum height 2-5 mm: uniseriate rays composed of high upright cells, usually abundant. Rays said to be exclusively uniseriate in *I. verticillata*; about 7-15 rays per mm. Heterogenous (Kribs's Type I) the larger rays with between 4-10 marginal rows of upright cells in most spp. usually with fewer than 4 rows in *I. hanceana*, and with more than 10 rows in *I. aquifolium*; with sheath cells.

Fibres with distinctly bordered pits (borders rather small in *I. cymosa*), more numerous on radial than on tangential walls; with moderately thin to moderately thick walls. Spiral thickening characteristic of temperate spp., but absent from *I. cymosa* and 3 spp. listed by Record and Mell. Mean length 1.3-2.1 mm.