

## ABUTILON

Vessels very small (25-50  $\mu$  mean tangential diameter) in some species, up to moderately small (50-100 $\mu$ ) in some other species; solitary, in irregular clusters and in radial multiples of 2 or 3; multiples of 4 or more in some species; sometimes with a rather vague tangential pattern; except in woods with pronounced pattern; or multiples seldom more than 20 per sq. mm. Spiral thickening in small vessels of some species observed. Perforations simple. Intervascular pitting alternate; small to minute; pits to ray and wood parenchyma typically similar to intervacular pitting but sometimes simple, and with some horizontally or obliquely elongated pits in some species. Mean member length 0.2-0.7 mm, mostly 0.33-0.45 mm.

Parenchyma rather scanty to abundant; vasicentric to slightly aliform in some species, aliform to confluent in some species. Terminal parenchyma present in some genera. Strands most commonly of 2-4 cells. Fusiform cells moderately common in many genera. Storied in nearly all species, except in very small stems.

Rays very variable on type, ranging from a) high multi-seriate rays composed mainly of narrow upright cells, together with numerous uniseriate rays, to b) large homogeneous rays with few uniseriates, or c) short, heterogeneous, storied rays. High multiseriate rays. Relatively few uniseriates, both with alternative procumbent and upright cells, but upright cells tend to be more nearly square; up to 4-9 cells wide, commonly with tendency to be of 2 distinct sizes in woods with larger rays. Not exceeding 1 mm in height in some species. 12-15 per mm; markedly heterogeneous, with square or upright cells intermingled with procumbent cells and tending to alternate in groups in some species; with square or upright cells (other than sheath cells) limited to 1 or 2 marginal rows in some species; with sheath cells in some species. All rays storied (according to Webber, but not in the 6 species examined by M & C) or with small rays storied rarely.

Fibres typically with small simple pits. Thick walls in some species. Commonly storied in woods in which the parenchyma is distinctly storied. Mean length 0.36-2.33 mm; usually of medium length 0.9-1.6 mm.