

## RHAMNUS

Vessels mostly small (less than 100  $\mu$  mean tangential diameter) very small in Rhamnus. Never exclusively solitary, multiples of 4 or more cells moderately common, and in pronounced radial or oblique flames. Very numerous in woods with radial flames, varying from 6-60 per mm. in woods with small vessels. Ring-porous or semi-ring-porous. With spiral thickening. Perforation plates exclusively simple. Intervascular pitting alternate, with coalescent apertures in many spp. Pits moderately large to large. Pits to parenchyma and ray cells similar to the intervacular pitting, occasionally unilaterally compound. Mean member length 0.3-0.7 mm.

Parenchyma very sparse to moderately abundant, predominantly paratracheal in most spp. most commonly as a few cells round the vessels, associated with the vessels where these are in flames, but very sparse in some spp. of Rhamnus, with some diffuse parenchyma in addition to paratracheal in 2 spp. of Rhamnus. Strands typically of 4 cells.

Rays most commonly up to 2-5 cells wide. Uniseriate rays scarce or commonly only 1 or 2 cells high. About 10-20 rays per mm. in woods with rays up to 3 cells wide, 4-10 per mm. in woods with larger rays. Homogeneous (Kribs's Types I and II), or with a single marginal row of square cells not much higher axially than the procumbent cells.

Fibres with simple pits, more numerous on radial than on tangential walls, usually very sparse, but more numerous in some of the woods with thin-walled fibres; often septate, e.g. in *R. formosana* Mats. Mean length 0.7-1.7 mm.

Rhamnus Alaternus L.

Diffuse-porous. Pores solitary, in short multiples and in clusters; forming a flame-like pattern; small to very small, maximum tangential diameter 60  $\mu$ ; numerous and crowded within the pattern. Vessels with simple perforations; pits alternate, medium sized; spiral thickenings. Wood parenchyma paratracheal scanty. Rays heterogeneous, procumbent and upright cells in irregular arrangement as seen on the tangential section; up to 4 cells wide; up to

25 cells high; ray-vessel pitting medium sized, short oval in outline. Fibres with simple pits. Vascular tracheids not observed. Gum-like inclusions in heartwood rays. (Ilanoth Specimen No. 41)

Rhamnus palaestina Boiss. same description for R. Alaternus except maximum tangential diameter of pores 45  $\mu$ . (Ilanoth Specimen No. 51)

Rhamnus punctata Boiss. same description as for R. palaestina (Ilanoth Specimen No. 47)