

Structure of the Stigma and Style of the Avocado

M Sedgley and MS Buttrose

Abstract

The structure of the stigma and style of the avocado (*Persea americana* Mill.) was investigated by light microscopy, scanning electron microscopy and transmission electron microscopy of thin sections and freeze-fracture replicas. The stigmalstyle was asymmetrical and a groove, lined with transmitting tissue, extended the whole length of the structure. Stigma papillae fringed this groove for about a third of its length. There was no clear distinction between stigma papillae and stylar transmitting tissue cells but there was a gradation of structure down the axis. The papilla cells were long with large and small vacuoles; the transmitting tissue cells had small vacuoles only. The stigma secretion and intercellular substance of the transmitting tissue contained carbohydrate and lipid. Clusters of plastids with little internal structure and electron-dense stroma were abundant in the cells of the stigma and transmitting tissue along with extensive smooth endoplasmic reticulum. Both single vesicles and multivesicular bodies were observed fusing with the plasmalemma which was abnormally rough in freeze-fracture profiles. It is suggested that the cells of the stigma and transmitting tissue have a largely secretory function and may be approaching or have reached senescence when the flower opens.

1978. *Australian Journal of Botany* 26(5) 663 - 682