

ABSTRACT

Ricky Depa Susanto. 24020120140140. Anatomical Structure and Histochemical Test of Yellow Dragon Fruit Peel (*Selenicereus megalanthus* (Schum. ex Vaupel) Moran). Under the guidance of Sri Widodo Agung Suedy and Endang Saptiningsih.

*The peel of yellow dragon fruit (*Selenicereus megalanthus*) is known to contain various secondary metabolites with potential as bioactive compounds; however, information regarding its anatomical structure and the distribution of these metabolites remains limited. This study aimed to describe the microscopic anatomical structure of yellow dragon fruit peel and to identify the presence and distribution of secondary metabolites through histochemical analysis. Anatomical preparations were produced using the paraffin embedding method with Safranin–Fast Green staining, while histochemical tests were conducted on fresh freehand sections using Dragendorff reagent for alkaloids, 5% NaOH for flavonoids, $FeCl_3$ for phenolics and tannins, and Baljet reagent for terpenoids. The results showed that the peel of yellow dragon fruit is composed of exocarp and mesocarp tissues. The exocarp consists of a double epidermis with a convex surface morphology, whereas the mesocarp is composed of compact parenchyma in the outer region and non-compact parenchyma in the inner region. Supporting structures such as sclereids, tracheids, and calcium oxalate crystals of druse and styloid types were also observed within the mesocarp tissue. Histochemical analysis indicated positive reactions for alkaloids, flavonoids, phenolic compounds, and tannins, which were mainly distributed in the epidermis, subepidermis, and mesocarp parenchyma, while terpenoids showed negative results. These findings indicate that the anatomical characteristics of the yellow dragon fruit peel are correlated with the sites of secondary metabolite accumulation within the peel tissues*

Keywords: plant histochemistry, tissue anatomy, secondary metabolites, dragon fruit peel