Cellular structure of cut Etlingera elatior inflorescence

ABSTRACT

Torch ginger (Etlingera elatior) is a native plant in Malaysia that is commonly used in culinary. The use of torch ginger inflorescence as cut flower is new in Malaysia and studies only emphasized as medicinal plant. The aim of this study was to examine the cellular structure of torch ginger inflorescence in relation to its potential to be used as cut flower. Cross section of the upper part of peduncle which held the inflorescence and basal parts which is near to soil surface was examined using light microscope. The outermost layer of inflorescence bract was observed under scanning electron microscope. The upper and basal parts of peduncle were made up of two spirals sheaths and core part. The vascular bundles at the basal part of peduncle were heavily lignified with thickened cell walls. In contrast, a minimal lignification of vascular bundles was found in upper part of peduncle. Besides, starch granules can be found abundantly at the outer zone of core of peduncle and its density decreased as cells moved towards inner core of peduncle. A high density of opened-stomata were scattered on the surface of torch ginger bracts which implied severe water loss via transpiration has occurred in bracts. The findings of this study have provided a clear picture of the inflorescence morphology which further could be used to develop this plant as cut flower.

Keyword: Cut flower; Stomata; Peduncle; Starch granules; Vascular bundle