Assessment of variability pattern of flesh color in 'Harumanis' mango (Mangifera indica L.) from diverse Perlis geographical origin

ABSTRACT

Harumanis' (Mangifera indica L) is one of the mango cultivars which has high market value because of the excellent quality of the fruit which has attractive color, good aroma, delicious taste and high nutritive values. In this study, fifty accessions from five different collection sites which belonging to North (Paya Kelubi and Chelong Balik Bukit, Padang Besar), West (Santan, Kangar), East (Alor Ara Timur, Arau) and South (Simpang Empat, Kangar) region of Perlis were analyzed according to flesh color traits based on their region of origin. The analysis of variance using Kruskal-Wallis test resulted in significant differences among the geographical region for traits of fruit flesh color such as L*, a*, chroma and hue at ($p < 0.05$). The correlation result shows that the intensity pattern of the orange color of the fruit samples mesocarp was associated by an increase in the values of a*, b* and C*, and a decrease in the values of L* and h. By performing Cluster analysis using Ward's method and Euclidian distance, five distinct clusters were successfully identified. The finding shows a high distribution of 'Harumanis' accessions from different locations in each distinct group. This study also reveals the relationship of variability in fruit traits with their places of origin. However, these differences cannot be explained in firm via morphological characterization only. Other methods such as molecular characterization are strongly recommended.