

Title Effects of pollen load on fruit development and physico-chemical characteristics of red-fleshed dragon fruit (*Hylocereus polyrhizus*)

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Abstract

As dragon fruits are graded and priced according to their fruit weight, a study to determine the effects of pollen load on fruit development and postharvest qualities was studied. Hand-cross pollination treatments were done at night by weighing the collected pollen grains at 0.001 g, 0.05 g, 0.10 g, 0.15 g and 0.20 g. The usual pollen load applied by the grower was used as control. Fruits from all treatments exhibit sigmoid growth pattern. Results indicated that pollen load of 0.001 g produced the smallest fruit in term of fruit weight, length and diameter of red-fleshed dragon fruit compared to other treatments. There were no significant difference in carbon dioxide and ethylene production, peel and pulp colour and chemical characteristic using different pollen load except for 0.001 g. Fruits of 0.001 g pollen load had significantly higher carbon dioxide production and higher soluble solids concentration. In conclusion, fruit weight of red-fleshed dragon fruit could be manipulated by the amount of pollen grains applied during pollination.