

**Title** Effect of red flesh pitaya (*Hylocereus Polyrhizus*) fruit maturity stage on juice and puree quality

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### Abstract

Red flesh pitaya (RFP) fruit is a tropical, non-climacteric fruit which has gained popularity for its unique taste and texture, and this led to its demand to be processed into different commercial products such as fruit juice and puree. However, the optimum stage of maturity at harvest of RFP fruit which is crucial in ensuring the consistency of RFP juice and puree quality was scarcely investigated. Thus, the aim of this study was to determine the optimum maturity stage at harvest of RFP fruits for juice and puree production. RFP fruits from five different maturity stages; namely 25, 27, 30, 33 and 35 days after anthesis (DAA) were analyzed for the changes in their physico-chemical characteristics. It was found that there was no extractable juice from RFP fruits harvested at 25 and 27 DAA. It is recommended that the optimum maturity stage for juice and puree production is 30 DAA. The RFP fruits harvested at 30 DAA gave juice yield on  $7.7 \pm 0.3$  % and puree with moisture content of  $82.0 \pm 2.6$  %. The RFP juice extracted at this maturity stage had total soluble solids (TSS) value of  $11.3 \pm 0.01$  °Brix, while TSS value of RFP puree was  $11.99 \pm 0.50$  °Brix. The pH and titratable acidity of RFP juice were  $4.45 \pm 0.30$  and  $0.30 \pm 0.02$  % citric acid respectively, while that of RFP puree were  $4.21 \pm 0.30$  and  $0.31 \pm 0.09$  % citric acid respectively. The vitamin C content of RFP fruit juice ( $7.45 \pm 1.12$  mg /100 mL) and puree ( $6.01 \pm 0.80$  mg /100 mL) obtained from 30 DAA was the highest when compared to the juice and puree obtained from RFP fruits harvested at 33 and 35 DAA. Colour attributes ( $L$ :  $40.32 \pm 1.31$ ;  $C$ :  $42.13 \pm 4.31$ ;  $h$ :  $11.78 \pm 0.34$ ) of RFP fruit peel and the TSS value of RFP fruit pulp ( $11.45 \pm 0.10$  °Brix) could serve as the harvesting indices for harvesters or manufacturers to indicate fruit that had attained 30 DAA.