

# Development of rapid and non-destructive technique for the determination of maturity indices of pomelo fruit (*Citrus grandis*)

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## Abstract

Quality of fruit and the subsequent eating attribute is closely linked factors that have a significant effect on marketability and have always been correlated with harvest maturity. In the present investigation, the main focus was given on the development of an inexpensive and rapid tool for identification of appropriate plucking time in the field through colour chart and ANN modeling. The effect of maturity on growth attributes, biochemical properties, and quality attributes of pomelo fruit was thoroughly investigated. A systematic change in the growth attributes, colour properties, and biochemical properties of juice was observed with maturity. Quality attributes such as BrimA and internal quality index have presented inconsistent trends over maturity. In contrast, a regular, systematic change was observed in the ripening index, chlorophyll, and  $\beta$ -carotene content with maturity. A colour chart mentioning various ripening stages was created based on color properties, which were successfully used for the maturity classification. Besides, a correlation between colour parameters ( $L^*$ ,  $a^*$ ,  $b^*$ ), and quality attributes was successfully established using ANN, where 3-5-5 was found the best architecture.