

**DEVELOPMENT OF A PROTOCOL FOR ARTIFICIAL RIPENING OF
TAINUNG NO 01 PAPAYA (*Carica papaya* L)**

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Papaya (*Carica papaya* L) is one of the demanding fruit in which both natural and artificial ripening are practiced. But use of artificial ripening agents boost ripening process followed by rapid senescence. Therefore, this study was conducted to develop a protocol for artificial ripening of papaya in order to reduce post harvest losses in destination markets. Tainung No 01 papaya in their commercial maturity were subjected to ethephon concentrations of 150 ppm, 200 ppm and 250 ppm for exposure time periods of 12 h, 18 h and 24 h in an artificial ripening chamber according to the two factor factorial completely randomized design. An untreated sample was kept as control. After giving treatment they were allowed to ripe at ambient condition ($30 \pm 2^{\circ}\text{C}$, RH 75%-85%). During the ripening period, physicochemical parameters such as peel colour, firmness, pH, Total Soluble Solids (TSS), titratable acidity, Total Chlorophyll Content and the physiological parameters such as respiration rate and O_2 emission rate were analyzed in 1 day interval. A sensory evaluation was conducted to evaluate the perception of peel colour, flesh colour, odor, taste and overall acceptability with 30 untrained panelists using five-point hedonic scale. There was a significant difference ($p < 0.05$) within the treatments and storage in all the evaluated parameters. The treatment exposed to 250 ppm for 12 h exhibited a significant decrease in firmness from 126.44 ± 5.45 to 51.2 ± 3.54 while the control decreases to 109.90 ± 8.32 after the 4th day of the treatment. Meanwhile the TSS significantly increased from 10.66 ± 0.65 to 12.07 ± 0.06 in above mentioned time period. Further, the highest sensory perception was also observed in same treatment. This result of the study reveals that 250 ppm ethephon concentration exposed for 12 h could be used in ripening of papaya in terms of safeguarding quality and storability.

Keywords: Artificial ripening, Ethephon, Papaya, Quality, Storability