

Title Quality maintenance and prolong vase life of torch ginger (*Nicolaia elatior*) by 1-methylcyclopropene and thidiazuron

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Abstract

Vase life of torch ginger is limited by bruising of bract, probably due to onset of ethylene action. 1-MCP, inhibitor of ethylene action, and TDZ, plant growth regulator, was investigated to unravel the problems. Flowers were fumigated with 1-MCP at 0, 250, 500, 750, and 1000 ppb for 12 h at 20°C. After fumigation, flowers were displayed in distilled water at 20°C and 90% relative humidity. The result showed that the vase life of torch ginger was prolonged to 9 days by 1-MCP at various concentrations, whilst the untreated flower had the vase life only 5 days. 1-MCP reduced ethylene production and respiration rate, and also delayed their peak. 1-MCP at 500 ppb maintained water uptake, fresh weight and anthocyanin content better than other treatments. The effect of TDZ on quality and vase life of torch ginger was investigated. Flowers were pulsed at 0 µM TDZ (distilled water), 50 µM TDZ for 2 h, 50 µM TDZ for 6 h, 100 µM TDZ for 2 h, and 100 µM TDZ for 6 h. After pulsing, flowers were displayed in distilled water at 20°C and 90% relative humidity. The results were found that the effect of TDZ were no significant differences on water uptake, fresh weight, redness, hue angle, chroma, ethylene production, POD activity, and total anthocyanin content. However, TDZ was a prospective plant growth regulator maintaining quality and extending the vase life of torch ginger. Ethylene production, respiration rate, PPO and POD activities, and total anthocyanin content on treated TDZ flower have a tendency lower than untreated flower. The vase life of torch ginger were 5 days and 7 days in untreated flower and TDZ treated flowers, respectively.