

Title Effect of chronic gamma irradiation on vase life of *Curcuma alismatifolia* varieties
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Abstract

Curcuma (*Curcuma alismatifolia*) is a monocotyledonous perennial, a member of the ginger family (Zingiberaceae) originating from tropical and subtropical areas of northern Thailand and Cambodia. *Curcuma alismatifolia* varieties because of their colorful, long-lasting and showy inflorescence have a great potential for use as a cut flower, potting plant and garden plant. The inflorescence comprises a number of pink coma bracts in the upper part and green coma bracts in the lower part, with small true flowers. Gamma irradiation is one of the most common procedures in plant mutagenesis. Chronic irradiation is an exposure to ionizing radiation over an extended period (hours, weeks, months) depending on their nature, sensitivity and research requirements. Effects of chronic gamma irradiation on vase life of harvested inflorescences of four *Curcuma alismatifolia* varieties, namely Doi Tung 554, Chiang Mai Red, Sweet pink, and Kimono pink was investigated at gamma green house (GGH) of the Malaysian Nuclear Agency (Nuclear Malaysia), Bangi, Malaysia. Five chronic radiation doses of 0, 6.25, 8.8, 14.6,33, and 87.4 Gy at dose rate of 0.3, 0.11, 0.05, 0.03 and 0.02 (Gy/h) respectively were applied. Both cut flowers and true flowers were damaged by irradiation. Irradiated inflorescences showed earlier browning in bract tips, smaller size of inflorescence and less true flowers. Vase life of irradiated flowers was reduced and the flowers wilted within 5-7 days after treatment. Untreated inflorescence had a vase life of 10-15 days.