

## Development of a Novel Mutant from *In-vitro* Exotic Water Trumpet *Cryptocoryne willisii* Engler ex Baum Through Gamma Irradiation

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Induced mutations for plant improvement in Malaysia were done since the early 1970s. In the early days, mutations were induced using chemical mutagens. Only after the establishment of Tun Ismail Atomic Research Centre (PUSPATI) in 1972, work on induced mutations using gamma-ray took place. At the Institute of Biological Sciences, University Malaya, studies on induced mutation breeding of exotic aquarium plant *Cryptocoryne willisii* using gamma-rays have been performed since August 2006. *C. willisii* is a small aquatic plant, originated from Sri Lanka. In nature, this plant propagates through runners. *C. willisii* flowers seasonally but unfortunately there are no viable seeds. Thus, cross breeding using pollination between different species to obtain new plant variety is not possible. However, *Cryptocoryne willisii* is one of the most popular aquarium plant in the world and a novel variety is very much sought for in order to be competitive in this aquarium business.

For mutation breeding experiment, LD<sub>50</sub> was carried out to optimize a suitable dose to induce mutation. For the LD<sub>50</sub> experiment, explants were exposed to different doses of gamma-ray and observation was made after two months. In this study, the optimal dose for LD<sub>50</sub> is 24 Gray. More than 1500 *in vitro* shoots of *Cryptocoryne willisii* were exposed to acute irradiation of <sup>60</sup>Co at 24 Gray dose. The irradiated shoots were then cultured in small universal containers. The shoots were subcultured repeatedly until the 4<sup>th</sup> generation (M<sub>4</sub>) to ensure stability of mutants. Although initially many variants were produced, only one mutant was shown to remain stable. The trait changes observed in the mutant was based mainly on colour, size and morphology of the leaves.