

**FINAL REPORT: FNCA MUTATION BREEDING PROJECT**

**SUB-PROJECT “INDUCTION OF INSECT RESISTANCE IN ORCHIDS”**

Zaiton Ahmad<sup>1</sup>, Ros Anita Ahmad Ramli<sup>1</sup>, Sakinah Ariffin<sup>1</sup>, Mohd Nazir Basiran<sup>1</sup>,  
Affrida Abu Hassan<sup>1</sup>, A. Tanaka<sup>2</sup>, N. Shikazono<sup>2</sup>, Y. Oono<sup>2</sup> & N. Hase<sup>2</sup>

<sup>1</sup>*Malaysian Nuclear Agency (Nuclear Malaysia), Bangi, 43000 Selangor  
Malaysia*

*Tel: 603-8925 0510 Fax: 603-8928 2956*

*Email: ZaitonAhmad@nuclearmalaysia.gov.my*

<sup>2</sup>*Takasaki Radiation Chemistry Research Establishment, JAEA, 1233 Watanuki,  
Takasaki, Japan*

**ABSTRACT**

The project on “Induction of Insect Resistance in Orchids” is a collaborative FNCA project involving Malaysia, Thailand, Indonesia and Japan. The objective is to jointly produce new orchid varieties with agronomic important traits and resistant to insect infestation. This project focuses on commercial hybrids or species of *Dendrobium* orchids; namely *Dendrobium* Sonia Red 17 from Thailand, *Dendrobium* jayakarta from Indonesia and *Dendrobium mirbellianum* from Malaysia. In this project, tissue culture orchid materials (protocorm-like-bodies or PLBs) have been exchanged among the participating countries early in the project. The Malaysian research team has irradiated these PLBs with two ionizing mutagens; gamma rays and ion beams. Following irradiation, the PLBs were allowed to regenerate into complete plantlets before being challenge-inoculated with target insects, both *in vitro* and *in vivo*, for selection of insect tolerance mutants.