

Technical Meeting on Emerging Applications of Plasma Science and Technology

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Irradiation Applications on Agriculture in Maejo University, Chiang Mai, Thailand

Abstract

This abstract provides an overview of the applications of irradiation in agriculture conducted at Maejo University, with a focus on Plants and animals breeding, Plant growth promotion, and Sterilization in field processes and postharvest stages. The university utilizes gamma radiation from the conventional source Gamma-cell 220, which features a Co-60 source with a radiation rate of 400 Gy/hr, to enhance food safety, extend shelf life, and effectively control pests in various agricultural products.

The studies investigate optimal dosage levels, techniques, and irradiation types to assess their impact on the quality and nutritional value of agricultural products. The results demonstrate the effectiveness of irradiation in inducing new characteristics in chili pepper and turmeric (1,2), as well as enhancing the germination rate and seedling growth of okra, cucumber, tomato, and cannabis (3–5).

The atmospheric pressure cold plasma is utilized to study the germination rate, surviving rate, and mutation of plants and fish through the use of plasma-activated water (PAW), offering various applications such as reducing pathogens, extending shelf life, and replacing chemical treatments.

Maejo University aims to contribute to sustainable and safe agricultural practices through the implementation of irradiation technology.

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