

P 68

Characteristics of *Nicotiana plumbaginifolia* Irradiated with Heavy-Ion Beam

Chang-Hyu Bae^{1*}, Tomoko Abe², Jae-Il Lyu¹, Sarantuya Gensaram¹, Hyo-Yeon Lee³, Yong-Pyo Lim⁴, Shigeo Yoshida²

¹Division of Plant Science, Sunchon National University, Suncheon 540-742, Korea

²Plant Functions Lab., RIKEN, Wakoshi, 351-0198, Japan

³College of Agriculture, Jeju National University, Jeju 690-765, Korea

⁴College of Agriculture, Chungnam National University, Daejeon 305-764, Korea

Objectives

We irradiated tobacco seeds with ²⁰Ne ion beam as high energy mutagen and analyzed the irradiated plants, in order to investigate an effect of high energy mutagen on morphological changes of the plants and DNA lesions by RAPD analysis.

Materials and Methods

1. Materials: Dry seeds of tobacco (*Nicotiana plumbaginifolia*)

2. Methods

- Beam source-²⁰Ne ion, Intensity-0, 5, 10, 20, 50 100, 200Gy
- PCR analysis-primer (Operon Tech. Inc.)

Results and Discussion

Tobacco seeds irradiated with high energy mutagen were germinated and cultivated in pots in order to investigate morphological characteristics and finally determine to DNA lesions. Irradiation of tobacco seeds with ²⁰Ne ion beam inhibited seed germination, but promoted an early growth of plants at low Grays of the heavy-ion beam treatment. Even the frequency is low, plants with two stems were induced (Figure 1) at 5Gy, 20Gy, 50Gy and 100Gy, respectively. In addition, abnormal flower type was observed in a 50Gy treated plant. Scorable products from 22 primers were obtained by RAPD analysis and most of the irradiated plants showed the similar band patterns. RAPD and AFLP analysis is in progress.

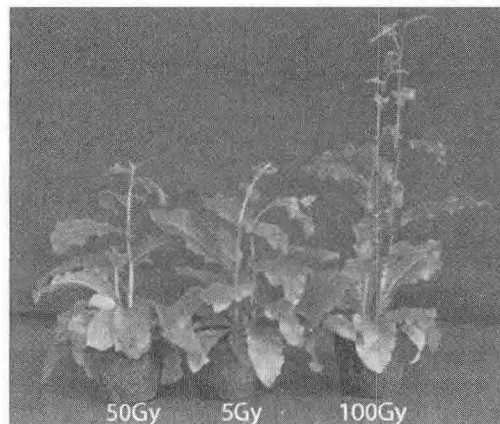


Figure 1. Tobacco plants with two stems obtained from ²⁰Ne-ion beam irradiation.