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Characteristics of Plant Organisms Irradiated with Heavy-Ion Beam

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Objectives

We irradiated rhizomes of orchid with ^{12}C ion beam as high energy mutagen and evaluated the irradiated plant organisms, in order to investigate an effect of high energy mutagen on growth and morphological changes of the plant organisms.

Materials and Methods

1. Materials: Rhizomes of orchid
2. Methods: Beam source-^{12}C ion, Intensity-0, 10, 20, 30, 40Gy
   PCR analysis-primer (Operon Tech. Inc.)

Results and Discussion

In vitro cultured rhizomes of orchid irradiated with high energy mutagen were subcultured in 2 weeks after the irradiation and cultured *in vitro* in order to investigate changes of growth pattern, morphological characteristics and finally determine to DNA lesions. Irradiation of rhizomes of orchid with ^{12}C ion beam significantly inhibited growth of the rhizomes as the beam dose increased(Fig. 1.). Even the frequency is low, plants with abnormal chlorophyll containing leaves were induced at only 10Gy. Selection of stable rhizome line and propagation are needed. Scorable products from 10 primers were obtained by RAPD analysis and most of the irradiated plants showed the similar band patterns.

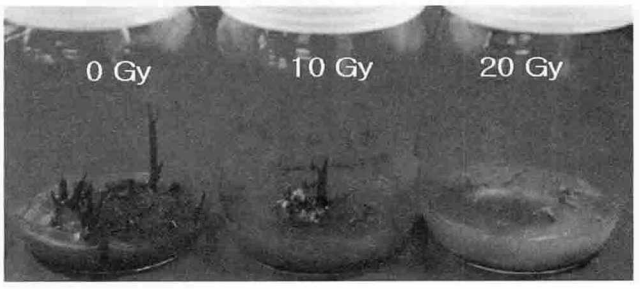

Figure 1. Orchid plants 160 days after ^{20}Ne-ion beam irradiation.

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