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Gamma-irradiation Mutation of Sweet Potato *Beniharuka* via Organogenesis

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Gamma irradiation is one of world-widely used mutagenesis because of its convenience, stability, and safety for human therefore, gamma ray ⁶⁰Co was used as mutation method. Intensity of 30, 50, 70, and 100 GY was dosed to invitro plant in solid medium. To avoid chimerism, single cell induced regeneration via organogenesis was conducted. Over 2 hundred of explants such as leaf, stem, and petiole per each dosage were cultured after 3days of irradiation on 4-FA (0.2mg/L) and Zeatin-Riboside(0.2mg/L) followed by two-stage-protocol. As a result, 8 individual plants were induced through plant tissue culture. There was no certain tendency of survival rate per each dosage, but none survived at 100Gy. To confirm mutation, RAPD was performed with 78 random 10mer primers and two different DNA bands were found at two separate primers. Distinct band was sequenced through vector cloning to see possibility as a SCAR marker. Based on the results of this study, it can be suggested that by using radiation breeding combined with tissue culture, time and labor can be saved compared to traditional breeding method. Moreover, along this process it can be one of the ways to get over difficulties coming from high-genome plant such as sweet potato.

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