

Effect of ¹³⁷Cs Gamma Rays to Panicles on Rice Anther Culture [PDF]

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摘要: Panicles of an indica rice line TM7-5 were subjected to radiation with ¹³⁷Cs gamma rays at 0 (control), 5, 10, 15 and 20 Gy respectively, and then its anthers were cultured. There were slight differences among the treatments in peak emerging time of callus initiation, from 38 to 44 days after inoculation (DAI) as well as the frequency of callus initiation (2.3-3.5%). About two thirds calli were induced before 44 DAI, and calli derived beyond 60 DAI lost the regeneration ability. Green plant regeneration frequency was significantly stimulated from two- to three-fold by irradiation of the ¹³⁷Cs gamma rays compared with the control, and the maximum was 22.81% (15 Gy). The culture ability based on callus initiation and green plantlet regeneration was 0.19% for the control while it was over 0.45% for all the irradiated treatments, and the maximum was 0.59% for 15 Gy treatment. The advantages of panicle irradiation before anther culture and the potential application in rice anther culture, especially for recalcitrant indica rice, were discussed.

关键词: anther culture; gamma ray; panicle; radiation; culture ability; rice (*Oryza sativa*)

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