Studies of callus induction and shoots regeneration from mature rice (*Oryza* sativa L.) seeds¹

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Summary

To establish a callus culture system from mature seeds of rice, 22 major rice cultivars in Taiwan were investigated. The dehusked seeds were incubated on the N6 medium supplemented with 2 mg/l 2,4-dichlorophenoxy acetic acid, and the differences of callus formation ability among cultivars were compared. It had shown that the callus formation ability was related to the genotype in rice. The Japonica type rice cultivars were easier to form callus than Indica type rice cultivars. Cultivars TK17, TNG67, TNG70 had higher callus formation rate than others, which were 96.7, 96.0, and 97.5%, respectively. Besides, six cultivars were chosen for further studies, which including TNG67, TK4, TK16, TK17, TCS10, and Koshihikari. For most of the investigated cultivars, medium supplemented with proline could enhance callus formation rate and proliferation amount, especially for the lower regenerating cultivars such as TCS10 and Koshihikari. After subcultured on MS medium supplemented with naphthalene acetic acid and kinetin, the calluses from six investigated cultivars were able to differentiate green shoots. However, it showed that the regeneration ability was different among rice cultivars. Cultivars TNG67, TK4, TK16, and TK17 have relatively higher regeneration ability than TCS10 and Koshikari.

(key words: Oryza sativa L., callus induction, shoot regenegeration)

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