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Effect of medium and genotype on callus induction ability in some selected Indica and Japonica rice cultivars

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Anther culture plays an important role in rapid development of homozygous lines and genetic manipulation, especially in isolation of desirable individuals from segregating population in the early generation. The extent of success of haploid induction by anther culture depends on a number of factors that include genotype, developmental stage, cultivated conditions of plants, components of culture medium, pre treatments etc. Therefore, the goal of this study was to observe the anther culture response of selected *indica* rice varieties in response to different hormone levels in relation to japonica variety.

In this study, five *indica* rice varieties (Pokkali, At 362, Bg379-2, Bw267-3, and Bw 364) were examined and compared with the *japonica* (Hirayama) variety. Panicles were cold pre treated at 10 °C for 7 – 10 days and anthers were cultured. Two different culture media were tested, by modifying N6 medium supplemented with 2.0 mg/l 2-4 D, 0.5 mg/l kinetin (medium 1) and 2.0 mg/l 2-4 D, 1 mg/l kinetin (medium 2). All the tested varieties produced callus at both hormone levels but a higher callus initiation ability was shown in medium one. The highest callus induction frequency (30.83) was observed in variety Hirayama with the duration of 20 days and was significantly different from the other callus producing varieties. Mean calli frequencies of Pokkali, AT362, BG379-2, BW 267-3 and BW 364 were 2.83, 1.17, 10.83, 2.83 and 1.67 respectively with the duration of 31 days, 30 days, 25 days, 26 days and 28 days.

Keywords: Anther culture, callus induction, indica rice