Advances in Isolated Microspore Culture for the Production of Plant Regeneration of Turkish Durum Wheat Genotypes

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Microspore culture is the most powerful androgenic pathway to produce doubled haploid plants. A microspore culture technique was improved to maximize production of embryos and plant regeneration using four Turkish durum wheat cvs. 'Kızıltan-91', 'Ç-1252', 'Mirzabey 2000' and 'Kunduru-1149'. Donor plants were grown in a growth chamber and spikes were pretreated in 0.4 M mannitol and were stored at +4°C for 7 days. Microspores were plated on a MMS4 induction culture media with ovary co-culture and supplemented with arabinogalactan-proteins. The number of dividing microspores, embryo-like structures, number of embryoids (<2 mm and >2 mm), green and albino plant regeneration and total plant regeneration were compared of all genotypes. According to the results, the highest embryo formation was observed in 'Kızıltan-91' with a percentage of 14.24, while 'Kunduru-1149' produced the highest plant regeneration with a percentage of 8.33. Significant improvements were achieved in the production of embryos and plant regeneration from isolated microspore culture and can be used as a protocol for Turkish durum wheat genotypes.