

## EFFECT OF CULTURE MEDIUM AND MANNITOL PRE-TREATMENT ON DURUM WHEAT ANther CULTURE RESPONSE

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*The aim of the present study is to determine the effect of culture medium, low temperature and mannitol on embryoid induction and green plant regeneration in durum wheat. To achieve that, the androgenic response of four Greek durum wheat cultivars (Sifnos, Anna, Mexicalli-81 and Elpida) was studied. Approximately 6000 anthers of the aforementioned cultivars were cultured under in-vitro conditions and three pre-treatments were applied: 0.0, 0.3 and 0.7 M mannitol for seven days at 4 °C. The induction media used were a modified W14 medium supplemented with and without ethephon and the FHG medium. The regeneration medium did not differ from the induction medium in the case of FHG whereas, in the case of mW14 the 190-2 medium was used as regeneration medium. The basic MS medium was used as rooting medium. Additionally, anthers from cultivars Sifnos and Elpida, were cultured after cold pre-treatment for 20 and 35 days. Pre-treatment with mannitol had different effect on embryoid and green plant production depended on the genotype of wheat cultivar. Green plants were produced from cultivars Mexicalli-81, Elpida and Sifnos. A decisive genotypic effect on the androgenic response of durum wheat was noticed. This effect was also influenced by the growth medium and the duration of low temperature pre-treatment.*

**Key words:** embryoid, green plant, *Triticum durum*, cold pre-treatment, mannitol

### ВПЛИВ ПОЖИВНОГО СЕРЕДОВИЩА І ПОПЕРЕДНЬОЇ ОБРОБКИ МАНІТОЛОМ НА РЕАКЦІЮ КУЛЬТУРИ ПИЛЯКІВ ТВЕРДОЇ ПШЕНИЦІ

Мета цього дослідження полягала у визначенні впливу поживного середовища, низьких температур і манітолу на індукцію ембріодів та регенерацію зелених насаджень твердої пшениці. Для досягнення цієї мети вивчали андрогенну реакцію чотирьох грецьких сортів твердої пшениці (Sifnos,

Anna, Mexicalli-81 і Elpida). Близько 6,000 пиляків вищевказаних сортів культивували *in vitro* із застосуванням трьох видів попередньої обробки: 0,0; 0,3 та 0,7 М манітолу впродовж семи днів при 4 °С. Було використано такі середовища для індукції, як модифіковане середовище W14 з додаванням та без додавання етефону і середовище FHG. Середовище для регенерації не відрізнялося від середовища для індукції у випадку FHG, тоді як у випадку mW14 для регенерації використовували середовище 190-2. Основне середовище MS використовували в якості субстрату для вирощування рослин. Крім того, пиляки сортів Sifnos та Elpida культивували після попередньої холодної обробки впродовж 20 і 35 днів. Попередня обробка манітолом мала різний вплив на утворення ембріодів і зелених насаджень у залежності від генотипу сорту пшениці. Зелені насадження отримували від сортів Mexicalli-81, Elpida і Sifnos. Було відмічено вирішальний генотипний вплив на андрогенну реакцію твердої пшениці. Цей вплив також залежав від середовища для культивування та тривалості попередньої обробки за низьких температур.

**Ключові слова:** ембріод, зелені насадження, *Triticum durum*, попередня холодна обробка, манітол.

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