

Inter-specific hybridization in *Beta* genus using embryo rescue technique

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Abstract

Interspecific or intergenus hybridization in sugarbeet (*B. vulgaris* L.) is usually failed due to non fertilization, embryo death or absence of connection between embryo and endosperm. Consequently invitro embryo rescue technique is of value to save hybrid embryos before annihilation. Sugar beet inter-specific crosses with wild species is impossible in classical breeding because of no chromosomal homology. In this research, the inter-specific crossing of beet was performed manually using tetraploid plant (*B. vulgaris* L.) as female and two wild species : *B. webbiana* Mog and *B. procumbens* Chr.Sm. as male parents. Artificial fertilization of female plant flowers was performed manually. Embryo growth observation was carried out using 1% tetrazolium chloride treatment. Fertilized flowers were collected 20 days after pollination and hybrid embryos were cultured in three experiments with different media composition invitro conditions and kept in darkness at 25°C. The third experiment with N6 medium containing GA3, AB, NAA and P.V.P. at 1, 0.2, 0.5 and 300 mg/l respectively and 3% sucrose, 1% active charcoal and 6% agar showed best results. Germinated embryos were transferred to N6 medium with 0.5 mg/ l BA and 1mg/l GA3 and placed in 16/8 photoperiod condition. The results showed that the percentage of germinated embryos and hybrid plantlets obtained from two mentioned crosses were 40% and 10% respectively.

Key Words: *Beta vulgaris*, Embryo rescue, Inter-specific hybridization, Medium