

The Effect of Plant Growth Regulators on Regeneration of Fennel (*Foeniculum vulgare* Mill.) Embryo

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Abstract

A rapid method was developed to achieve high callus growth and multiple shoot regeneration of fennel from embryo culture using different plant growth regulators (PGRs). The experiments were conducted under a factorial experiment, based on a completely randomized design (CRD). Here, we applied an Iranian superior fennel ecotype (called Fasa) and all the processes including callus induction and multiple shoot and root regeneration were evaluated after 35 days, on average, and on the same media, without any sub-culturing. The best rate of proliferation was related to the auxin-rich medium with 10-20 shoots per explant. Regenerated plants were phenotypically normal. This high throughput and rapid regeneration method, regarding the positive effect of cefotaxime as a necessary antibiotic in plant transformation, can be the best approach for fennel metabolic engineering.

Keywords: Plant Regeneration, Proliferation, Callus, Indirect Regeneration, Auxin