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Development of an Efficient Plant Regeneration System in Sunflower (*Helianthus annuus* L.)

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**Abstract:** With the aim of developing an efficient plant regeneration system from cells or tissues of sunflower (*Helianthus annuus* L.), we compared several regeneration protocols using different explant types and hormonal combinations. Somatic embryogenesis could be induced on cotyledon explants, especially from the basal (proximal) portion of the cotyledons, but genotypic variation appeared to be the most critical factor for both somatic embryo and root production. Such a variation was more prominent when 10 different sunflower cultivars were compared for shoot production from shoot-tip explants. Further refinement of the culture conditions may be necessary to improve the efficiency of somatic embryo production. Thin cell layers from hypocotyl segments were not found to be successful for plant regeneration.

**Key Words:** *Helianthus annuus* L., sunflower, tissue culture, plant regeneration

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