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Plant regeneration of turf-type common bermudagrass (*Cynodon dactylon* L. Pers.) via somatic embryogenesis from seed-derived callus

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Objectives

Bermudagrass is generally recalcitrant to plant regeneration in tissue culture. Our aim is to establish the regeneration system of two popular common bermudagrass cultivars from seed-derived callus by somatic embryogenesis.

Materials and Methods

1. Materials

Seeds of two common bermudagrass cultivars, 'Sundevil II' and 'Mirage'

2. Methods:

- Callus induction and somatic embryogenesis medium: MS salt, 2 mg/L 2,4-D, 0-0.5 mg/L BA, 30 g/L sucrose and 4 g/L Gelrite
- Plant regeneration medium: MS salt, 3 mg/L BA, 0.5 mg/L NAA, 0-0.5 mg/L GA, 30 g/L sucrose and 4 g/L Gelrite
- Rooting medium: 1/2 MS salt, 30 g/L sucrose and 4 g/L Gelrite

Results and Discussion

An efficient regeneration system was established from seed-derived callus by somatic embryogenesis. Callus was induced from mature seeds on MS medium supplemented with 2 mg/L 2,4-D and 0-0.5 mg/L BA. Two or three weeks after induction, some hard, compact and yellowish embryogenic callus formed at the base of scutellum covered with white watery callus. The embryogenic callus was separated from watery callus and transferred to regeneration medium under the light. Many somatic embryos germinated on the surface of embryogenic calli five days after the transfer. For the two cultivars, the regeneration percentage was more than 70%. Shoots were transferred to 1/2 MS medium without plant growth regulator and were cultured for two or three weeks for rooting. Rooted shoots were moved to soil and acclimatized in pots. All of them were green and grew normally. This efficient regeneration system will greatly facilitate successful genetic transformation of bermudagrass.

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