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Abstract

Anther Culture in Potato (Solanum tuberosum L.) in vitro

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Abstract:

Double haploid (DH) plants Production is a valuable tool in plant breeding programs. Since conventional breeding takes long time for the development of newly improved cultivars, this technique reduces the time needed for this purpose. Practically, application of (DH) technology in potato breeding through androgenesis in Santana cultivar is possible by considering number of factors that influence androgenesis. Culture medium has to be considered in respect of constituents to fulfill the needs of culture target where N6 medium significantly showed better results (14.61%) if compared to MS medium (8.78%) anthers produced embryos. Auxin/cytokinin represented in this study by 2,4-D/BA showed better results in induction of embryogenesis when combined together at (2.0 mg/l 2,4-D and 0.5 mg/l BA) which resulted in (35.67%) anthers produced embryos rather than each one of them alone. Enhanced results were obtained after floral buds pretreatment with thermal chock with three different degrees (4°C, 25°C, 30°C) for two different exposure time (48 h and 72 h). N6 medium showed the highest percentage of anthers produced embryos (44%) when supplemented with 2 mg/l 2,4-D+0.5 mg/l BA, while pretreatment with 4°C for 72 h favored the embryos production (16.67%) followed by (14.00%) and (12.00%) at 25°C and 4°C for 48 h respectively with no significant difference among them. Pretreatment with 32°C for (48 h and 72 h) resulted in (4.67%) and (5.33%) respectively differed significantly form the low temperature. Silver nitrate has shown to be potent at 2 mg/l in inhibiting ethylene, increasing embryogenesis (60.0 %) and reducing the non-responsive anthers (6.67(%.

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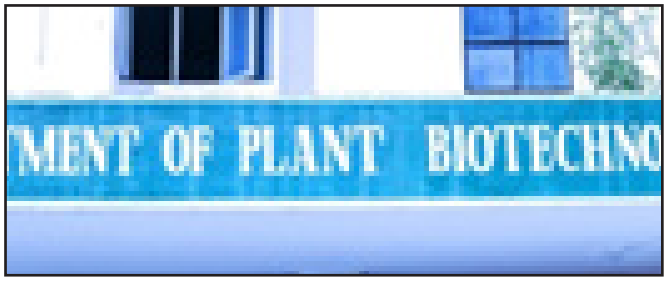

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