21 Improved Germination of Carrot Somatic Embryos by Disturbance of Auxin Action or Transport

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To elucidate the effects of disturbance of auxin action or transport on the germinaton of carrot somatic embryos, cotyledonary embryos were germinated on MS medium with 2,3,5-triiodobenzoic acid (TIBA) or p-chlorophenoxy*iso*butyric acid (PCIB). The maturation of somatic embryos on medium with TIBA, auxin polar transport inhibitor was more prominently delayed than on medium with PCIB, auxin action inhibitor, but the germination of the embryos was apparently enhanced from 68% to 73% or 80% on medium with TIBA or PCIB. Especially the germination of embryos with anomalous cotyledons was prominently enhanced to 59 % in comparison with that of control (26%). The leaves of germinated embryos on medium with TIBA or PCIB increased from 4 of untreated embryos to 9. In anatomical examination of shoot apex in the embryos, it was clarified that shoot apical meristem was numerically multiplied by treatment of auxin action or transport inhibitor. These results suggest that the altered morphology of shoot apex was caused by the disturbance of the auxin action or polar transport in shoot apical meristem during germination on medium TIBA or PCIB.

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