

7

Development of Abnormal Cotyledons on Carrot Somatic Embryos by Disturbed Auxin Distribution

Eun-Kyong Lee and Woong-Young Soh
Department of Biological Sciences,
Chonbuk National University

Callus for somatic embryogenesis was initiated from cotyledon segments of carrot seedlings, then somatic embryos were developed from the callus on MS(Murashige and Skoog) medium without growth regulators after culturing on medium with 1 mg L^{-1} 2,4-D(2,4-dichlorophenoxy acetic acid). The embryos showed cotyledonary abnormalities of 54% and were very poorly germinable. Thus, attention has to be paid to cotyledon organogenesis of somatic embryos for scientific and industrial purposes. To understand the relationship between the abnormalities and endogenous auxin distribution, TIBA(2,3,5-triiodobenzoic acid) was added to 2,4-D free medium. Somatic embryos formed on medium with $10 \mu\text{M}$ TIBA showed cotyledonary abnormalities of 78% including cup-shaped cotyledons of 67%. In addition, somatic embryos formed under light ($46 \mu\text{mol m}^{-2}\text{s}^{-1}$) had abnormal cotyledons of 84% including cup-shaped cotyledons of 77%. From the results it is suggested that the abnormalities of cotyledons occurred on the embryos when the lateral symmetry of auxin distribution was disturbed by chemical and physical treatment.

Key words : anomalous cotyledon, *Daucus carota*, somatic embryogenesis