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Histological Observaion of Callus Formation in Mungbean (*Vigna radiata* (L.) Wilczek) Cotyledon Culture

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Abstract:

Histological observation was conducted to evaluate the origin, initiation site and development of callus in mungbean cotyledon culture. Results showed that callus formation in mungbean occurred in three sites: 1) in the peripheral area of the provascular strands where the initiation of endogenous callus was noted; 2) at the cut portion of the cotyledon where external primary callus developed; and 3) in the ruptured epidermal layer where the primary callus emerged. Callus formation differed in each site. Endogenous callus formed due to the rapid cell division of the cells in the peripheral zone of the provascular tissues. The primary callus from the cut portion of the cotyledon and reptured portion of the epidermal layer were mostly formed out of cell enlargement of the parenchymatous cells. Although the primary callus cells soon became highly vacuolated, this does not seem to contribute to the increase in callus cell mass. Owing to low dividing activity of the primary callus cells, the cytoplasm-rich and meristematic callus cells are apparently derived from the small callus cells which were located on the periphery of the original provascular tissues. And so, some cells in the provascular cells could be seen as the prominent origin of callus in the excised cotyledon system of mungbean.

Keywords:

Callus, Cotyledon, Histology, Mungbean

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