

Induction of Somatic Embryo from Mature Embryos and Embryonic Leaflets of Four Commercial Peanut Cultivars from Indonesia

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Peanut is an important crop in Indonesia and various research have been conducted to improve yield of this crop. Various high yielding cultivars of peanut have been available for farmers in Indonesia. However, some of them are susceptible to various peanut diseases in the field. The ability to manipulate peanut *in vitro*, especially to induce shoot regeneration or somatic embryos is a requirement prior to application of genetic engineering. In this report, the results of such an investigation were presented. The objective of this activity was to develop conditions suitable for inducing somatic embryo from mature embryos and embryonic leaflets of four commercial peanut cultivars from Indonesia.

Mature embryos were dissected from dry peanut seeds and their radicle point were separated from the embryo axis. The embryo axis was cultured on Murashige and Skoog (MS) tissue culture medium containing various concentrations of auxin. Picloram or 2,4-D at 0, 4, 8, 16, or 24 μM respectively, were used to induce somatic embryos. Approximately 50 mature embryos of each peanut cultivar were cultured on the respective induction medium. Similarly, peanut embryonic leaflets were dissected from dry peanut seeds and cultured on the same medium as for mature embryos. The cultures were incubated in the dark, at 28/23°C day and night temperature regimes. The formation of somatic embryo from cultured explants were recorded during a period of six months.

Results of the experiments indicated only picloram was able to induce formation of somatic embryos. The best concentration of picloram for inducing peanut somatic embryos ranged from 8 to 16 μM . At least 20% of mature embryos of peanut cv. Banteng, Gajah, Kelinci, or Landak cultured on such media formed somatic embryos. Higher percentage of somatic embryo formation was observed using embryonic leaflets as explant. The synthetic auxin, 2,4-D, at concentrations of up to 24 μM was not able to induce somatic embryos from mature embryos nor from embryonic leaflets of peanut.