

***IN-VITRO* CULTURE OF IMMATURE EMBRYOS OF TEA
(*Camellia sinensis* L.)**

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Tea (*Camellia sinensis* L.) is an introduced crop to Sri Lanka and hence, the genetic diversity available for crop improvement programs is not adequate. Broadening the genetic base while, incorporating desirable traits from related species or taxa, into the cultivated gene pool is imperative to increase the efficiency of tea breeding program. Incompatibility between species in wide hybridization experiences pre-mature embryo abortion and failure in seed development. Seeds from wide hybridization are not viable and do not develop into vigorous plantlets in conventional propagation. They can be overcome by establishing a reproducible protocol for *in-vitro* culture of immature embryos, which would also facilitate application of embryo rescue technique. Therefore, present study focused on developing a protocol for *in-vitro* germination of immature embryos by studying the factors affecting embryo germination and conversion into normal plantlets.

Five Gibberellic acid (GA₃) concentrations (0, 0.5, 1, 3 and 5 mg/l) on three different developmental stages of immature embryos were studied. Results revealed that percentage germination of embryos increased significantly ($P < 0.05$) when GA₃ was added at low concentrations (0.5 – 1 mg/l) to the culture medium (MS basal medium supplemented with IBA+BAP), irrespective of the maturity stage. GA₃ at 1 mg/l was optimum for normal embryo germination whereas, 3 and 5 mg/l promoted precocious germination.

A histological study conducted to assess the progression of embryo development in different maturity stages using controlled pollinated material harvested at regular intervals from 2 WAP up to 13 WAP (weeks after pollination) revealed that the embryo developed into early torpedo stage by 12-13 WAP, indicating that the embryo reaches a latter developmental stage by 13 WAP.

Key words: *Camellia sinensis*, Embryo developmental stages, Gibberellic acid, Immature embryo, *In-vitro* culture