

Somatic Embryo Induction from *in vitro* Leaf Callus of Tea [*Camellia sinensis* (L.) O. Kuntze] Cultivars, ‘TRI2024’ and ‘TRI2043’

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Tea [*Camellia sinensis* (L.) O. Kuntze] is a major plantation crop that plays a key role in the economy of Sri Lanka. Thus, the aim of this study was to improve the indirect somatic embryogenesis and initiate embryogenic callus formation in tea. The explants of green colour compact *in vitro* leaf callus of TRI2024 and TRI2043 cultivars were cultured on the solid and in liquid MS media containing different plant growth regulators to induce the embryogenic callus under *in vitro* condition. The three factorial CRD with cultivar, treatment and media formulation as factors were used as the experimental design with ten replicates for each treatments. The highest average relative growth rate (82.3%) was occurred in leaf callus of TRI2024 cultivar on MS solid medium supplemented with 2 mg l⁻¹ BAP + 3 mg l⁻¹ NAA. The highest average growth index (17.6) was occurred in leaf callus of TRI2024 cultivar on MS solid medium supplemented with 2mg/L BAP + 3 mg l⁻¹ NAA + 8.6 mg l⁻¹ AgNO₃. However, the highest average relative growth rate and average growth index for callus of TRI2043 cultivar was observed in liquid media than solid media. Somatic embryo induction was initially observed on *in vitro* leaf callus of TRI2024 cultivar within ten weeks of culture. There is a significant difference between the cultivars, media and media formulations (solid and liquid) and interaction between cultivars in callus induction and proliferation. The MS solid medium containing 2 mg l⁻¹ BAP + 3 mg l⁻¹ NAA was reported as the best medium for indirect somatic embryogenesis from the *in vitro* leaf callus of tea cultivar TRI2024. This protocol with further extended experiments will be used to obtain embryogenic callus from *in vitro* leaf callus of tea. Therefore it will be beneficial for mass propagation of selected elite clones of tea in the future.

Keywords: Camellia sinensis (L.), Indirect somatic embryogenesis, *in vitro* propagation, Tea