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A preliminary study on plant regeneration through ovary callus culture of tea (Camellia sinensis (L.) O.Kuntze)

Tea, a perennial crop is cultivated commercially for its tender leaf which is used as a beverage in the world. Because of its economic importance and high demand, scientists are still making attempts to produce elite clones.

This study was carried out to regenerate the shootlets from the cultured ovary of tea clone, TRI 2025, which has become popular in most estates because of its high yield potential, vigorous growth and tolerance to eelworm and drought. Unopened floral buds (4-6 mm length) were harvested and sterillized in 70% ethanol for 1 minute followed by 5% Cloroxsolution for 10 minutes. Then the immature ovaries excised from the buds were inoculated on MS (Murashige and Skoog, 1962) medium (0.4% agar) supplemented with 2,4 D (6.0mg/l) alone or 2,4 D (6.0mg/l) and BAP (2.0mg/l) and half strength MS medium modified with 2,4 D (2.0mg/l) alone or in combination with BAP (1.0mg/l). All cultures were incubated in the dark and subculturing was done once a month. The calli were transferred to the same media but without 2,4 D and kept in light for the regeneration of shootlets.

The results showed that browning and blackening were more in MS media when compared with half strenght MS media. High concentration of inorganic salts and growth regulators appear to enhance browning. The callus induction and growth were relatively more in half strength MS medium with 2,4 D (2.0mg/l) and BAP (1.0mg/l). After transferring the calli to 2,4 D free media and when they maintained in light, whitish calli turned greenish yellow but plantlets could not be regenerated during 6 month period form callus initiation. However, organization into green nodules were observed.