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CALLUS FORMATION IN ANTHER CULTURE OF TEA CLONES, *CAMELLIA SINENSIS* (L.) O.Kuntze

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Abstract: This study was carried out to regenerate haploids from cultured anthers of tea clones. Morphological and histological studies on the anther callus development revealed that nuclei of numerous microspores began to divide unequally, forming multicellular structures during the first week of culture and anther lobes swelled gradually until bursting. The rate of callus induction was rapid during 6-10 weeks and compact greenish calli were formed from anthers. Calli became more heterogeneous with time in culture. The determination of ploidy levels in anther callus showed that two levels of ploidy were present in callus. In the callus, the percentage of haploid cells was more (68%) than that of diploid (6%).

The study on comparison of callus growth in anthers of different clones indicated that the survival of anthers of three clones TRI 2043, TRI 2023 and TRI 2025 was high (highest was 98%, the lowest 78%) and calli were produced in anthers of all clones used in this trial. TRI 2043 exhibited relatively more callus formation (76.2 mg) from anther cultured in half Murashige and Skoog (MS) medium with 2,4 D and BAP grown in light, followed by TRI 2023, TRI 2024, TRI 2025 and TRI 777. In the dark, significant callus growth was observed in four clones (TRI 2025, TRI 2024, TRI 2023 and TRI 777). Calli that formed in light turned dark green, meristemoid like structures after transfer to the same medium without 2,4 D. However, plantlets could not be regenerated.

Key Words: Anther culture, callus, haploid production, microspores, tea clones.

INTRODUCTION

Tea, *Camellia sinensis* (L.) is cultivated commercially for its tender leaf which is used as a beverage. In Sri Lanka, it is grown under various types of soil and climatic conditions with different pests and disease problems. Therefore, it is necessary to provide good planting material to growers in order to ensure highest possible yield of tea with high quality. As the demand for genetically uniform and agronomically superior planting material is increasing the creation of new and commercially desirable tea cultivars become essential and this can be achieved only by a proper programme of breeding. For commercial planting,

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