

**OPTIMIZATION OF AN *IN VITRO* MULTIPLICATION PROTOCOL FOR STEM NODAL CULTURE OF NEW TEA (*Camellia sinensis* (L.) O Kuntze) CULTIVARS**

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Commercial exploitation of tea (*Camellia sinensis* (L.) O Kuntze) micropropagation is hindered by low multiplication rates and variability of multiplication rates among tea cultivars. Hence, this study intended to evaluate multiplication rates of newly improved tea cultivars and to identify optimum growth regulator combinations for increasing multiplication rates to a commercially viable level. Stem nodal cuttings of two TRI 5000 series cultivars (582 and 208) were subcultured in MS (Murashige and Skoog) medium with four different indole-3-butyric acid (IBA): 6-benzyl-aminopurine (BAP) ratios. Number of shoots produced per subculture was considered as the multiplication rate. The two cultivars differed significantly in multiplication rates where cultivar 208 recorded the highest multiplication rate of 3.7 shoots for eight weeks. Of the IBA: BAP ratios examined, the highest multiplication rate of 3.66 shoots was recorded for 1: 25 ratio while the lowest rate was obtained for 1: 1 ratio, for both cultivars. In both cultivars 208 and 582, the highest multiplication rates of 3.9 and 3.46 shoots respectively, were recorded in the 1:25 IBA: BAP ratio. On the contrary, the lowest multiplication rates of 3.33 and 2.0 shoots for cultivars 208 and 582 respectively, were recorded in 1:1 IBA: BAP ratio. Interactions between cultivars and hormone combinations were not significant. Results revealed that, new tea cultivars have different multiplication rates. Further, IBA: BAP ratio of 1:25 is suitable for increasing the rate of *in vitro* shoot proliferation. Hence, this study shows the potential of developing a commercially viable micropropagation system for mass production of planting materials in tea.

**Keywords:** 6-Benzyl-aminopurine, Indole-3-butyric acid, Shoot proliferation, Stem nodal cuttings, Subculture rate, Woody perennial