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Identification of ploidy markers in tea (*Camellia sinensis* L.)

Some morphological and anatomical attributes were assessed in confirmed induced tetraploid cultivars of tea (*Camellia sinensis* L.) in comparison with their diploid progenitors. Attributes such as leaf area, fresh and dry weights of flush, pollen diameter, anther length, stomatal density, stomatal length and breadth, length to breadth ratio of stomata and number of

chloroplasts per guard cell were studied in order to identify most reliable ploidy indicators in tea.

Of the attributes tested, number of chloroplasts per guard cell was found significantly different between the two ploidy levels for all the cultivars. In contrast, fresh and dry weights of flush, stomatal length and breadth, length to breadth ratio of stomata showed no such significant differences between ploidy levels in any of the cultivars. On the other hand, size of the pollen grain, anther length, leaf area and stomatal density showed significant differences only between some of the diploids and their induced tetraploids. Results confirmed therefore, that the number of chloroplasts per guard cell is a reliable indicator for testing level of ploidy in tea over the other criteria studied. This technique of chloroplast count can be used as a rapid and initial screening tool for identification of polyploid genotypes from large tea populations.