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## GENETIC STRUCTURE OF TEA (CAMELLIA SINENSIS (L) O. KUNTZE) GERMPLASM IN SRI LANKA: IMPLICATION ON GERMPLASM MANAGEMENT AND TEA BREEDING

## M.A.B. Ranatunga<sup>1\*</sup>, H.G.J. Kumudumali<sup>1</sup>, J.D. Kottawa Arachchi<sup>1</sup>, M.T.K. Gunasekere<sup>2</sup> and D.M.D. Yakandawala<sup>3</sup>

<sup>1</sup>Plant Breeding Division, Tea Research Institute of Sri Lanka, Talawakelle, Sri Lanka
<sup>2</sup>Coordinating Secretariat for Science, Technology and Innovation, 3<sup>rd</sup> Floor, Standard Chartered Building, Janadhipathi Mawatha, Colombo 01, Sri Lanka
<sup>3</sup>Department of Botany, Faculty of Science, University of Peradeniya, Sri Lanka \*mahasenab@yahoo.com

Although the role of tea germplasm in crop improvement is well recognized, lack of sufficient information on genetic structure of the germplasm collection deprives its optimum use. As compared to vegetative traits, reproductive morphology, especially pistil traits are considered as reliable criteria in taxonomical studies of higher plants. The objective of the present study was to determine the nature and extent of genetic structure of tea germplasm and to characterize accessions into major taxa. Eighty nine accessions including estate selections, introductions, improved cultivars and unadapted lines from the preliminary core collection of tea germplasm were characterized using 16 floral traits including characteristics of style to discriminate them into three major taxa. Of the material studied, 60 accessions possess ascending type styles, 18 with united styles while 11 accessions recorded geniculate styles indicating that the collection was predominantly represented by Cambod type (68 %) characterized by ascending type styles followed by Assam taxa (20%) characterized by united type styles. Of the estate selections, 66 and 32 % resemble Cambod and Assam types, respectively signifying poor representation of China types even among the estate selections. Around 83 % of the introductions acquired prior to 1960s' mainly from India and Indo-China exhibit predominantly Cambod type characters and introductions made in 21st century from Korea reminiscent of more affinity to China taxa. Availability of more Cambod type improved cultivars (72 %) warrant future efforts of development of Assam and China type cultivars to maintain crop diversity. Reproductive morphology connected to pistil traits viz style length, style column length and style arm lengths highly varied. However, ovary pubescence and stigma position did not show much variation. Also floral traits viz petal length, number of petals and sepals varied among three taxa. This is the first comprehensive study to determine genetic structure of tea germplam in Sri Lanka and results revealed that local germplasm is primarily represented by accessions of Cambod types followed by Assam types. However, China type accessions are inadequately represented in the collection. Hence, future exploration missions have to be geared to acquire more China type accessions and it is suggested to include accessions with predominant China characters in pre-breeding programmes too. Findings of the present study would be immensely useful in construction of the final core collection of tea germplasm in Sri Lanka.