# Assessment of flowering synchrony in tea [*Camellia sinensis* (l.) o. Kuntze] germplasm accessions in Sri Lanka: implications to tea breeding programme

***J.B.D.A.P. Kumara, H.A.C.K. Ariyarathna, M. Ratnayake, J.D. Kottawa Arachchi and M.T.K. Gunasekare***

Division of Plant Breeding, Tea Research Institute of Sri Lanka, Talawakelle, Sri Lanka

**Abstract**

Identification of parents having synchronized flowering is important in planning crosses for controlled hybridization programmes also in designing parental combinations for seed gardens. Therefore, 245 tea accessions conserved in the *ex-situ* field gene bank at the Tea Research Institute of Sri Lanka were characterized using qualitative parameters related to flowering. Visual observations were made monthly using 3 bushes in each accession. The same bushes were used in all successive rounds. Flowering was assessed based on a pre-determined non-parametric scale and the data gathered were subsequently subjected to cluster analyze. The results showed that only in 30% of the accessions flowering occurred at the highest scale of intensity. It was possible to categorize the accessions into four main clusters; I, II, III, and IV based on intensity of and the time of flowering. Flower abundance was high in cluster III and II compared to I and IV. The highest flowering intensity was observed in accessions included in the cluster II. Cluster I which was also the largest cluster showed the lowest flowering intensity. Irrespective of the cultivar differences, three marked flowering periods were observed during March, July and November. The work reported here is the first detailed and intensive study on reproductive behavior of the tea germplasm in Sri Lanka. Information generated is of high pertinence in planning efficient control hybridization programmes and rational establishment of tea seed gardens.

**Keywords:** Flowering, Fecundity, Cluster Analysis, Seasonal Variation, Synchrony