

# Use of biochemical compounds in tea germplasm characterization and its implicatio...

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J. Natn. sci. Foundatton sn Lanka 2013 41 (4): 309-318 DOE <http://dx.doi.org/10.4038/jnsfsr.v41i4.6058> RESEARCH ARTICLE Use of biochemical compounds in tea germplasm characterization and its implications in tea breeding in Sri Lanka J. D. Kottawa-Arachchi<sup>1\*</sup>, M. T. K. Gunasekare<sup>2</sup>, M. A. B. Ranatungal, P. A. N. Punyasiri<sup>3</sup> and L. Jayasinghel Tea Research Institute of Sri Lanka, Talawakelle. Coordinating Secretariat of Science, Technology & Innovation, 3rd Floor, Standard

Charterd Building, Chatham Street, Colombo 01 . 3 Institute of Biochemistry Molecular Biology and Biotechnology, University of Colombo, 90, Cumaratunge Munidasa Mawatha, Colombo 03. 1 2 Revised: 27 May 2013; Accepted: 19 July 2013 Abstract: Thirty five tea germplasm accessions selected to represent the gerpalsm collection of Sri Lanka was used for biochemical characterization based on the biochemical compounds present in the fresh tea leaf.

Rate of fermentation, crude fibre content, otal polyphenols, total catechins, chlorophyll-a, chlorophyll-b and total carotenoids were analysed. Principle component analysis (PCA) using 7 biochemical parameters and clustering on first three principal components accounted for 87 % of the total variation and delineated the 35 accessions into 4 clusters. Biochemical parameters such as fermentation rate, total polyphenols, total catechins and plant pigments in green leaf were important in explaining the biochemical variation.

The selected 35 ccessions could also be categorized into 4 groups based on the fermentation rate. Estate selections (PK2, N2, DUN7, S 106, DTI, TC9, WT26 and NAY3) and some introductions (TRI 777, INTRI 6 and VHMOR)

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recorded the highest total polyphenols and catechin content. Besides, ASM 4/10, TRI 2016, TRI 2025 and TRI 2043 showed the highest content of chlorophylls and Use of biochemical compounds in tea germplasm characterization and its By panimal DTI, TC9, WT26 and NAYS) and some introductions (TRI 777,