

International Conference on

Nutritional Science and Food Technology

July 02-03, 2018 Rome, Italy

Characterisation of principal chemical constituents, vitamin and mineral elements of Nigerian tea clones

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Abstract

Agronomic traits have been used severally to assess the quality of commercially grown tea plants (*Camellia sinensis*) in Nigeria but there is a dearth of information on the principal chemical constituents of Nigerian Tea leaves for industrial use. Thus, this study evaluated the chemical composition of some tea clones grown in Nigeria. Ten (10) Clonal genotypes of Tea plant, *Camellia sinensis* (L.) O. Kuntze grown in Nigeria were analysed for epigallocatechin gallate (EGCG), epigallocatechin (EGC), epicatechin gallate (ECG), epicatechin (EC), Caffeine, and vitamin (water and fat soluble) contents using High Performance Liquid Chromatography while selected mineral elements were determined using Atomic Absorption Spectrometry. Results showed that Nigerian tea clones contain 11.78-64.75, 0.09-1.25, 0.6-6.67, 1.06-4.66 and 0.60-2.51 (mg/g) EGCG, EGC, EC, EGC and caffeine respectively. Vitamin C, B1, B2, B3, B6, B9 and B12 content also ranged between 2.00 and 3.99, 2.80 and 3.59, 18.73 and 40.87, 1.80 and 11.48, 1.97 and 3.77, 30.95 and 60.56 and 2.57 and 8.94 mg/g, respectively. Vitamins A, D and K were below 0.1 mg/g while vitamin E ranged between 0.26 and 0.27 mg/g. Cu, Mn, Ca, Mg, Na and K ranged from 0.22 to 1.03, 0.08 to 0.29, 4.59 to 10.44, 12.67 to 155.60, 9.39 to 12.02 and 0.91 to 0.99 (mg/g) respectively. This study revealed the principal chemical constituents of Nigerian tea clones.

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