

Abstract

The Kenyan tea industry wishes to diversify its tea products, and in line with this, anthocyanin – rich teas were developed at the Tea Research Foundation of Kenya. These teas have purple-coloured leaves and the green colour is masked. In total, 12 accessions of the purple leaf coloured teas and 2 standard tea varieties were studied. Clones Hanlu and Yabukita are Chinese and Japanese tea varieties, respectively, known for good green tea, and they were used as reference standards. Little if any research had been done to characterize the quality of these purple leaf coloured teas and this study investigated their total polyphenols (TPP), catechins, caffeine, gallic acid and theanine. These are the major green tea quality parameters. Results showed that the new Kenyan tea clones had higher total polyphenols than had the reference standard tea varieties, which had 17.2% and 19.7% while the lowest among the Kenyan clones was 20.8%. On catechin quality index, K-purple and TRFK 91/1 showed high index values of 15.9 and 13.3, respectively, while clones TRFK 83/1 and 73/5 showed low index values of 0.74 and 1.0, respectively. Hanlu had the highest caffeine level with 2.42% while clones TRFK KS 3, TRFK KS 2 and TRFK 83/1 had relatively high caffeine levels among the purple leaf coloured teas, with 2.33%, 2.22% and 2.21%, respectively. Clone TRFK 73/5 had the lowest caffeine content, with 1.16%. Theanine analysis showed that most purple leaf coloured teas had more theanine than had the reference standard clones, except TRFK 83/1 and K-purple, which were lower than the reference standard clones. The implication of the green tea chemical quality parameters is also discussed. It is concluded that all the studied clones/varieties have above the minimum 14% of total polyphenols. Clones K-purple and TRFK 91/1 showed high green tea quality indices with the latter doubling with high levels of theanine; hence its highly recommended for green tea manufacture.