ABSTRACT

DETERMINATION OF SIMULTANEOUS COMPOUNDS OF EGCG AND CAFFEIN IN IMPORTED GREEN TEA PRODUCTS THAT SPREAD IN SURABAYA USING TLC-DENSITOMETRY METHODS

Green tea has several chemical compounds including EGCG, caffeine and other compounds. The thin layer chromatography (TLC) method is an easy, inexpensive, and fast method for analyzing the content of EGCG and caffein in green tea. The EGCG and caffein compounds in the sample were extracted using the infusion method with 40 ml of water at 80 ℃ for 40 minutes and followed by extraction using ethyl acetate. The selected mobile phase is chloroform: ethyl acetate: n-butanol: formic acid (2: 1: 0.3: 0.7). The selected wavelength is 275 nm. This TLC method produces correlation coefficients and Vxo of EGCG and caffein were : 0.9974 and 3.85%, 0.9995 and 0.02%, respectively; percent recovery was 92.19 ± 6.39% for EGCG and 97.86 ± 3.43% for caffeine; The coefficient of variation (KV) is 6.93% for EGCG and 3.51% for caffeine. This method showed detection and quantitation limits of 7.95 ppm and 26.51 ppm for EGCG; 5.59 ppm and 18.62 ppm for caffeine. The results of the assay obtained were levels of EGCG and caffeine in green tea products in w/w. Sample A contained EGCG 2.05 ± 0.03% and caffeine 0.58 ± 0.01%; sample B EGCG 1.21 ± 0.02% and caffeine 0.42 ± 0.02%; sample C EGCG 0.98 ± 0.01% and caffeine 0.27 ± 0.01%; sample D EGCG 1.53 ± 0.02% and caffeine 0.71 ± 0.01%; sample E EGCG 1.80 ± 0.02% and caffeine 0.62 ± 0.03.

Keyword: Green tea, EGCG, caffeine, TLC-densitometry.