

**ABSTRACT****DETERMINATION OF EPIGALLOCATECHIN GALLATE (EGCG)  
AND CAFFEINE IN THE LOCAL BLACK TEA PRODUCTS BY  
TLC-DENSITOMETRY****Indy Bustanul Haq**

Black tea contains EGCG and caffeine which have pharmacological effect. The concentration of EGCG and caffeine is not informed in the label of black tea products. This study aims to determine the concentration of EGCG and caffeine simultaneously in local black tea products using thin layer chromatography (TLC)-densitometry. Sample preparation was carried out by extraction of the powder of black tea product using 40 ml water at 80°C for 40 minutes with stirring and followed by extraction using ethyl acetate. The selected mobile phase was a mixture of chloroform: ethyl acetate: n-butanol: formic acid of (2:1:0.3:0.7) and the stationary phase was silica gel GF<sub>254</sub>. The resolution ( $R_s$ ) among EGCG and caffeine with their nearest spots were 1.00 and 0.67. The selected wavelength for scanning analyt spots was 275 nm. The EGCG area was linear ( $r = 0.9991$ ;  $V_{xo} = 3.02\%$ ) in the concentration range of 80-800 ppm. While caffeine was linear ( $r = 0.9998$ ;  $V_{xo} = 0.89\%$ ) in the concentration range of 200-2000 ppm. The limit of detection and limit quantitation of EGCG and caffeine were 7.96 ppm, 26.52 ppm and 5.59 ppm, 18.62 ppm, respectively. The accuracy of EGCG and caffeine using bakud addition method were  $99.44 \pm 7.83\%$  and  $96.59 \pm 5.22\%$ , respectively. The values of validation parameter indicated that TLC-densitometry method can be used for determination of EGCG and caffeine simultaneously. The concentration of EGCG and caffeine in sample coded V, W, X, Y, Z were  $0.17 \pm 0.00\%$ ;  $0.12 \pm 0.00\%$ ;  $0.15 \pm 0.00\%$ ;  $0.13 \pm 0.01\%$ ;  $0.10 \pm 0.01\%$  and  $0.35 \pm 0.03\%$ ;  $0.35 \pm 0.01\%$ ;  $0.54 \pm 0.05\%$ ;  $0.49 \pm 0.05\%$ ;  $0.56 \pm 0.01\%$  respectively. All samples were analyzed under conditions as received by consumers.

Key word : EGCG, caffeine, TLC-densitometry, Black tea product