

DETERMINATION OF CAFFEINE IN FOODS BY HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY

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Caffeine, a xanthine alkaloid acting as psychoactive stimulant and mild diuretic in human, is found in natural products such as coffee and cocoa beans, cola nuts, tea and many others. According to food labeling regulations of Korea Food Sanitation Act, total amount of caffeine should be labeled on liquid products containing more than 0.015% of caffeine. A method is described for quantitating caffeine in corresponding real samples such as chocolates, candies, breads and energy drinks by high-performance liquid chromatography (HPLC). The method was validated for caffeine in several types of foods. Liquid samples were appropriately diluted with warm water and solid samples were extracted from centrifugation following the extraction with hot water and Carrez solution. Caffeine was determined by HPLC with C₁₈ column (4.6x250mm, 5µm) and methanol:acetic acid:water (20:1:79) as mobile phase. The recovery, linearity, limit of detection, limit of quantification and measurement uncertainty were satisfactory. This proposed method seems to be a suitable method to assess the daily intake of caffeine.

Keywords: Caffeine, high-performance liquid chromatography, validation

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