A COMPARATIVE STUDY OF THE ANALYTICAL METHODS FOR DETERMINATION OF PAHs IN SHELLFISH BY HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY WITH FLUORESCENCE DETECTION (HPLC/FLD)

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This study was performed to establish the rapid analytical method for fourteen polycyclic aromatic hydrocarbons (PAHs) in shellfish by high-performance liquid chromatography with fluorescence detection (HPLC/FLD). The sample preparation of Quick, Easy, Cheap, Effective, Rugged, Safe (QuEChERS) method and alkali digestion were used. The QuEChERS method involved a convenient and effective solid-liquid extraction and simple clean-up. The alkali digestion method conducted a liquid-liquid extraction after saponification with potassium hydroxide and then purification. The limits of detection (LODs) and limits of quantification (LOQs) of QuEChERS method were ranged from 0.05 to 1.60 ug/kg and those of alkali digestion method were ranged from 0.28 to 5.18 ug/kg. The repeatability for all target analytes was similar in the two methods, i.e. 0.66-4.24% and 0.26-5.75% for the QuEChERS method and alkali digestion method, respectively. The recovery of QuEChERS method on the level 2.5 – 50 ug/kg ranged from 91.13 to 115.67% and that of alkali digestion method ranged from 82.15 to 92.40%. A comparative two methods, LODs and LOQs range was broader in the alkali digestion method than the QuEChERS method and recovery levels in the QuEChERS method were higher than those in the alkali digestion method.