DETERMINATION OF PHENOL IN WATER SAMPLE USING HIGH PERFORMANCE LIQUID CHROMATOGRAPHY

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TABLE OF CONTENTS

ABSTRACT

DETERMINATION OF PHENOL IN WATER SAMPLE USING HIGH PERFORMANCE LIQUID CHROMATOGRAPHY

Phenol as in water is harmful to living organism yet have a toxicity effect for a long-term exposure. In this research, the analysis was achieved on a C_{18} column coupled with UV-vis detector (HPLC-UV) for determination of phenol in environmental water while by using solid phase extraction (SPE) as sample preparation technique. The optimized variable involved in SPE and HPLC were as follow: 3 mL was used for load sample volume in SPE, 45 ± 3 drops min^{-1} was used for sample drop-rate in SPE and 0.35 mL min^{-1} as flow-rate on eluent in HPLC. The analytical method was validated based on the following parameter: precision, linear range, limit of detection (LOD), limit of quantitation (LOQ) and bias/recovery. A good linear correlation coefficient with R^2 = 0.9996 was observed over the range of 0.55 - 30.0 μg mL^{-1}. Both repeatability and reproducibility (RSD, %) were 0.215 and 1.490, respectively. The limit of detection was calculated to be 0.212 μg mL^{-1}, while the limit of quantitation value of the validated method was measured to be 0.642 μg mL^{-1}. Good recoveries were between 81 - 120%. The proposed method was found to be suitable and precise for the determination of phenol in environmental water by using HPLC.