

**DETERMINATION OF PHENOL IN WATER SAMPLE USING HIGH
PERFORMANCE LIQUID CHROMATOGRAPHY**

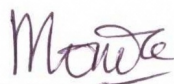
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**Final Year Project Report Submitted in
Partial Fulfilment of the Requirements for the
Degree of Bachelor of Sciences (Hons.) Chemistry
In the Faculty of Applied Sciences
Universiti Teknologi MARA**

JANUARY 2017

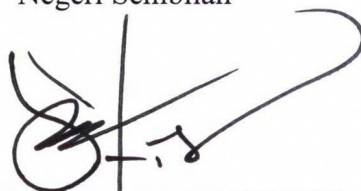


This Final Year Project Report entitled “**Determination of Phenol in Water Sample Using High Performance Liquid Chromatography**” was submitted by Nazurah bt Haron, in partial fulfilment of the requirements for the Degree of Bachelor of Science (Hons.) Chemistry, in the Faculty of Applied Sciences, and was approved by



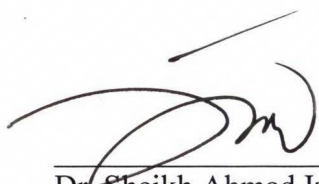
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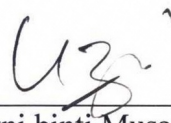


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ABSTRACT

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 C₁₈ 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.