

Abstract

Key words : Derivatization
 Analysis parameter
 2-Isopropyl-N-methylcarbamate
 High Performance Liquid Chromatography

The objective of this research is to determine the effects of derivatization on quantitative analysis parameters, those are: linearity, limit of detection, limit of quantitation, accuracy, and precision of 2-isopropyl phenyl-N-methylcarbamate (MIPC) pesticide using High Performance Liquid Chromatography (HPLC) method. MIPC pesticide is classified as carbamate pesticide, widely used by farmers, and suspected to pollute water.

In this research, MIPC pesticide is determine using HPLC methods and is pre-column derivatized using dansyl chloride and benzoyl chloride to get the best analysis parameters.

MIPC pesticide being eluted using methanol-water mobile phase 65:35 v/v; then being detected using UV-Vis detector at 261 nm wave length.

MIPC derivate ('Benzoyl-MIPC') is eluted using methanol-water mobile phase 50:50 v/v; then detected using UV-Vis detector at 273 nm. MIPC derivate ('Dansyl-MIPC') is eluted using methanol-water mobile phase 60:40 v/v; then detected using fluorescence detector at 363 nm excitation and 524 nm emission wave lengths.

The quantitative analysis of this research are at follow, MIPC: LOD $2,93 \times 10^{-3}$ ppm, LOQ $9,78 \cdot 10^{-3}$ ppm; $r=0,99167$; Accuracy (recovery 73,37%) and Precision (RSD 14,87%). Dansyl-MIPC LOD $1,28 \times 10^{-3}$ ppm, LOQ $4,27 \times 10^{-3}$ ppm; $r=0,99952$; Accuracy (recovery 89,81%) and Precision (RSD 3,19%). Benzoyl-MIPC LOD $0,134 \times 10^{-3}$ ppm, LOQ $0,447 \times 10^{-3}$ ppm; $r=0,99997$; Accuracy (recovery 86,74%) and Precision (RSD 18,6%).

MIPC derivatization using dansyl-chloride increase linearity, accuracy and presicion, decrease LOD and LOQ. MIPC derivatization using benzoyl chloride increase linearity, decrease LOD, LOQ, does not change accuracy and presicion.