DETERMINATION OF PESTICIDE RESIDUES IN WATER SAMPLES BY LIQUID CHROMATOGRAPHY –ELETROSPRAY IONIZATION-MASS SPECTROMETRY

Authors: Thais Ferraz 1, Paula Silva 1, Leonardo Cavalcanti 2 Institution: 1 CPATSA - EMBRAPA SEMIÁRIDO (Rodovia BR-428, Km 152, Zona Rural - Caixa Postal 23 CEP: 56302-970 - Petrolina,), 2 UNIVASF - UNIVERSIDADE DO VALE DO SAO FRANCISCO (Av. José de Sá Maniçoba, s/n - Centro, Petrolina - PE, 56304-917)

Abstract:
The use of pesticides in agricultural areas is one of the main causes of contamination of water resources. Extensive aplication of these compounds leads to a accumulation in soil and water, due to factors such as leaching, surface runoff and deriva of pesticides1. The presence of pesticides in these compartment may cause adverses effects to the enviroment and also to human health. Therfore, the aim of this work was to develop and validate an analytical method for determination of pesticide residues in water samples by LC-(ESI)MS. Solid phase extraction (SPE) using C18 disks were employed for sample preparation and pre-concentration. After extraction, the extracts were filtered and analysed in the LC-(ESI)MS, model Acquity H UPLC Class SQD from Waters. The separation was performed using a UPLC® BEH C18 column (1,7 µm x 2,1 x 100 mm). Six most commonly used agricultural pesticides were evaluated: pendimentalin, chlorpyriphos, difenoconazole, quizalofop-ethyl, fenarimol and tecuconazole. All studied compounds presented good linearity between 2 and 100 ug L-1 with r2>=0.99 and the limits of quantitation (LOQ) ranged from 0.1 to 0.2 ug L-1. Spiked water samples (10 and 100 ug L-1) showed recovery results ranging from 80 to 110% and RSD

Keywords: pesticides, LC/MS, water
Financial support agency: FACEPE

References Bibliography:

[1] KUSTER, M.; ALDA, M. L.; BARCELÓ, D. Journal of Chromatography A, 2011, 1216(3): 520–529.