



University of zabol
Graduate school
Faculty of science
Department of chemistry

**The Thesis submitted for the Degree of M. Sc
(in the field of analytical chemistry)**

Title:

**Application Of Liquid Phase Microextraction Based On Switchable
Hydrophilicity Solvents In The Measurement Of Some Agricultural Pesticides
By Gas Chromatography-Mass Spectrometry**

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Abstract

In this work, A switchable hydrophilicity solvent-based Temperature-assisted homogeneous liquid-liquid microextraction method followed by gas chromatography-mass spectrometry has been reported for the extraction and preconcentration of metribuzin from water samples. In this work, the effect of temperature in the switching of extracting solvent has been studied and the application of cooling/heating processes instead of addition of chemicals in the switchable solvent based microextraction. The main parameters that can influence on the extraction efficiency was including solvent type, solvent volume, temperature of dissolution, temperature of separation, and salt addition are optimized. Linear dynamic domain in the range 1.0-200, low limits of detection and quantification in the ranges of 0.3 and 1.0, relative standard deviations 6.9 and extraction recoveries and enrichment factors in the ranges of 79.20 and 67.89, were obtained, respectively, under optimal conditions. Lastly, some water samples were analyzed, and metribuzin was found in samples. The results demonstrated that the Temperature-assisted homogeneous liquid-liquid microextraction approach is highly cost-effective, rapid, simple and environmentally-friendly with satisfactory analytical performance.

Keywords: cooling, heating, Switchable hydrophilicity solvent, Metribuzin, gas chromatography-mass spectrometry