

Supplementary data

Development of an elevated temperature–dispersive liquid–liquid microextraction method combined with gas chromatography–flame ionization detection as a sensitive method for determining phthalate esters

Mir Ali Farajzadeh^{*,a}, Samaneh Rezaee Aghdam^a, Mohammad Reza Afshar Mogaddam^a, Houshang Ghorbanpour^b

^aDepartment of Analytical Chemistry, Faculty of Chemistry, University of Tabriz, Tabriz, Iran

^bFood and Drug Laboratories, Tabriz University of Medical Sciences, Tabriz, Iran

Running Head: ET-DLLME for PEs determination

Corresponding author:

E–mail address:mafarajzadeh@yahoo.com;mafarajzadeh@tabrizu.ac.ir

Fax: +98 41 33340191

Phone number: +98 41 33393084

Results and discussion

Selection of disperser solvent

In this study, disperser solvent should be a relatively high boiling point solvent. Therefore, DMF, DMSO, and *n*-propanol were tested as disperser solvents and the effect of these solvents on performance of the developed method was investigated. According to the results (Fig. S1), DMSO was selected as a suitable disperser because of forming a cloudy state with very fine droplets and having the high ERs for most analytes.

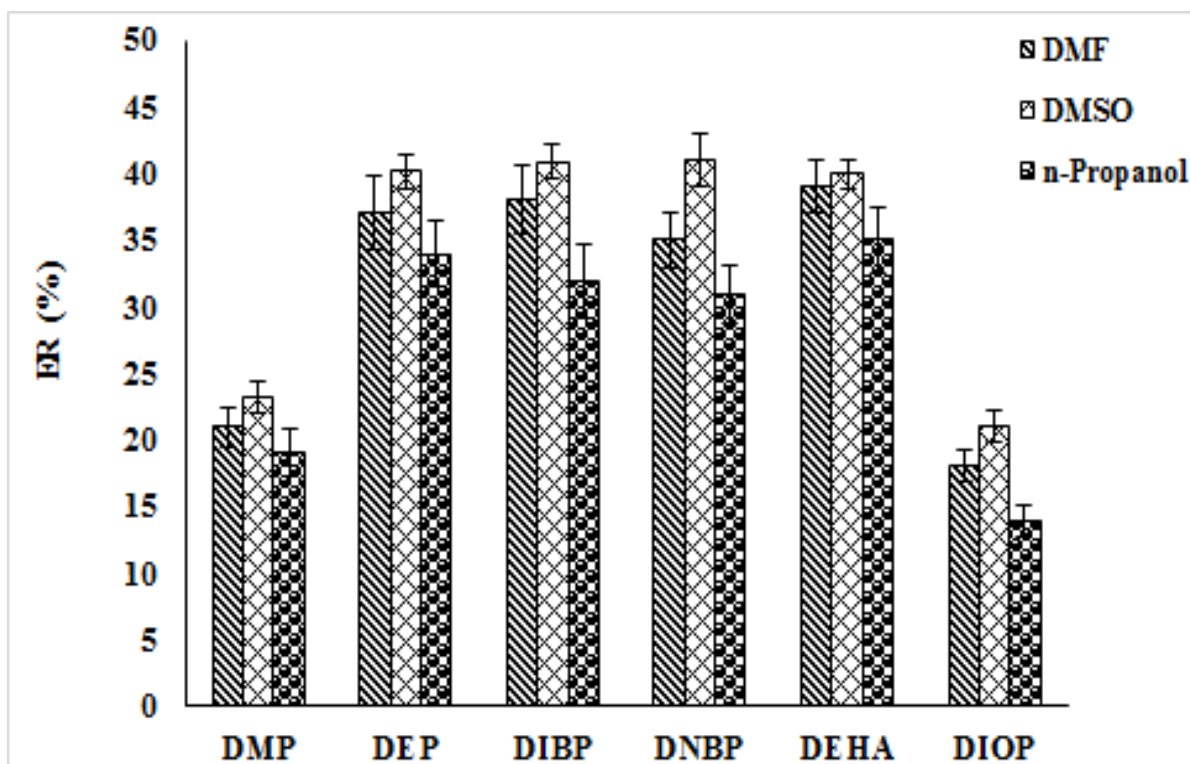


Fig. S1. Effect of chemical identity of the disperser solvent on the ET-DLLME performance.

Extraction conditions: aqueous sample, 50 mL de-ionized water spiked with 25 ng mL⁻¹ of each PE; extraction solvent, 1,2-DBE (110 μ L for DMF, 117 μ L for DMSO, and 125 μ L for *n*-propanol); disperser solvent volume, 2 mL; temperature, 75 $^{\circ}$ C, heating time, 5 min; centrifuge rate, 4000 rpm; and centrifuge time, 4 min. The error bars indicate the minimum and maximum of three independent determinations.

Selection of extraction solvent volume

In order to investigate effect of extraction solvent volume on the extraction efficiency, different volumes of 1,2-DBE (117 to 170 μL) and a constant volume of DMSO (2 mL) were tested. According to the results (Fig. S2), 130 μL of 1,2-DBE was selected to obtain 20 μL for the sedimented phase volume, and having higher ERs.

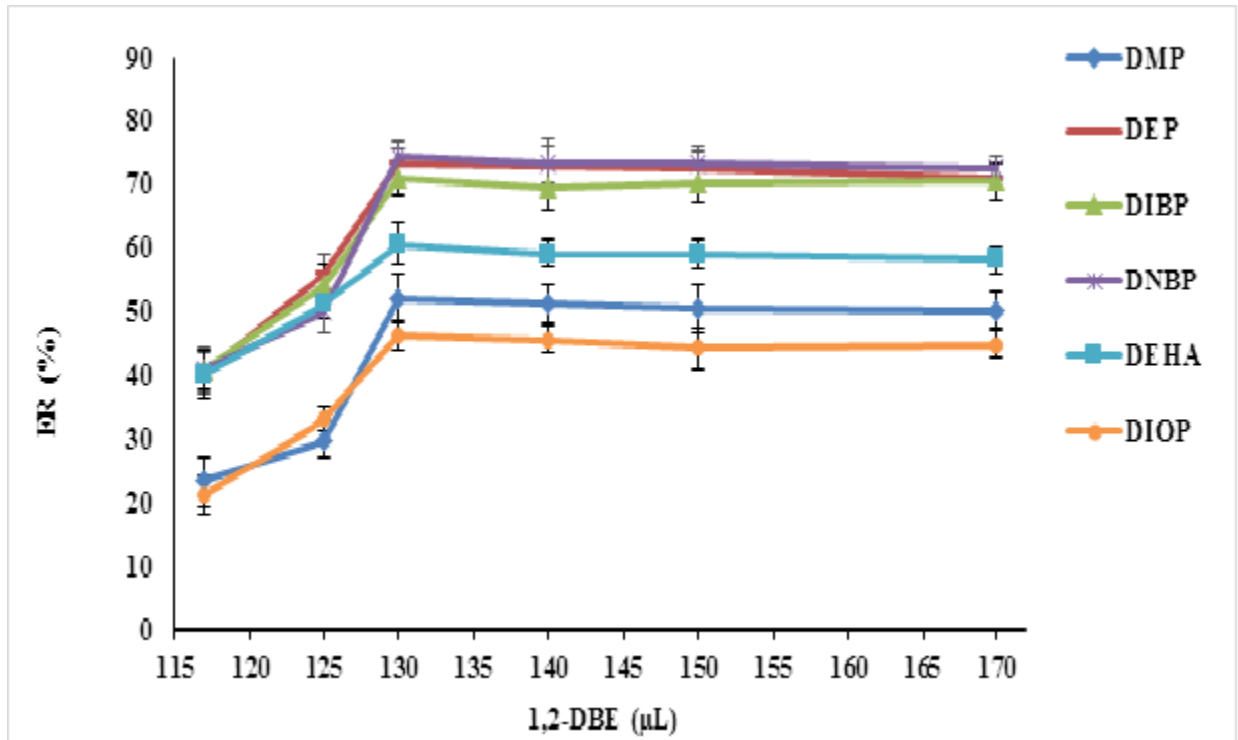


Fig. S2. Effect of extraction solvent (1,2-DBE) volume on ERs of the selected PEs.

Extraction conditions: the same as in Fig. S1 except DMSO (2 mL) was used as a disperser. The error bars indicate the minimum and maximum of three determinations.