Investigation of Organophosphorus (OPs) Compounds by Needle Trap Device Based on the Mesoporous Organo-Layered Double Hydroxide (Organo-LDH)

Razzagh Rahimpoor[1], Danial soleymani-ghoozhdi[2], Saber Alizadeh[3], Ali Firoozichahak[*4], Faeze Mehregan[5], Razieh Firoozi[6]

[1]*Department of Occupational Health Engineering, Research Center for Health Sciences, School of Health, Larestan University of Medical Sciences, Larestan, Iran*

[2] *Student Research Committee, Faculty of Public Health, Kerman University of Medical Sciences, Kerman, Iran*

[3]*Department of Chemistry, Bu-Ali-Sina University, Hamedan, Iran.*

[4] *Department of Occupational Health, Faculty of Health, Social Determinants of Health Research Center, Gonabad University of Medical Science, Gonabad, Iran*

[5] *Medical student, school of medicine, Shahrekord University of Medical Sciences, Shahrekord, Iran.*

[6]*Computer Engineering, Islamic Azad University, Birjand branch. Birjand, Iran.*

*Corresponding author:

Ali firoozichahak, Faculty Member, Department of Occupational Health, Faculty of Health, Gonabad University of Medical Sciences, Gonabad, Iran.

Email: a.firoozi@edu.umsha.ac.ir

Table S1. Response Surface Quadratic desorption model of Organophosphate pesticides by Mg-LDH: NTD

| Parameters/analytes	Diazinon	Ethion	Fenitrothion	Malathion	Parathion
Optimal Temperature (∘C)	244.922	253.199	254.014	251.136	251.944
Optimal Time (min)	5.408	5.132	4.973	5.374	5.261
R-Squared	0.9188	0.9676	0.9615	0.9632	0.9657
Adj R-Squared	0.8609	0.9445	0.9340	0.9369	0.9412
SD	350.67	308.84	306.74	230.41	379.32
CV	12.58	9.08	9.14	10.15	9.13
PRESS	3.946E+06	3.008E+06	3.590E+06	1.959E+06	7.070E+06
Lack of Fit	0.5400	0.3469	0.3338	0.2291	0.1437
p-value	0.0011	< 0.0001	< 0.0001	< 0.0001	< 0.0001

Table S 2. Response Surface Quadratic sampling model of Organophosphate pesticides by Mg-LDH: NTD

Parameters/analytes	Diazinon	Ethion	Fenitrothion	Malathion	Parathion
Optimal Temperature (∘C)	20.000	20.580	20.000	20.152	20.185
Optimal Humidity (%)	25.000	25.291	25.000	25.852	25.812
R-Squared	0.9839	0.9746	0.9594	0.9617	0.9612
Adj R-Squared	0.9724	0.9565	0.9305	0.9343	0.9335
SD	220.07	274.97	283.58	241.19	242.69
CV	7.10	9.22	11.73	9.71	9.76
PRESS	1.740E+06	1.534E+06	2.499E+06	2.018E+06	2.054E+06
Lack of Fit	0.3180	0.8249	0.3307	0.3535	0.3459
p-value	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001

Table S 3: Comparison of desorption parameters organo-LDH: NTD with other techniques for determination of organophosphorus pesticides

Technique	Optimal desorption time (min)	Optimal desorption temperature (°C)	Ref
SPME- sol-gel/nanoclay	4	270	1
SPME- MIL-53(Al)/Fe2O3	2	280	2
MDSPME- rGOQDs@Fe	3.5	NR	3
SPME -CNTs-SiO2	5	260	4
HS-SPME	5	250	5
HS-SPME	5	260	6
HS-SPME	NR	NR	7
NTD	4.9-5.4	244-254	Current study
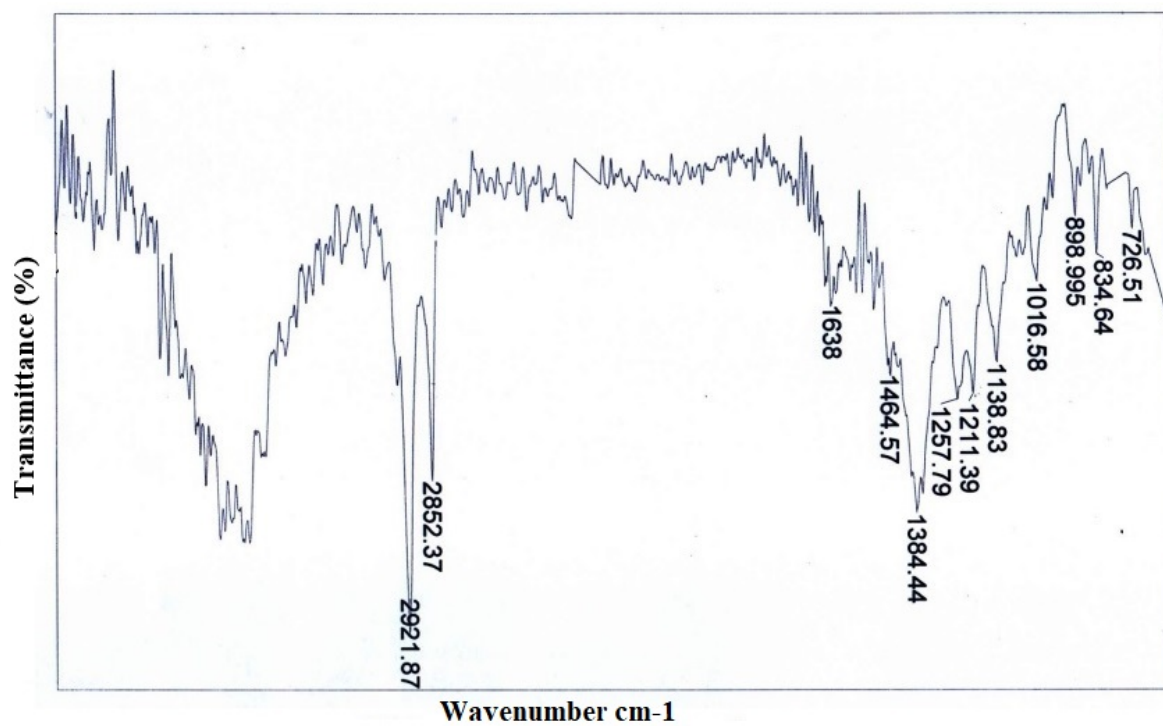
Fig. S 1: FT-IR spectroscopy of mesoporous organo-LDH
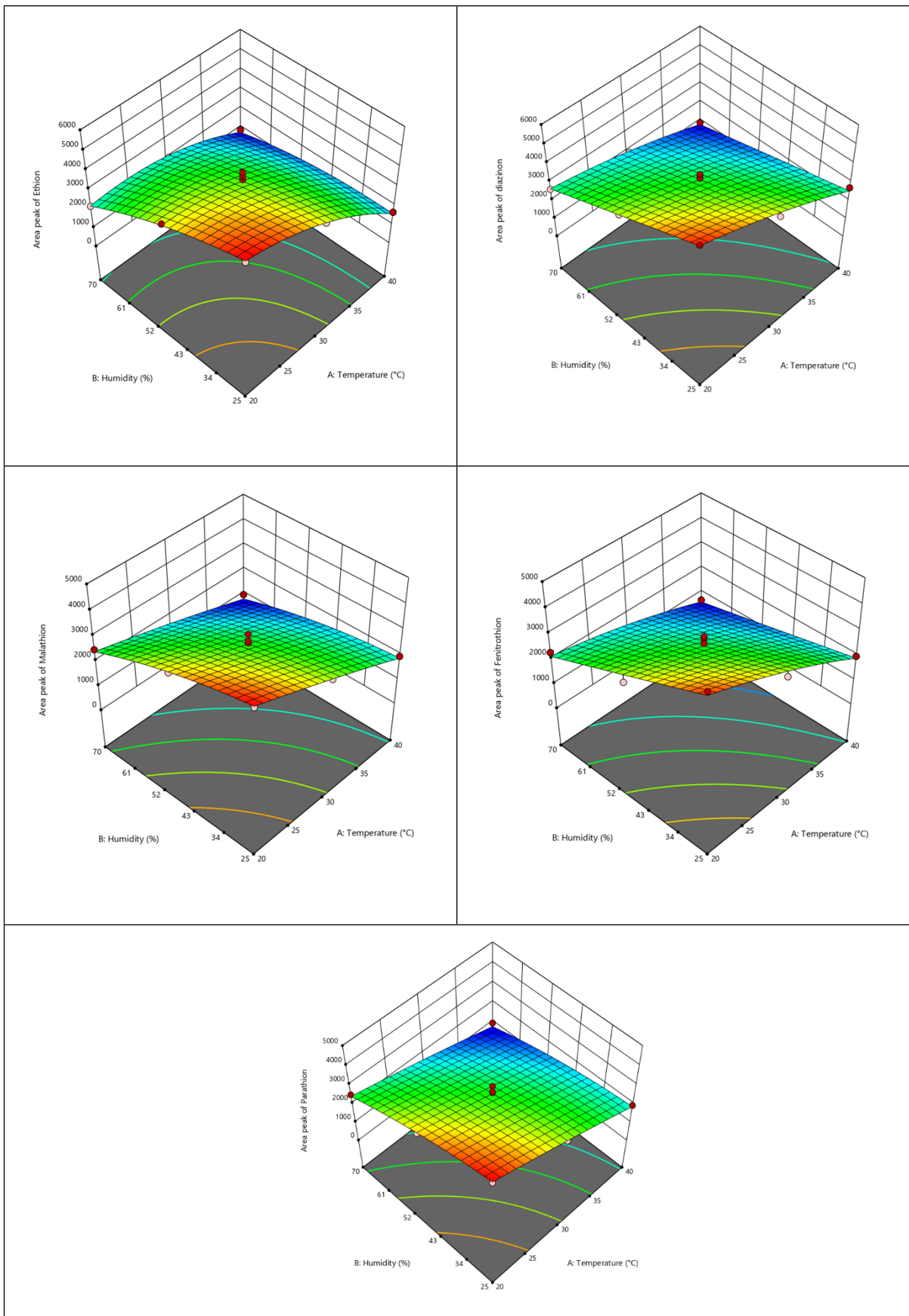
Fig. S 2: Optimization of sampling parameters of Organophosphate pesticides compounds sampled with NTD: Mg-LDH

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