Supporting information

Table S1: Binding energies between LEV and the five monomers in 1:1 ratio in kJ.mol^{-1}.

Complex	Chloroform		Acetone		Methanol		Acetonitrile		DMSO	
Lev-AAM	-34.06	-33.68	-28.73	-28.62	-28.07	-28.00	-27.98	-27.91	-27.73	-27.68
Lev-MAA	-38.68	-43.08	-34.49	-38.50	-33.40	-38.50	-33.94	-37.85	-33.76	-37.64
Lev-MMA	-16.93	NA	-14.11	NA	-16.10	NA	-14.98	NA	-14.90	NA
Lev-AN	-14.21	NA	-10.22	NA	-12.08	NA	-10.93	NA	-10.81	NA
Lev-DVB	-5.64	NA	-3.35	NA	-5.40	NA	-4.29	NA	-4.24	NA

Table S2: Binding energies between LEV and four monomers in 1:2 ratio, in kJ.mol$^{-1.}$

Complex	Chloroform	Methanol	Acetonitrile	DMSO	Acetone
Lev-AAM_2	-58.21	-47.69	-47.53	-47.12	-48.80
Lev-MAA_2	-66.55	-59.08	-56.70	-56.31	-56.79
Lev-MMA_2	-30.73	-27.14	-25.98	-25.81	-25.43
Lev-AN_2	-21.87	-18.68	-17.53	-17.41	-16.84

Table S3: Colorimetric and spectrophotometric methods validation for the determination of laboratory prepared standards of studied drugs (Levetiracetam (LEV), Quetiapine fumarate (QF) and clonazepam (CLO))

Item	**LEV**	**QF**	**CLO**
Wavelength of detection	775 nm	245 nm	250 nm
Range of linearity	3-30 µg.mL^{-1}	3 - 30 µg.mL^{-1}	3 – 30 µg.mL^{-1}
Regression equation	A=0.0367C +0.2066	A=0.0352C–0.0047	A=0.0492C+0.0114
Regression coefficient (r^2)	0.9997	0.9998	0.9999
LOD (µg.mL^{-1})	0.62	0.513	0.452
LOQ (µg.mL^{-1})	1.89	1.554	1.370
Accuracy **Mean ± SD**	99.8 ± 1.017	100.17 ± 0.629	99.37 ± 1.338
Precision			
Intraday %RSD **(n = 9)**	1.096	0.461	0.583
Interday %RSD **(n = 9)**	1.247	0.866	0.728

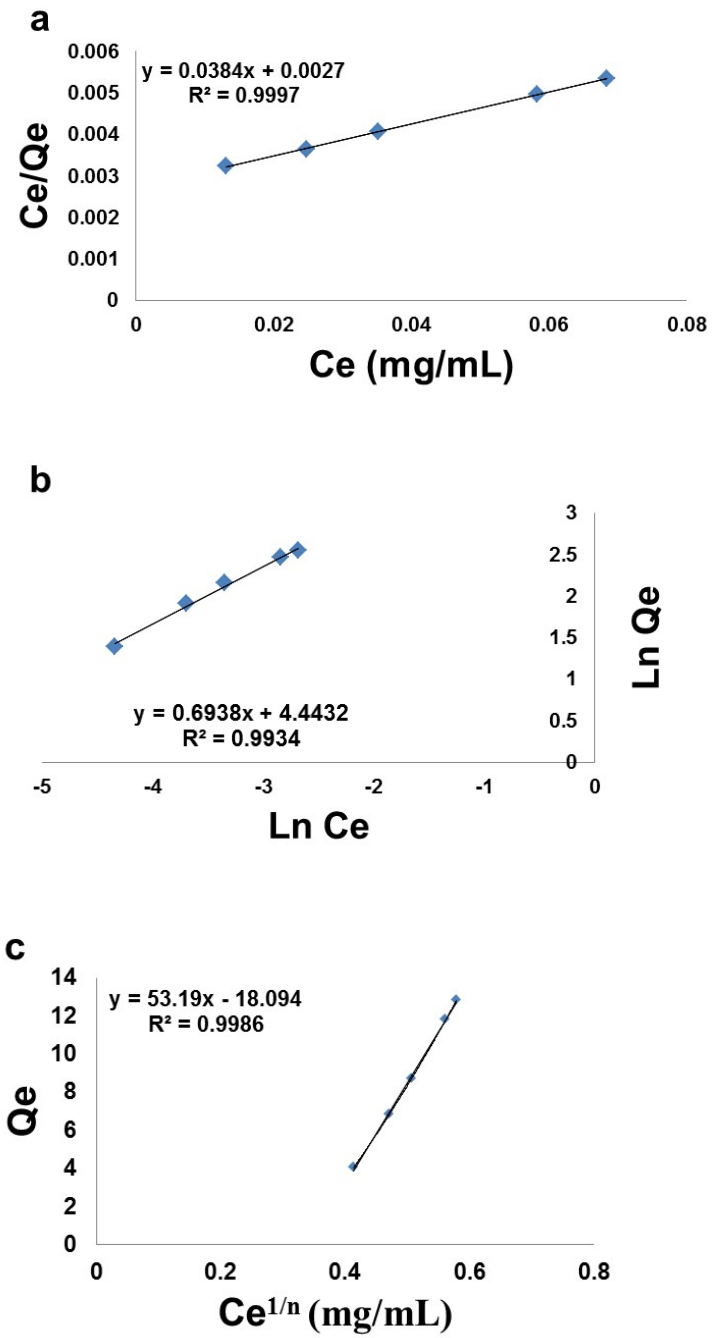


Figure S4: Fitting of isotherm data to for; [a] Langmuir model, [b] Freundlich model and [c] Sips model; for Fe_3O_4@MIP NPs. Adsorbent: 25 mg, Dyes 25-125 $mg.L^{-1}$, Temperature: 25◦C, pH: 7.0, Time: 30 min**.**

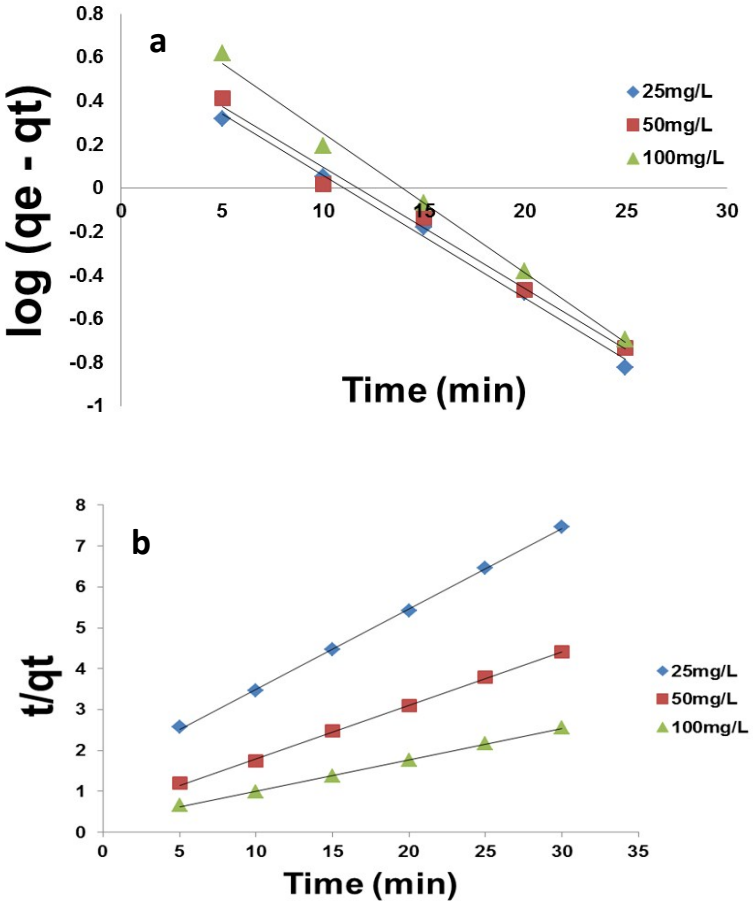
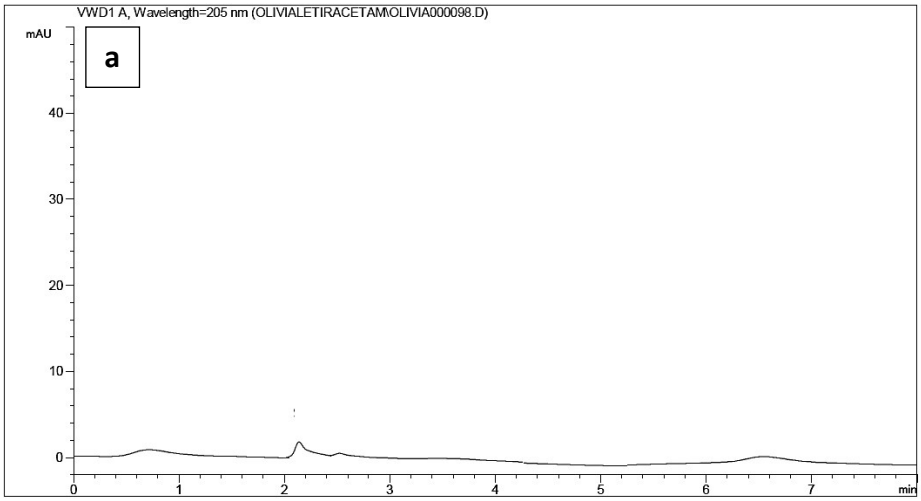
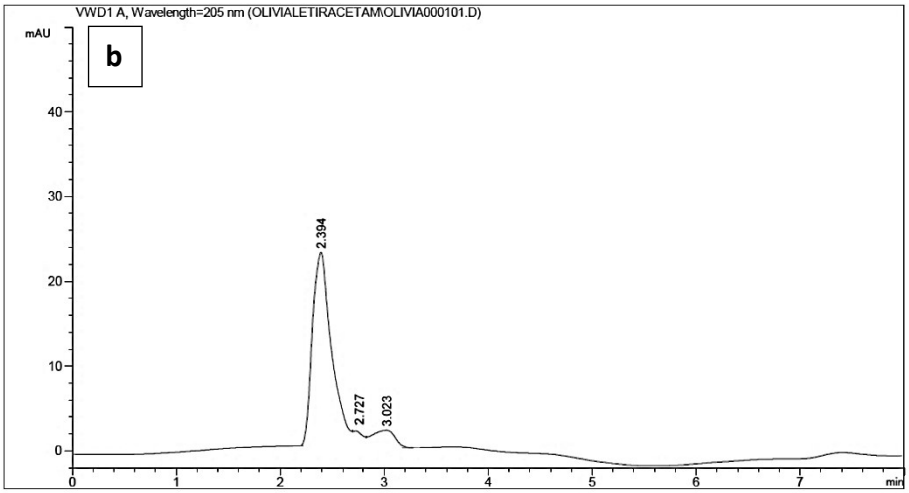
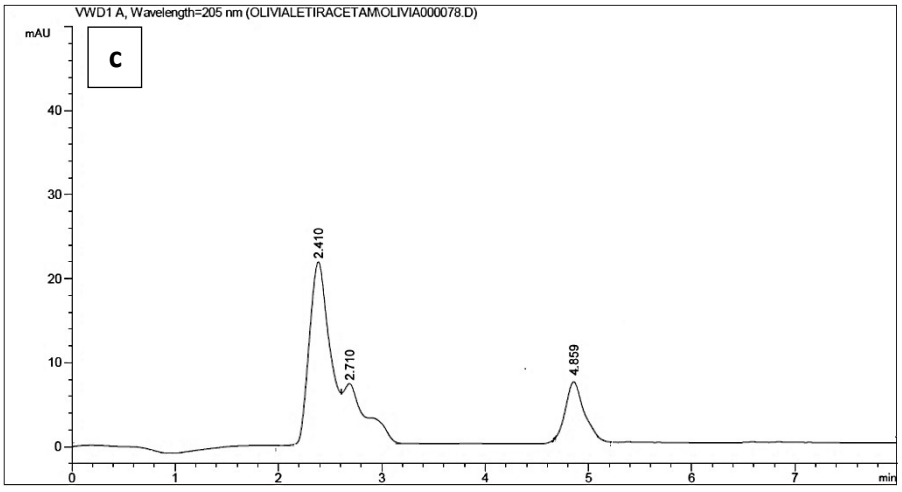


Figure S5: Fitting of kinetic data to [a] pseudo first order kinetic and [b] pseudo second order kinetic models for Fe_3O_4@MIP NPs. Adsorbent: 25 mg, Drug conc. 25-100mg.L^{-1}, Temperature: 25◦C, pH: 7.0, Time: 30 min


VWD1 A, Wavelength=205 nm (OLIVIALETIRACETAM\OLIVIA000098.D)
mAU
a
40
30
20
10
0
0
1
2
3
4
5
6
7
min


VWD1 A, Wavelength=205 nm (OLIVIALETIRACETAM\OLIVIA000101.D)
mAU
b
40
30
20
10
0
2.394
2.727
3.023
0
1
2
3
4
5
6
7
min


VWD1 A, Wavelength=205 nm (OLIVIALETIRACETAM\OLIVIA000078.D)
mAU
c
40
30
20
10
0
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0
1
2
3
4
5
6
7
min

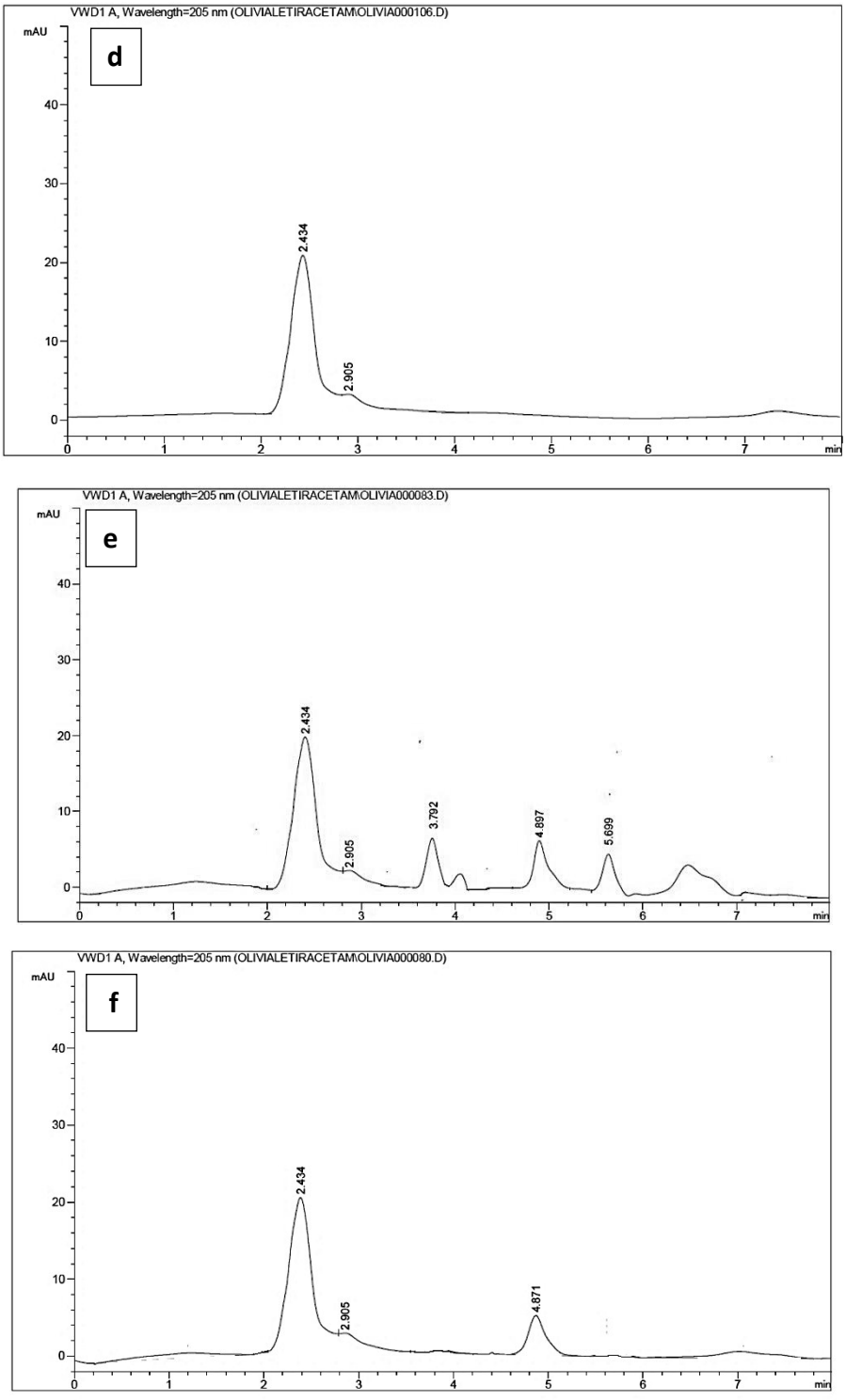

Figure S6: HPLC chromatograms of: (a) Mobile phase, (b) Pure methanol, (c) LEV (40µg.mL^{-1}) in methanol (d) blank plasma, (e) extracted LEV (40µg.mL^{-1}) in plasma by protein precipitation, and (f) extracted LEV (40µg.mL^{-1}) in plasma by Fe_3O_4@MIP NPs

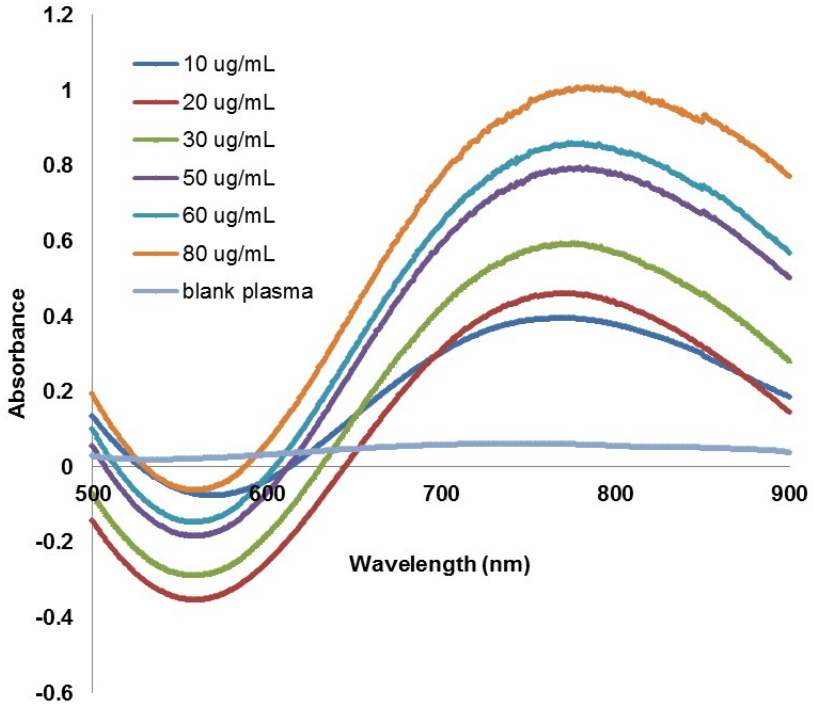

Figure S7: Absorption spectra of free plasma and spiked plasma with LEV at different concentrations [10-80 µg.mL^{-1}] after reaction with potassium ferricyanide