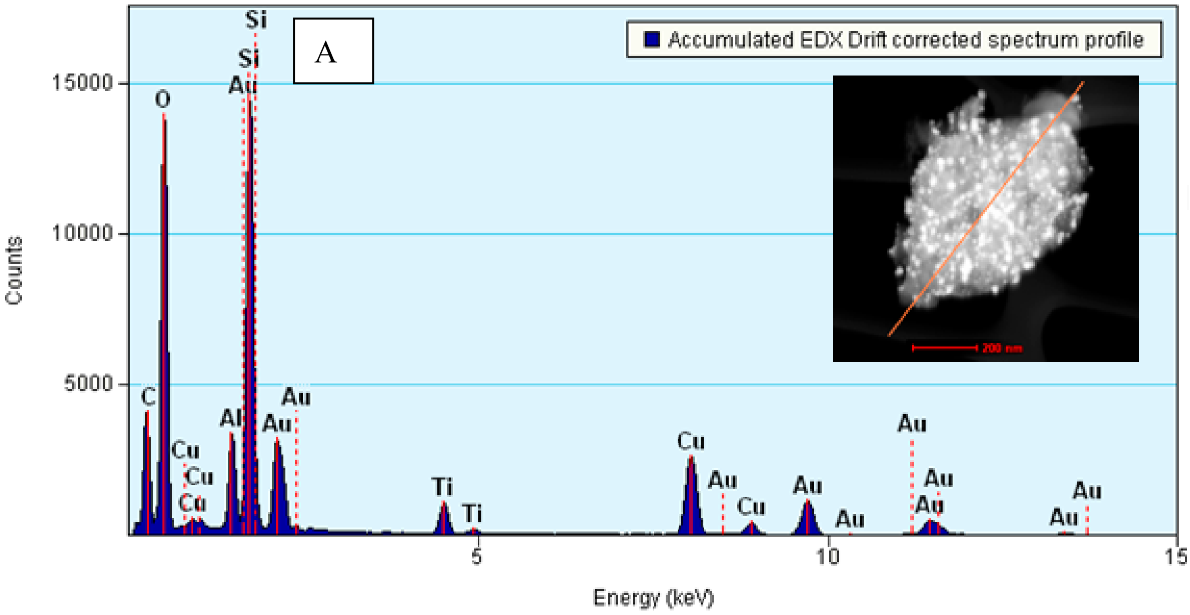
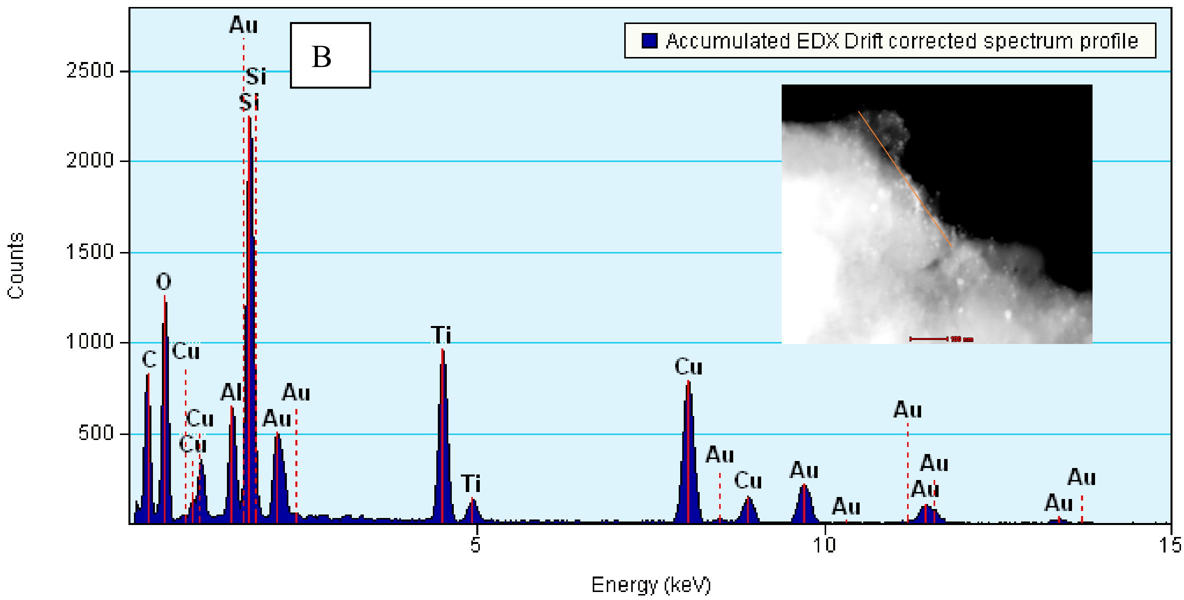
catalysts

MDPI

Supplementary data

Au/Ti Synergistically Modified Supports Based on SiO_2 with Different Pore Geometries and Architectures





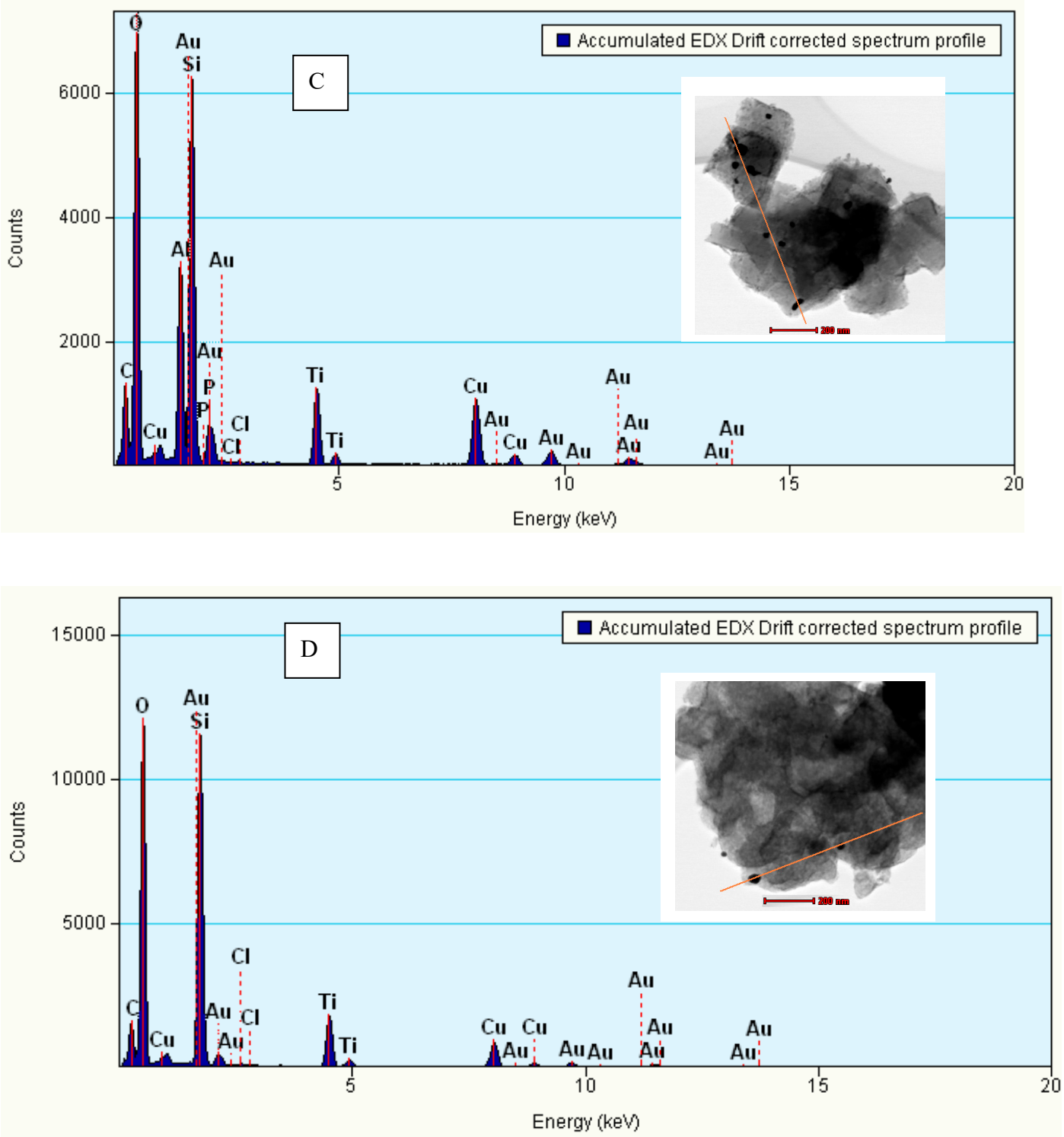
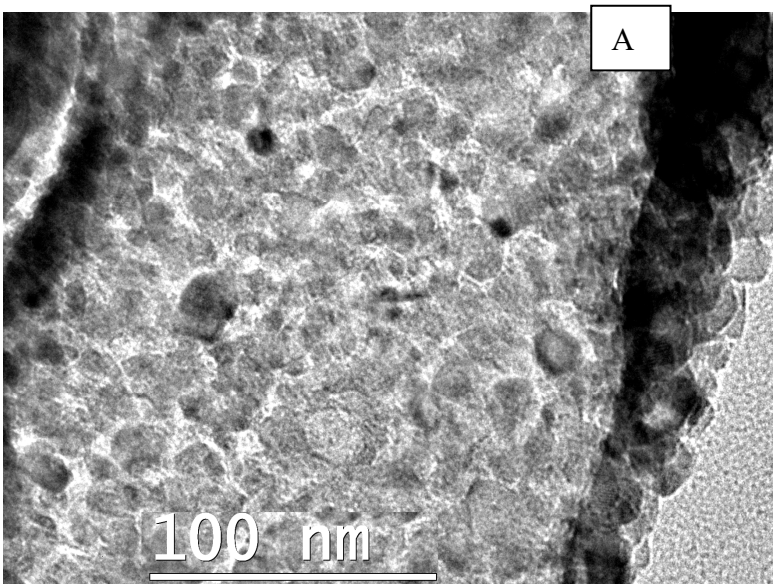
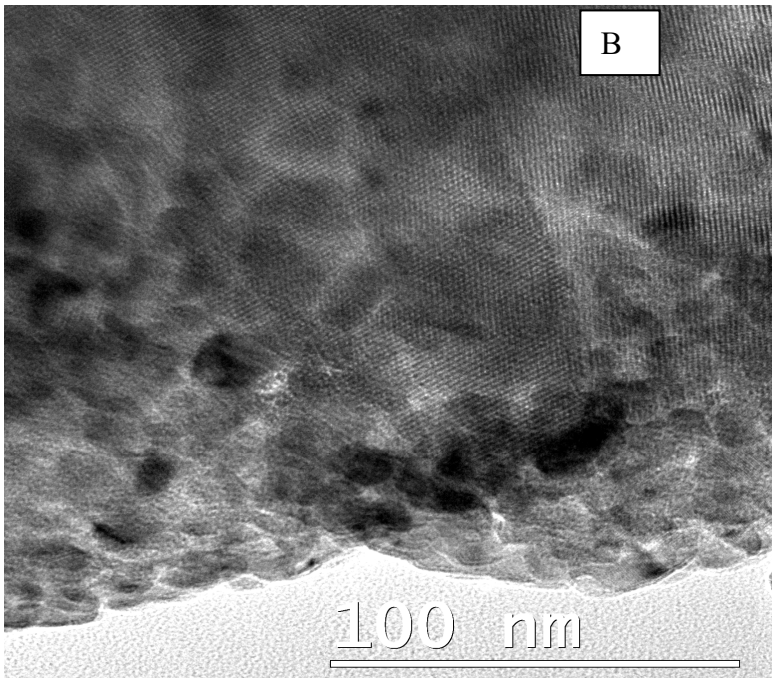


Figure S1. EDX results for KTA (A), hYTA (B), YTA (C) and MTA (D) samples and the TEM image of the evaluated area (Cu and C are components of TEM grid support for the powder of sample).


A
100 nm


B
100 nm

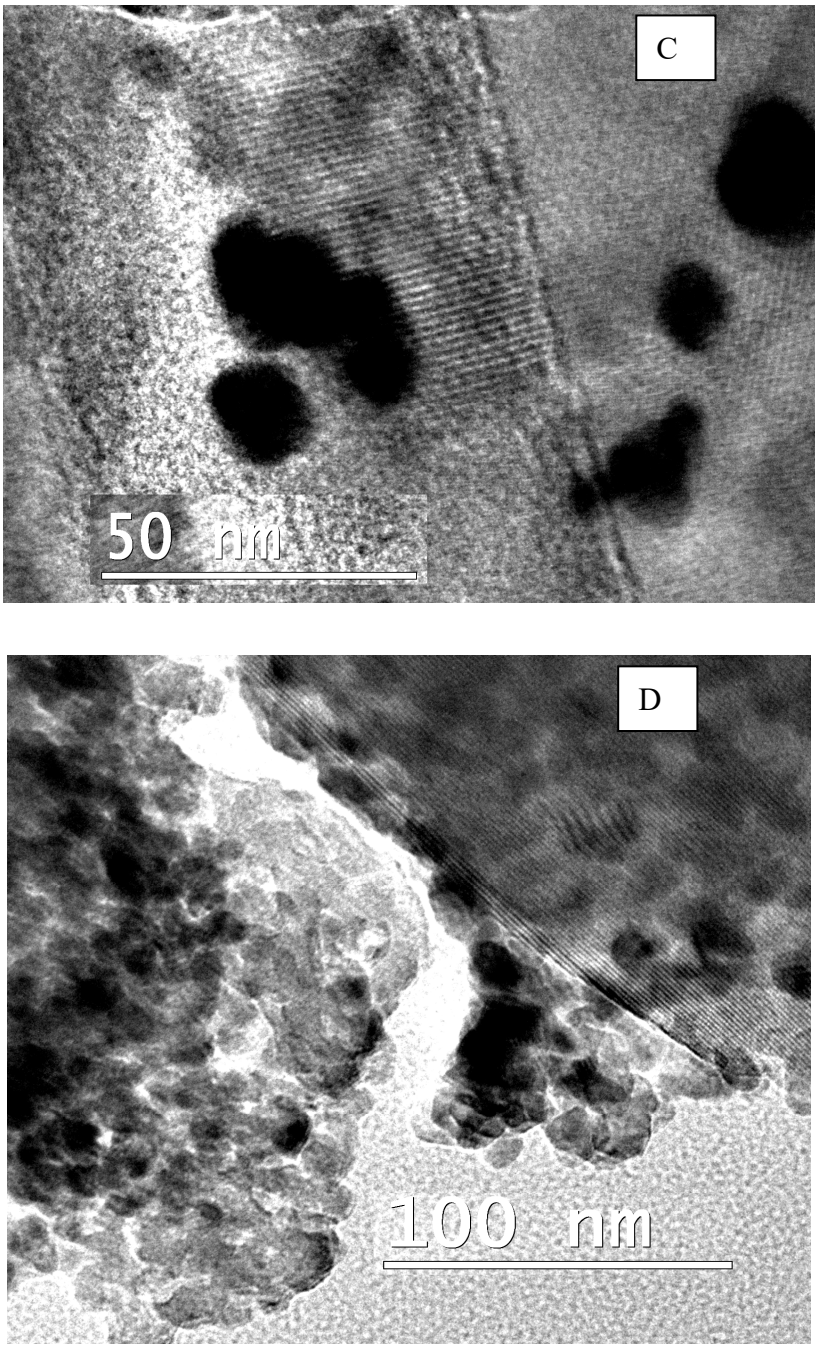


Figure S2. TEM images of samples MTA (A, B) and hYTA (C, D).

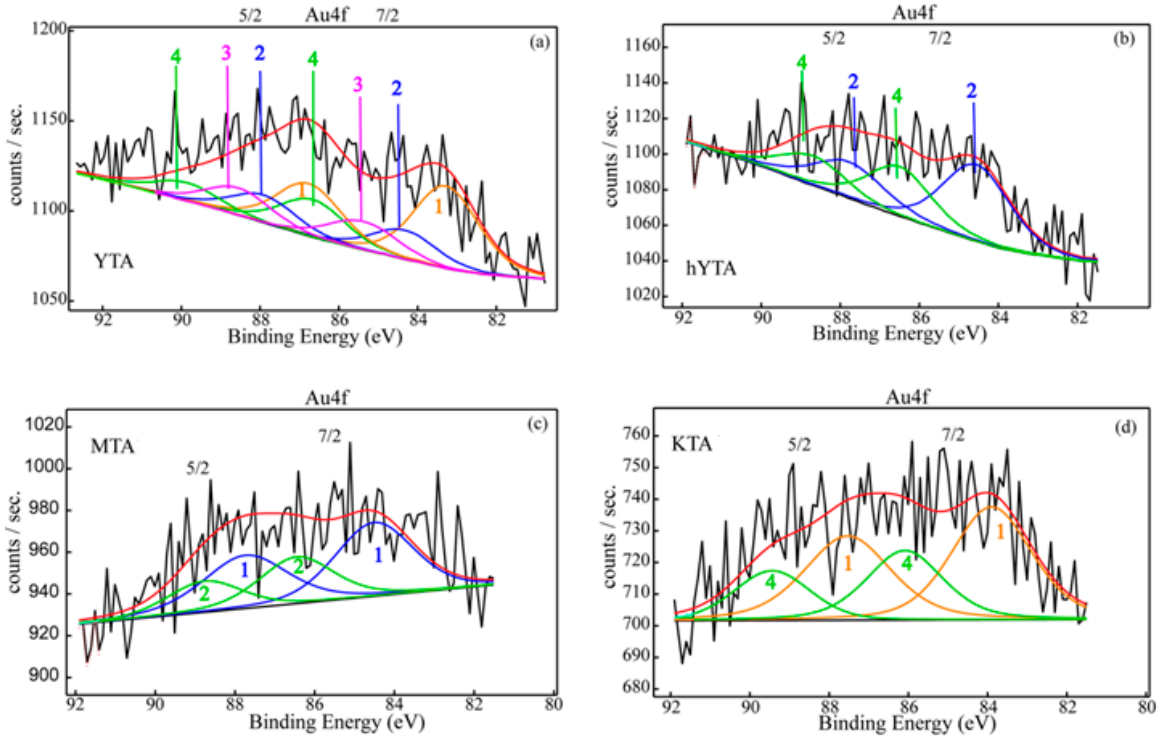


Figure S3. (**a–d**) Au 4f (7/2, 5/2) high resolution, deconvoluted XPS spectra for the synthesized samples.

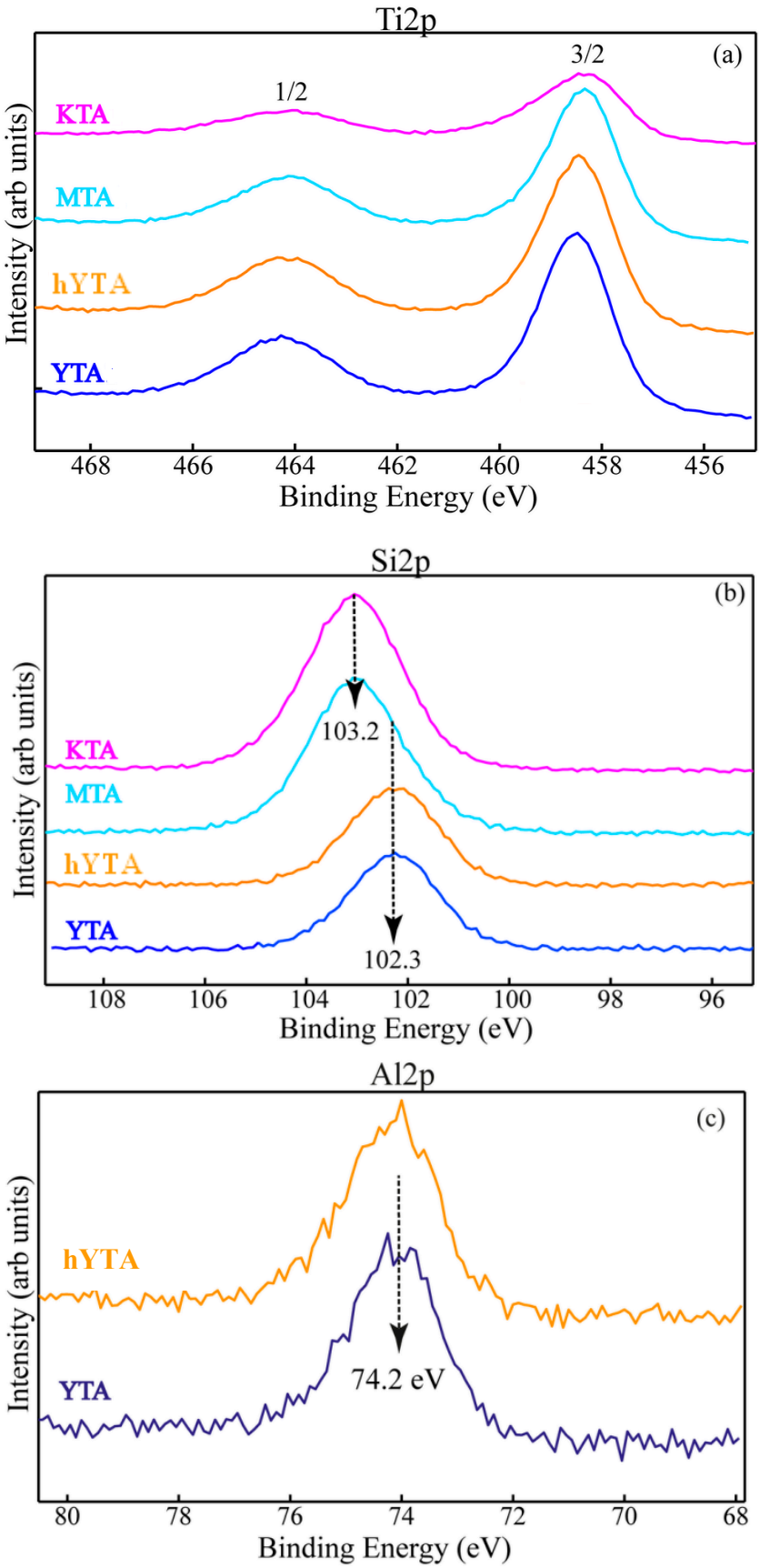


Figure S4. Ti2p (a), Si2p (b) and Al2p (c) high resolution XPS spectra.

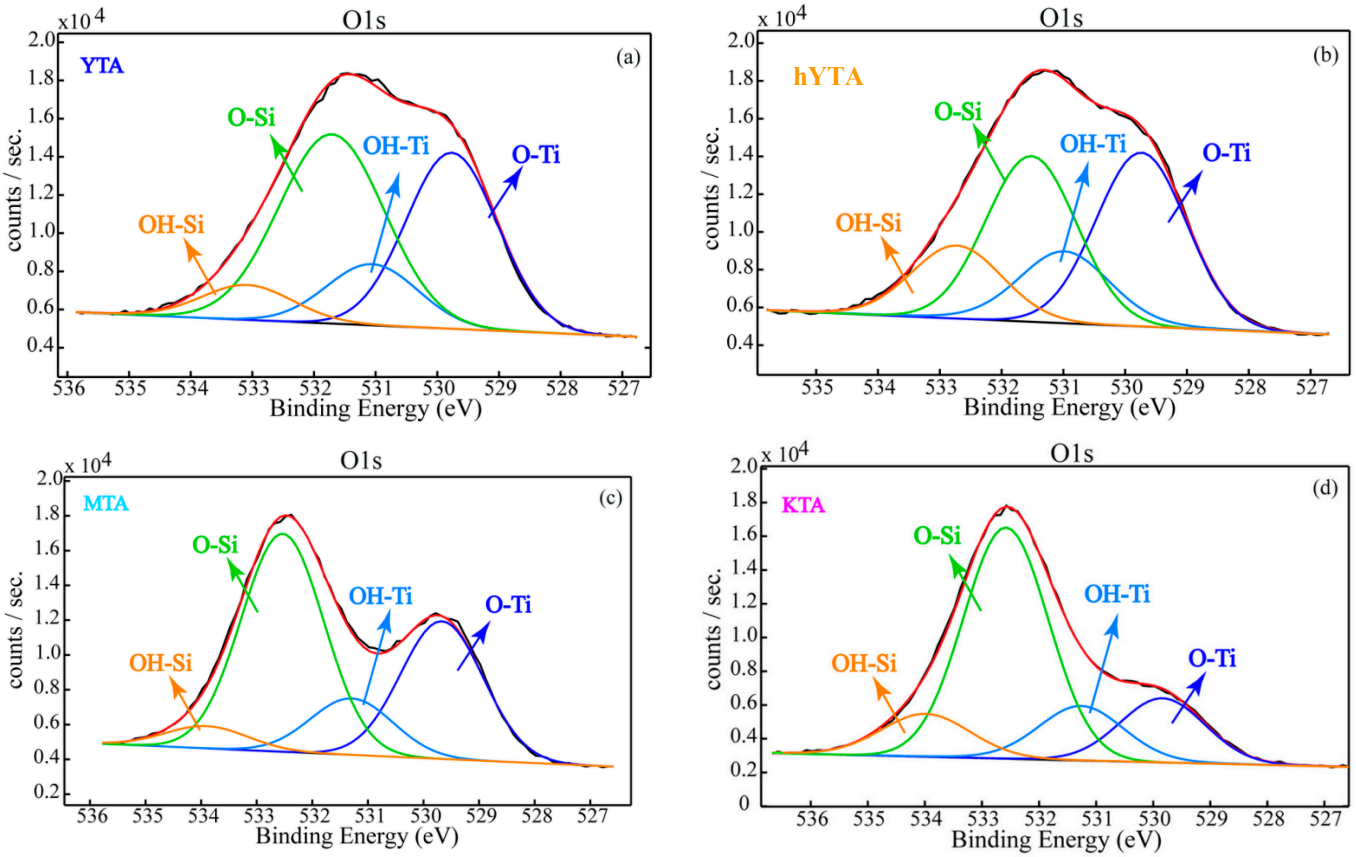
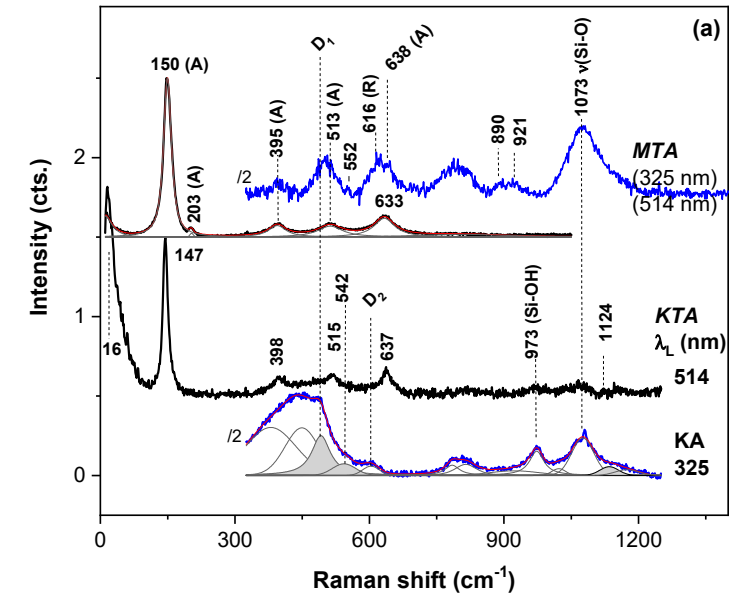
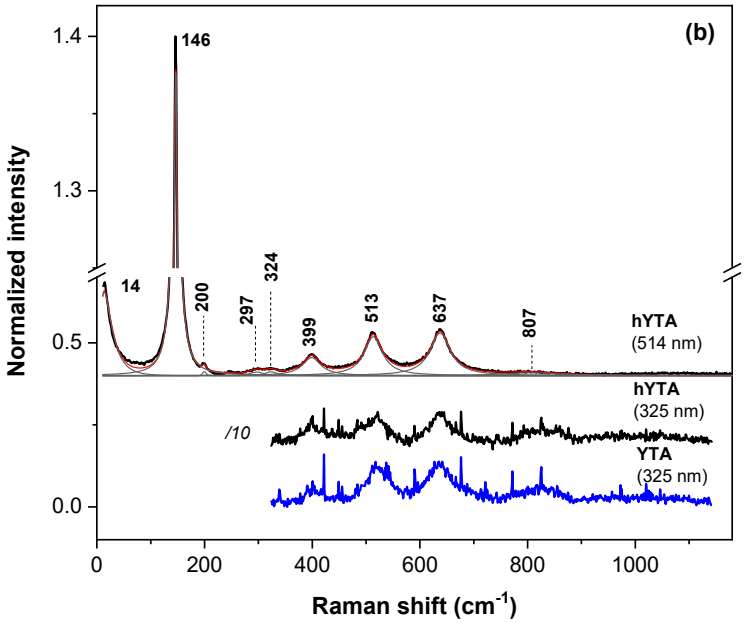


Figure S5. The deconvoluted O1s spectra for YTA (a), hYTA (b), MTA (c) and KTA (d)


(a)
150 (A)
203 (A)
395 (A)
513 (A)
552
616 (R)
638 (A)
633
890
921
1073 ν(Si-O)
MTA
(325 nm)
(514 nm)
/2
147
16
398
515
542
637
973 (Si-OH)
1124
KTA
λL (nm)
514
KA
325
Intensity (cts.)
Raman shift (cm-1)


(b)
146
14
200
297
324
399
513
637
807
hYTA
(514 nm)
hYTA
(325 nm)
/10
YTA
(325 nm)
Normalized intensity
Raman shift (cm-1)

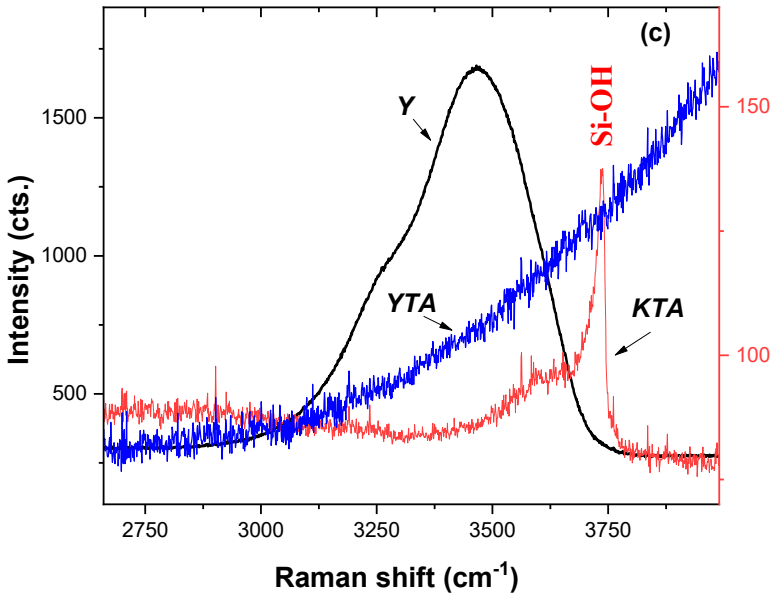


Figure S6. Raman spectra of the cubic mesoporous supported (M/K)TA photocatalysts (a), zeolite supported (hY/Y)TA photocatalysts (b) and Y, (Y/K)TA photocatalysts (c). λ_L is the laser excitation line and A is anatase.

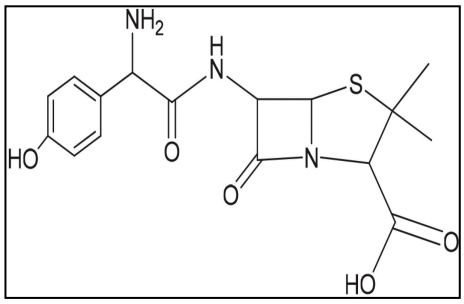


Figure S7. Chemical structure of amoxicillin (AMX).

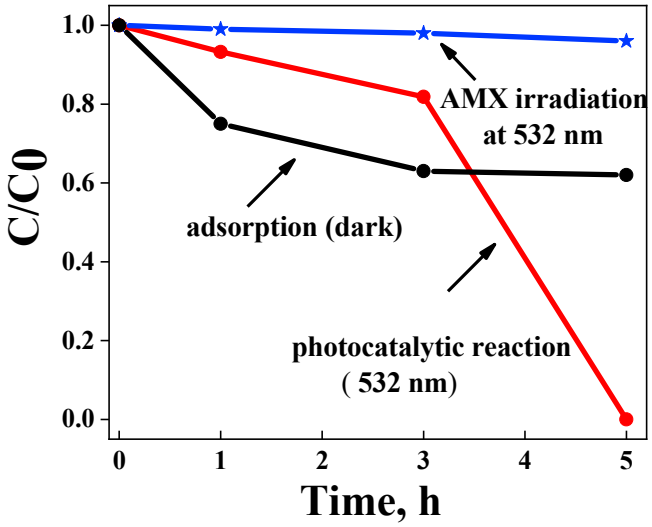


Figure S8. The processes that take place in the removal of amoxicillin (AMX) from water (YTA photocatalyst).

Table S1. Texture properties of samples and TiO_2 crystallite size of the samples after each impregnation step.

Sample	BET surface area (m^2/g)	V_{pore} (cm^3/g)	Pore size (nm)	TiO_2 crystallite size (nm)
YT	678	0.107	1.8	10.2
YTA	699	0.109	1.8	10.3
hYT	406	0.214	2.5/4.2	10.3
hYTA	547	0.178	2.0/5.2	10.2
MT	435	0.251	2.5	14.8
MTA	284	0.206	2.6	14.7
KT	617	0.977	6.5	-
KTA	378	0.831	5.2	-