

Table S3: Calculated k_{app} (min⁻¹), Removal used, Dose (g/L) and Capacity (mg/g) of 24 articles

Catalyst Type	Lamp Type	Efficiency	Time	k_{app} (min ⁻¹)	Capacity (mg/g)
ZnO/ZnS (1:1)	8W UV mercury lamp (Philips)	100%	20 min	0.461	100
AC/TiO ₂ Composite	Halogen lamp	96.30%	7.5 min	0.44	3.85
AgNPs/Ag ₂ S/ZIF-8	Visible light (solar-based staircase photoreactor, sunlight 4.5–5 kW/m ²)	98.60%	30 min	0.142	6.9
CQDs/MXene	Visible light irradiation (halogen lamp, 35W)	96.10%	25 min	0.13	123.25
BC-TiO ₂ -ZnO (Biochar from Fecal Sludge)	UV Lamp (8W, λ =340 nm)	98%	30 min	0.13	98
Cr-doped ZnO NRs	9W UV mercury lamp	99.60%	in 60 min under UV	0.092	24.9
BiVO ₄ /NiFe ₂ O ₄ /ATP	65 W energy-saving lamp (visible light)	99.25%	1 h	0.082	39.7
CTAS@NiFe ₂ O ₄	Visible light (solar light)	99.92%	90 min	0.079	68
Fe ₃ O ₄ @BC/APTES	70 W mercury lamp	99.94%	105 min	0.071	39.98
MG-MI (Bi/Ti/AC Molecularly Imprinted)	visible light	98.70%	80 min	0.054	75.23
Dy ³⁺ -doped Zn-Mg ferrites (ZM3)	Natural sunlight	94.23%	60 min	0.048	47.12
rGO/CuS	Direct Sunlight	97.60%	90 min	0.041	32.53
SnO ₂ /g-C ₃ N ₄ (Sn/CN-3)	UV light(500W mercury lamp)	95.09%	80 min	0.038	9.51
Ge-Ce-CuS	UV-A light	98.50%	120min	0.035	174.5
K-g-C ₃ N ₄ @ATP-Fe ₃ O ₄	500 W xenon lamp (visible light)	98%	120 min	0.033	98.84
BaCoDyFe ₁₂ O ₁₉	Natural sunlight	94.36%	90 min	0.032	23.59

Ag ₂ S/MoS ₂ @ZnPc	UV–vis–NIR irradiation (UV–vis for degradation, 808 nm NIR for sterilization)	96.30%	100 min	0.026	115.56
TiO ₂ /YMnO ₃	Visible light (λ = 454 nm, 125 W, Philips HPL-N)	95.34%	120 min	0.026	26.51
ZnVFeO ₄	Visible light (Tungsten lamp λ > 400 nm), UV light (8W lamp, λ = 254 nm)	98%	180 min	0.022	24.5
BiV _{1-x} Ti _x O ₄ (BVO-15)	400 W high-pressure mercury lamp with visible light cutoff filter (λ > 420 nm).	100%	180 min	0.018	10
rGO/SnSe	Visible light (150W Xenon lamp)	95.52%	180 min	0.017	23.94
ZnFe ₂ O ₄ /TiO ₂ (ZF-T)	Visible light (xenon lamp, 500 W, wavelength 350–780 nm)	90.10%	4 h	0.01	9.01
Cu-MOFs (Cu(Seba), Cu(Azla), etc.)	350 W halogen lamp (340–850 nm) at $\sim 9.0 \times 10^{-2}$ m, visible light	98%	400 min	0.01	245
NFO@C (Ni _{0.4} Fe _{2.6} O ₄ /(Fe, Ni)@Carbon)	365 nm LED (UV) light	99%	450 min	0.01	403.92