

The absorbance in the 400–800 nm range increased when the graphene content increased. The band gap energy of TiO₂ and TNT are similar while the band gap of the GR-TNT narrowed with the addition of graphene.

With GO loading increased, the photocatalytic degradation efficiency increased correspondingly. The best photocatalytic degradation efficiency is attained with a 5% GR-TNT.

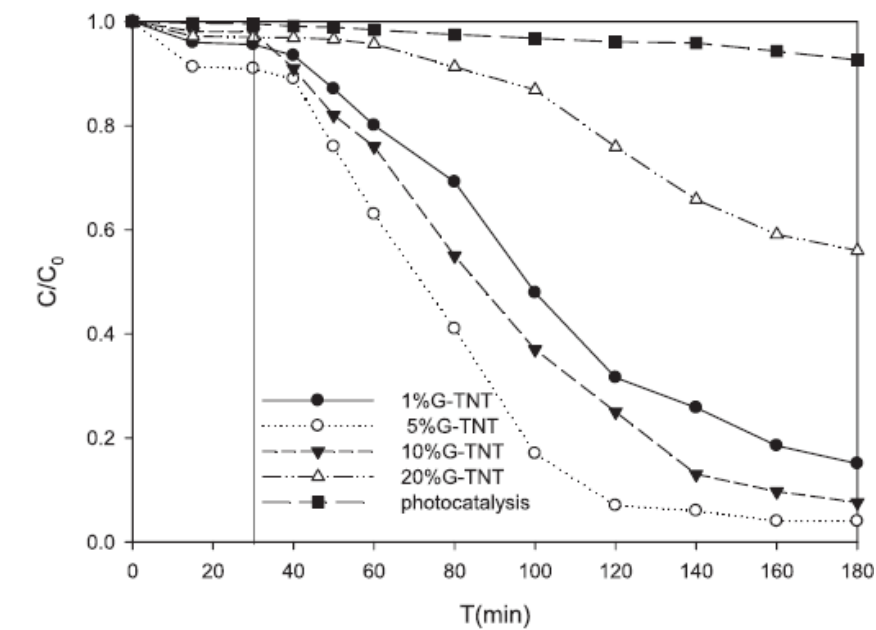


Fig. 6. Effect of different GO content of GR-TNT nanocomposites on photodegradation for acetaminophen (5 ppm acetaminophen, 0.1 g L⁻¹).

Table 2
The band gap and surface area of different GR-TNT composites.

Catalysts	TiO ₂	TNT	1%GR-TNT	5% GR-TNT	10% GR-TNT	20% GR-TNT
Band gap (eV)	3.12	3.18	3.03	2.98	2.86	2.34
Surface area (m ² g ⁻¹)	49.9	118.3	101.9	123.5	156.4	131.0

Under UV light (254 nm), At certain time intervals, four milliliter aliquots were withdrawn, then syringe filtered to remove the catalyst. The with-drawn solution was measured by UV–Vis spectroscopy and the dye concentration was measured by testing the absorbance at max= 243 nm.

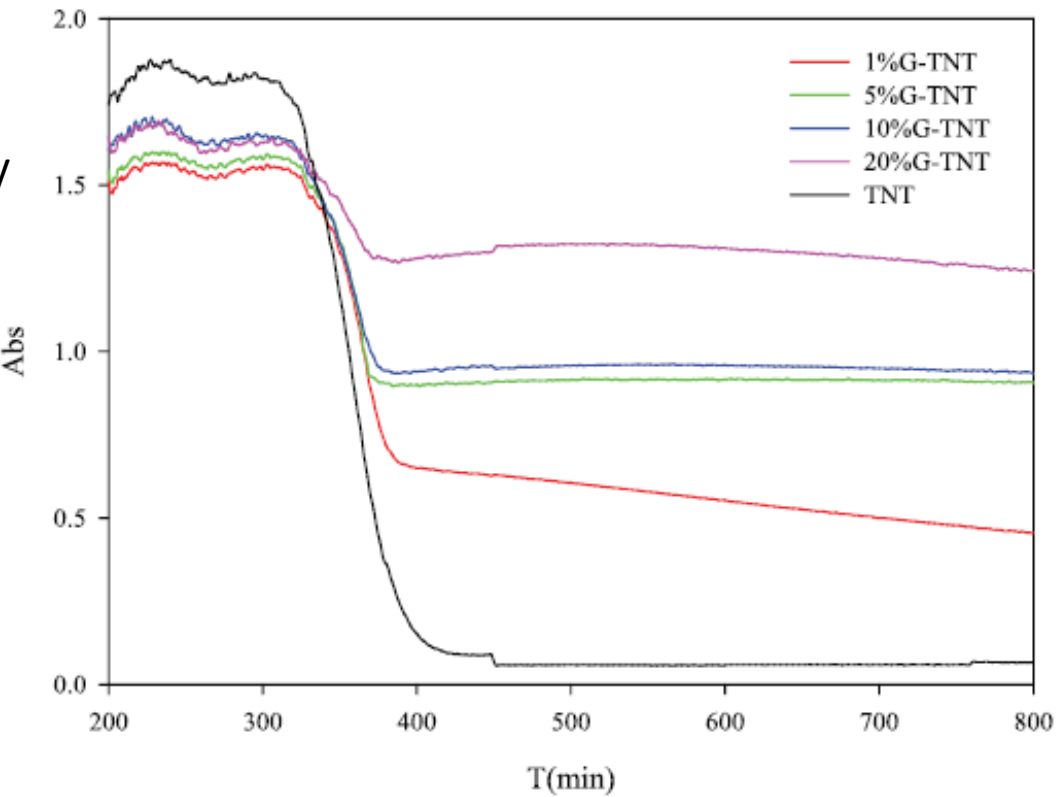


Fig. 2. UV-vis diffuse reflectance spectra of TNT and GR-TNT.