

Figure S1. XRD pattern of (a) CuCaAg₂Se (b) G-TiO₂ nanocomposite.

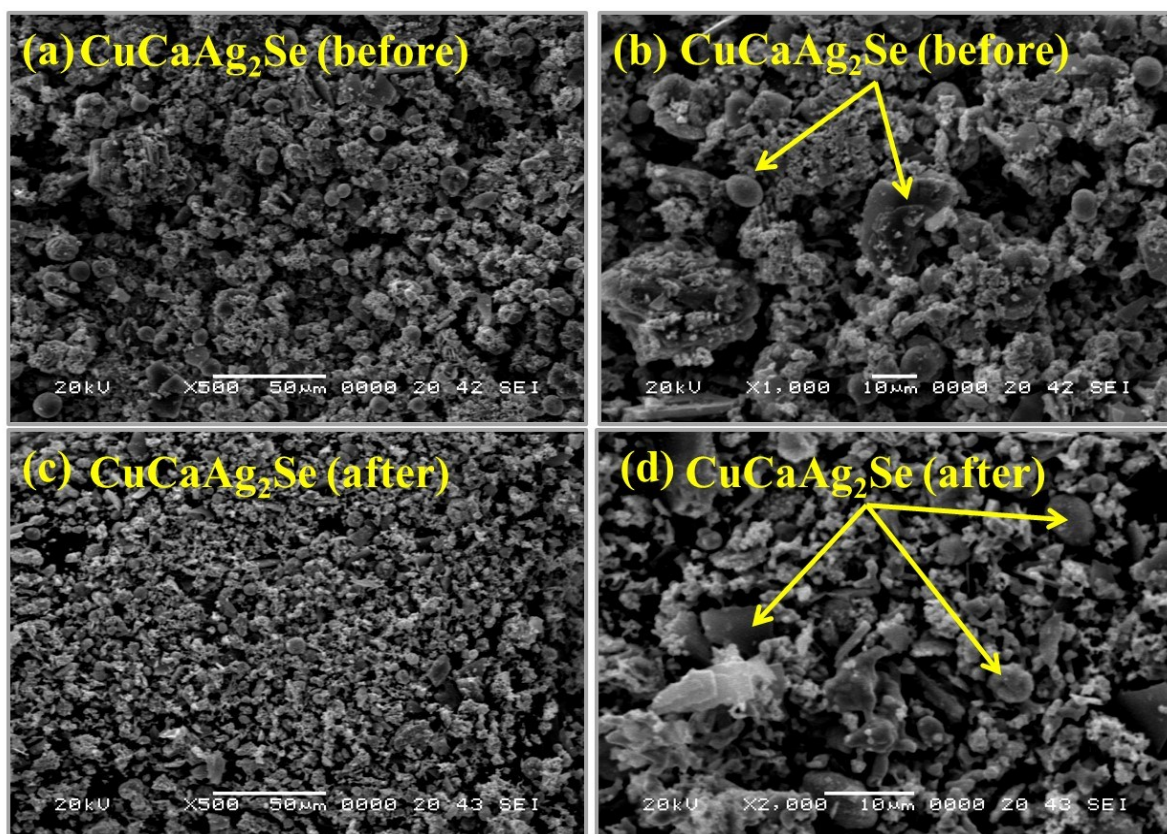


Figure S2. SEM images of (a) (b) (c) (d) CuCaAg₂Se, (e) (f) G-TiO₂, (g) (h) CuCaAg₂Se-G-TiO₂ nanocomposite.

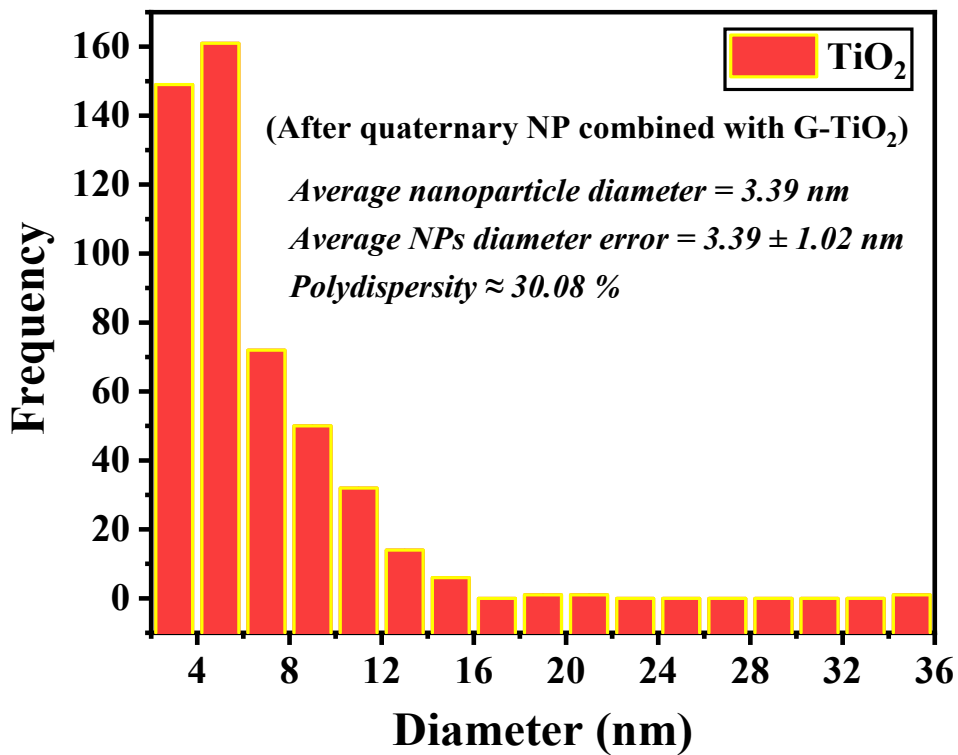
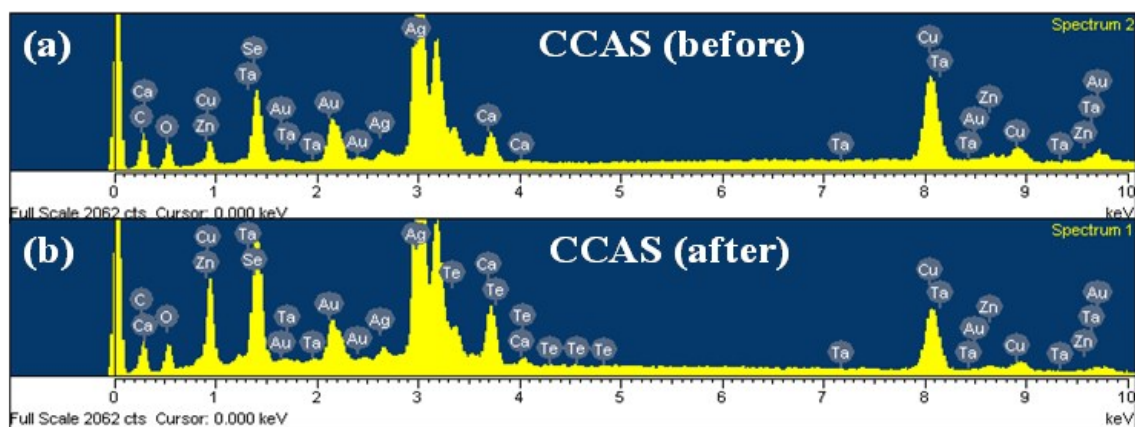


Figure S3. Nanoparticle size histogram of TiO₂ after quaternary nanoparticle combined with Graphene-TiO₂.



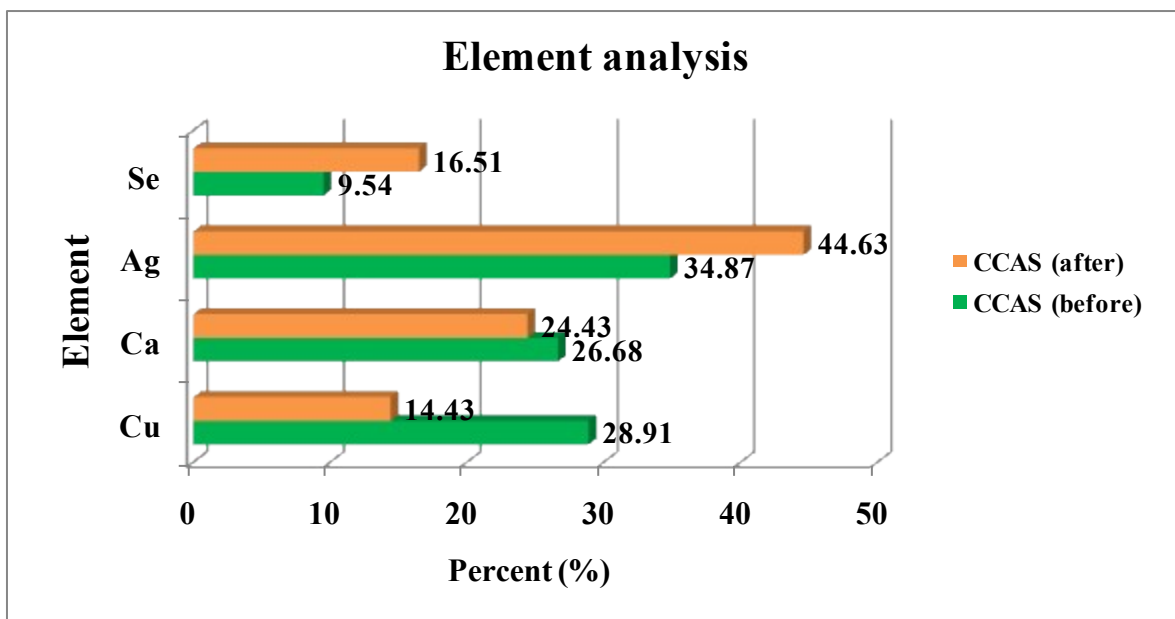
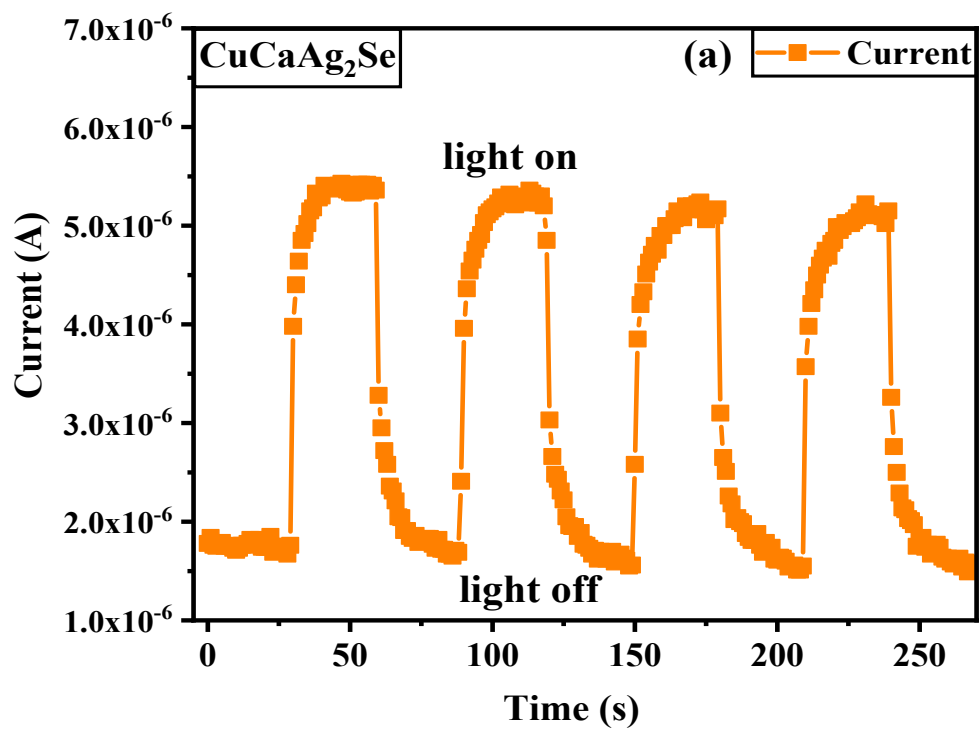


Figure S4. EDX element analysis of CuCaAg₂Se (before and after) nanocomposite.



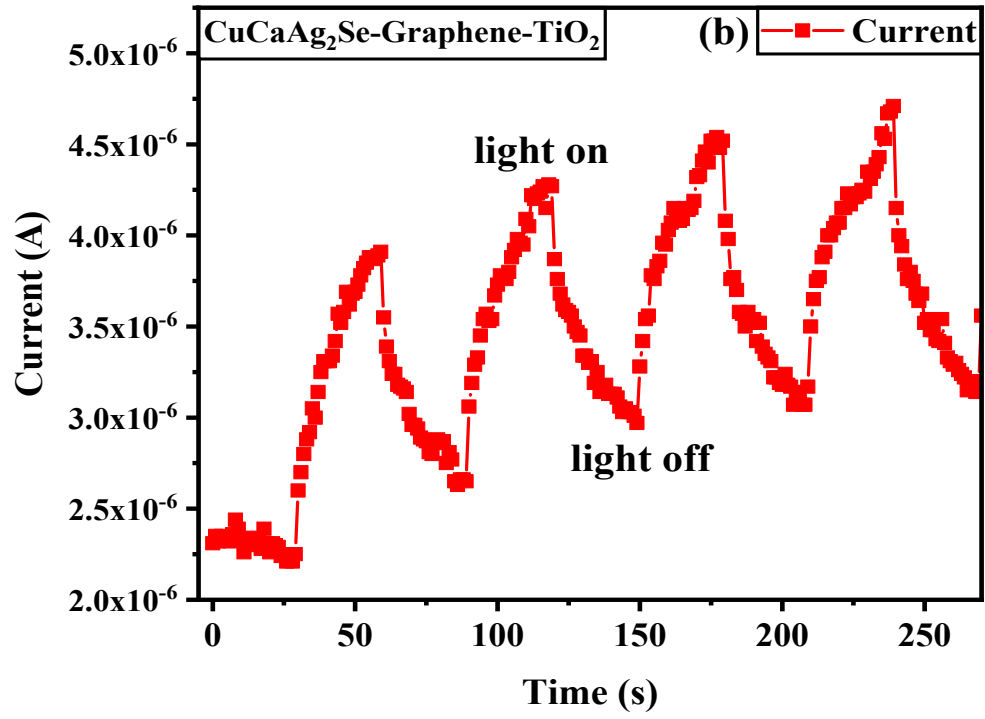


Figure S5. Photocurrent result of CuCaAg₂Se and CuCaAg₂Se-Graphene-TiO₂ nanocomposite.