# Sustainable Ca-$TiO_2$ Paper Platforms: Exploiting Eggshell Biowaste for Environmental remediation

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## Supporting information

Figure S1 evidences the presence of highly defective nanocrystals for the Ca-$TiO_2$ nanopowders.

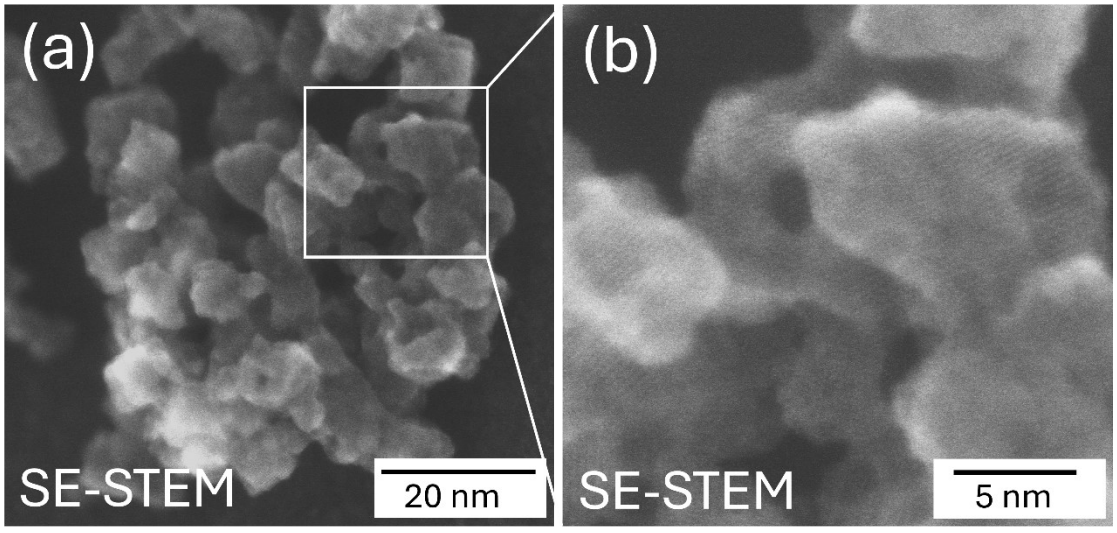


*Figure S1. SE-STEM images of defective Ca-$TiO_2$ nanocrystals.*

Figure S2 shows the Raman spectra obtained analyzing functionalized paper, $TiO_2$ and Ca-$TiO_2$ paper-based platforms.

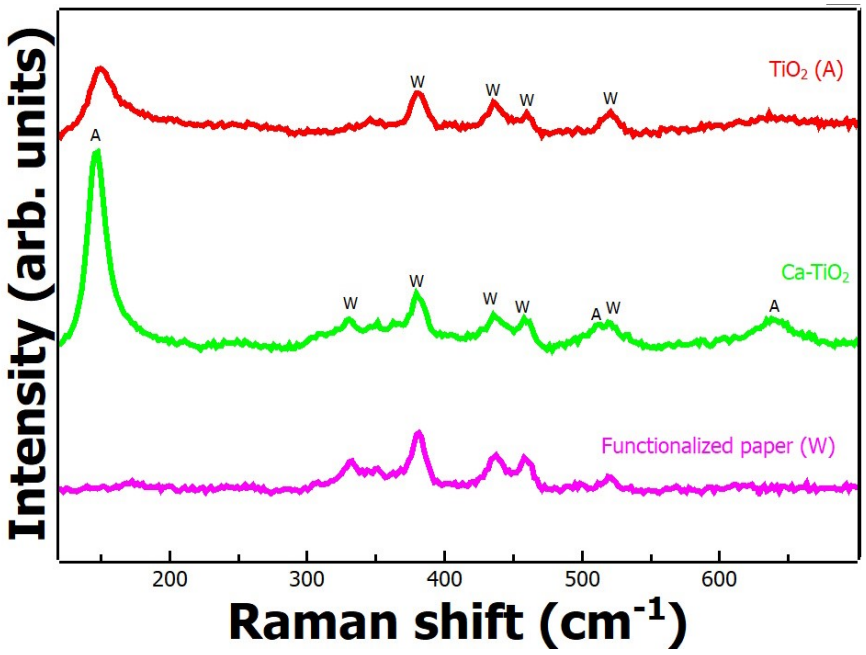


*Figure S2. Raman spectra of the functionalized paper, and both $TiO_2$ and Ca-$TiO_2$ paper-based platforms..*

Figure S3 shows the static contact angle measurements of functionalized paper and Ca-$TiO_2$ paper-based platforms.

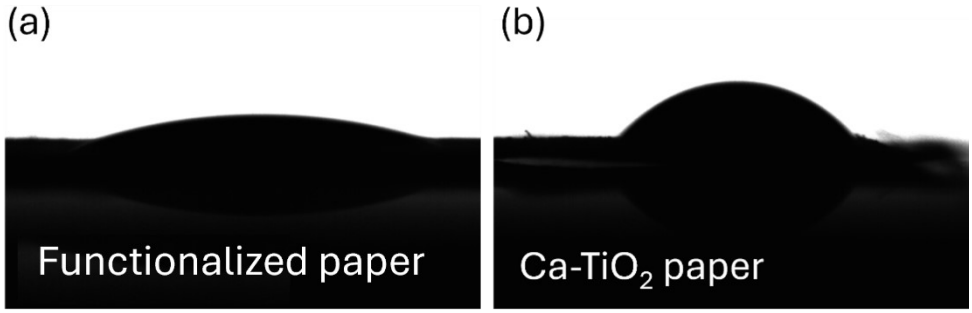


*Figure S3. Static contact angle of (a) Whatman functionalized paper and (b) Ca-$TiO_2$ paper-based platform.*

Figure S4 shows the calibration line of tetracycline obtained from RT UV-VIS absorption spectra with various concentrations of 5, 10, 15, 20 and 30 ppm.

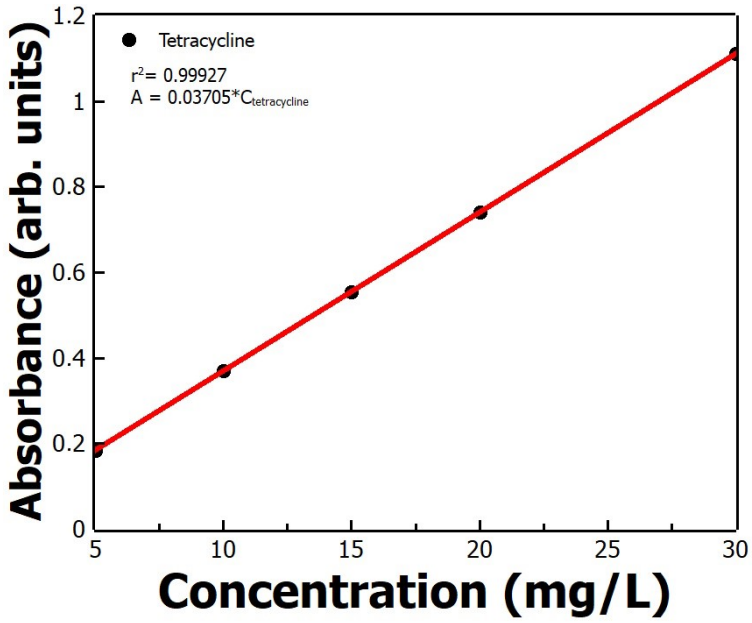


*Figure S4. Calibration line of tetracycline obtained from RT UV-VIS absorption spectra with various concentrations of 5, 10, 15, 20 and 30 ppm.*

Figure S5 shows the SEM images of the Ca-$TiO_2$ paper-based platform before and after ten consecutive photocatalytic cycles. It is clear the accumulation of residues or tetracycline by-products. No regeneration process has been carried out between cycles.

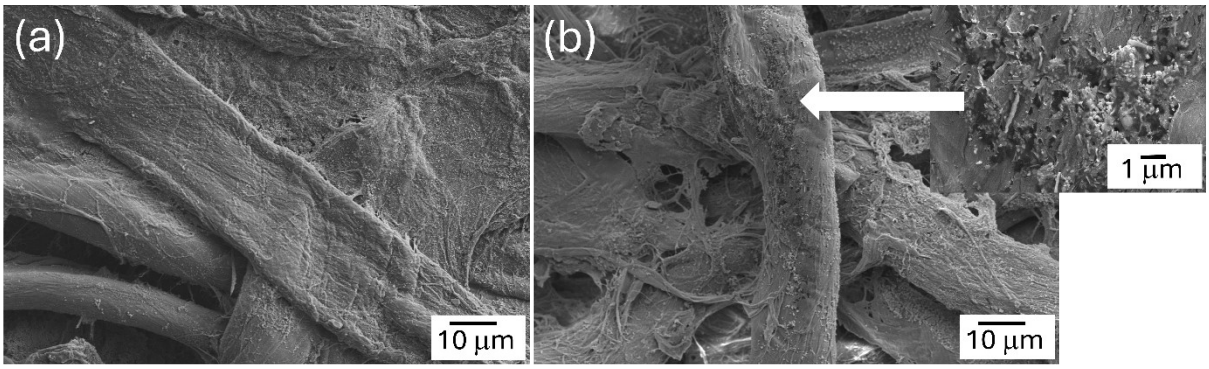


*Figure S5. SEM images of the Ca-$TiO_2$ paper-based platform (a) before and (b) after ten cycling experiments.*