

"The interplay between morphology and photocatalytic activity in ZnO and N-doped ZnO crystals"

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Figures Caption

Figure 1. FE-SEM images of ZnO synthesized samples. ZnOm (A) ZnO:Nm (C) ZnOp (E) ZnO:Np (G). High-resolution transmission electron images of ZnO synthesized samples. ZnOm (B) ZnO:Nm (D) ZnOp (F) ZnO:Np (H).

Figure 2. Crystallographic structure and morphologies of ZnO with crystal planes (110), (100), (101), (001) (102), (112) and (111). Surface energy is in joule per·square meter

Figure 3. Morphology comparison between experimental and theoretical results.

Figure 4. A) XRD patterns of ZnO synthesized samples, presenting the patterns related to crystallographic planes corresponding to hexagonal wurtzite structure (JCPDS 36-1451). (a) ZnO:Nm (b) ZnOm (c) ZnO:Np (d) ZnOp . B) XRD patterns of ZnO synthesized samples, from $2\theta = 30^\circ$ until $2\theta = 38^\circ$ of (a) ZnO:Nm (b) ZnOm (c) ZnO:Np (d) ZnOp

Figure 5. Kubelka Munk function of ZnO synthetized samples to obtain band gap values.

Figure 6. XPS spectra for different samples (A) Survey Spectra (B) Zn 2p high resolution spectra (C) O 1s high resolution spectra (D) N 1 s high resolution spectra (E) valence band determination.

Figure 7. Rhod-B photo-degradation with ZnO samples under A) UV light and B) visible light. The insert represents the k' of RhB with scavenger solutions for OH* radical, O₂H* radical and Oxygen vacancies (h·) under A) UV light and B) visible light.

Figure 8. Photo-reduction for Cr(VI) with ZnO samples under UVC illumination.

Figure 9. Mechanistic Schematic for (A) Rhodamine degradation (B) Cr(VII) reduction proposed mechanism situation 1 and (C) situation 2.

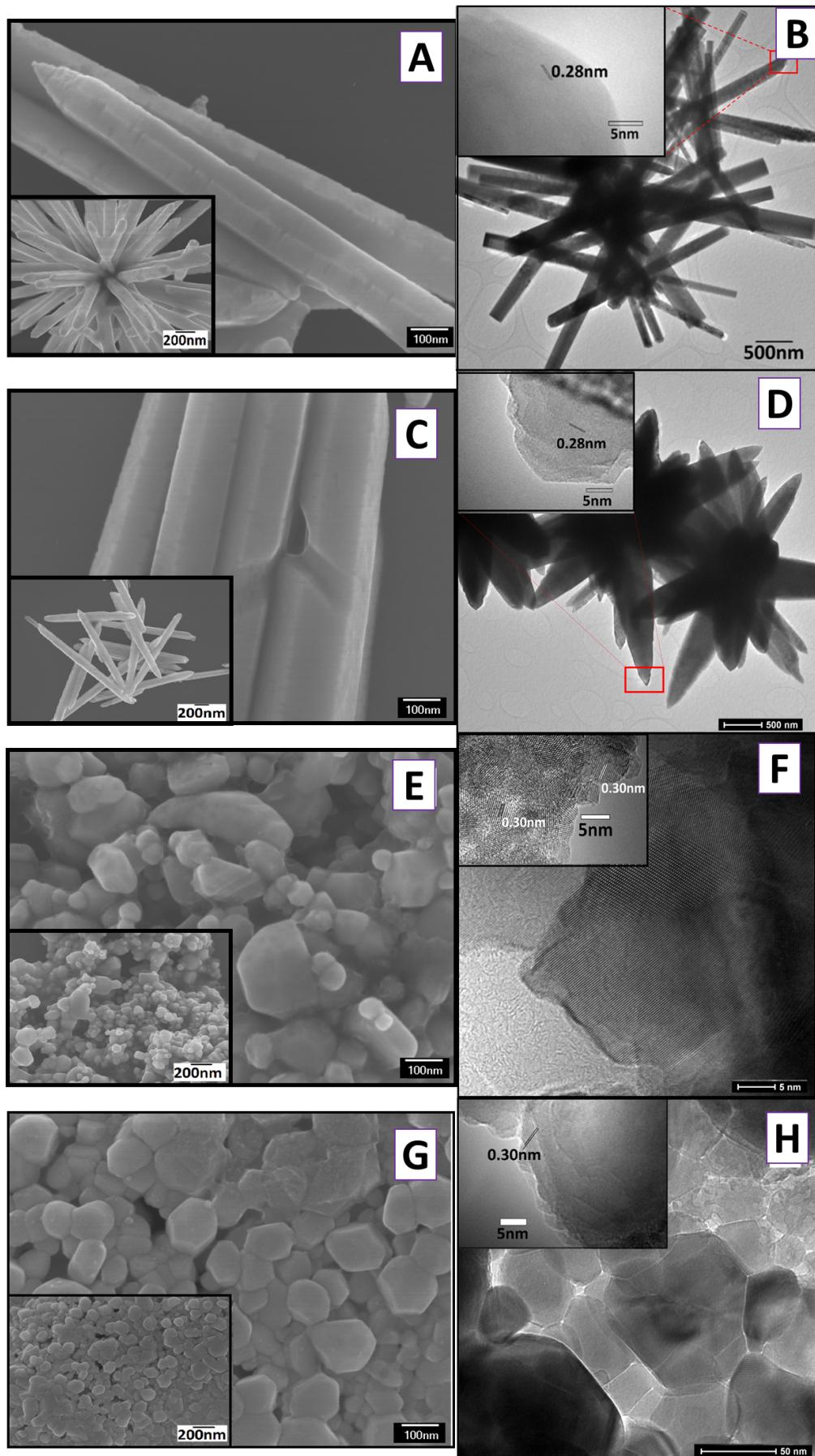


Figure 1

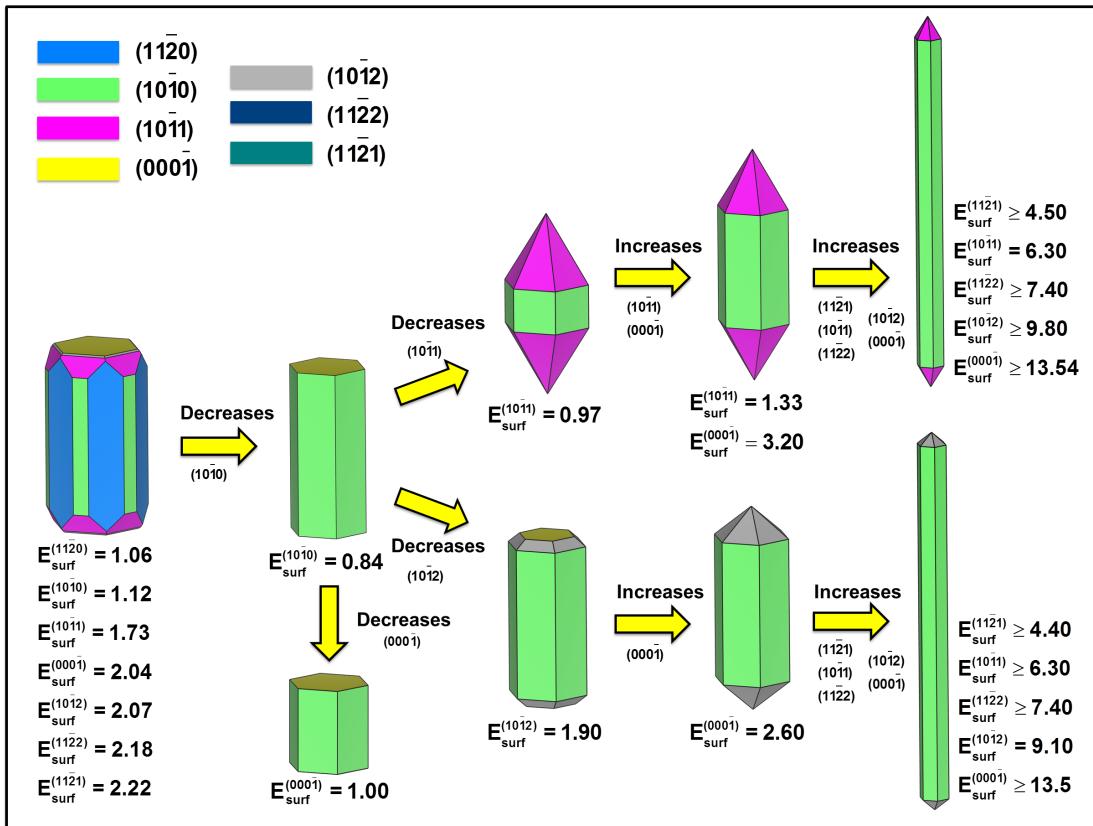


Figure 2

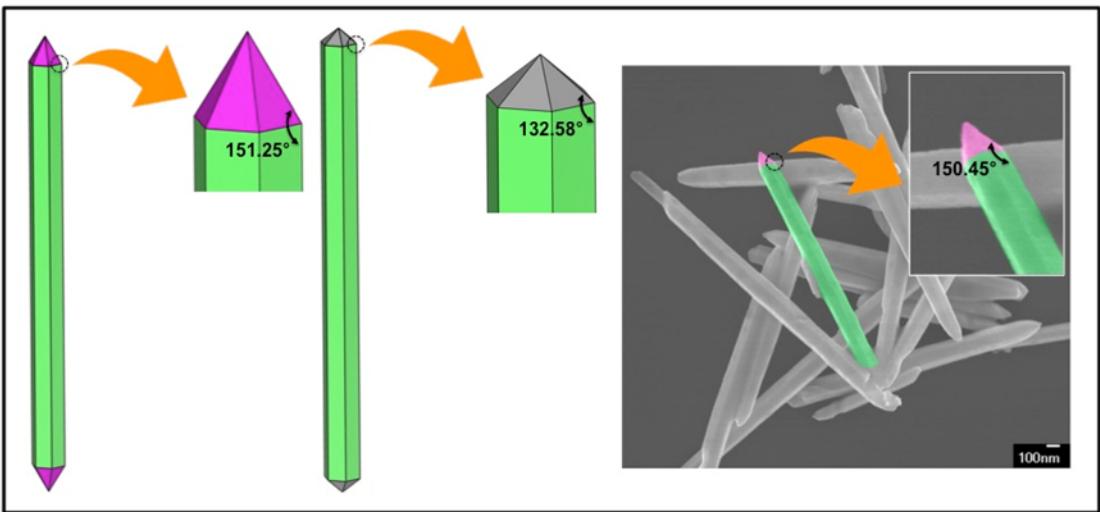


Figure 3

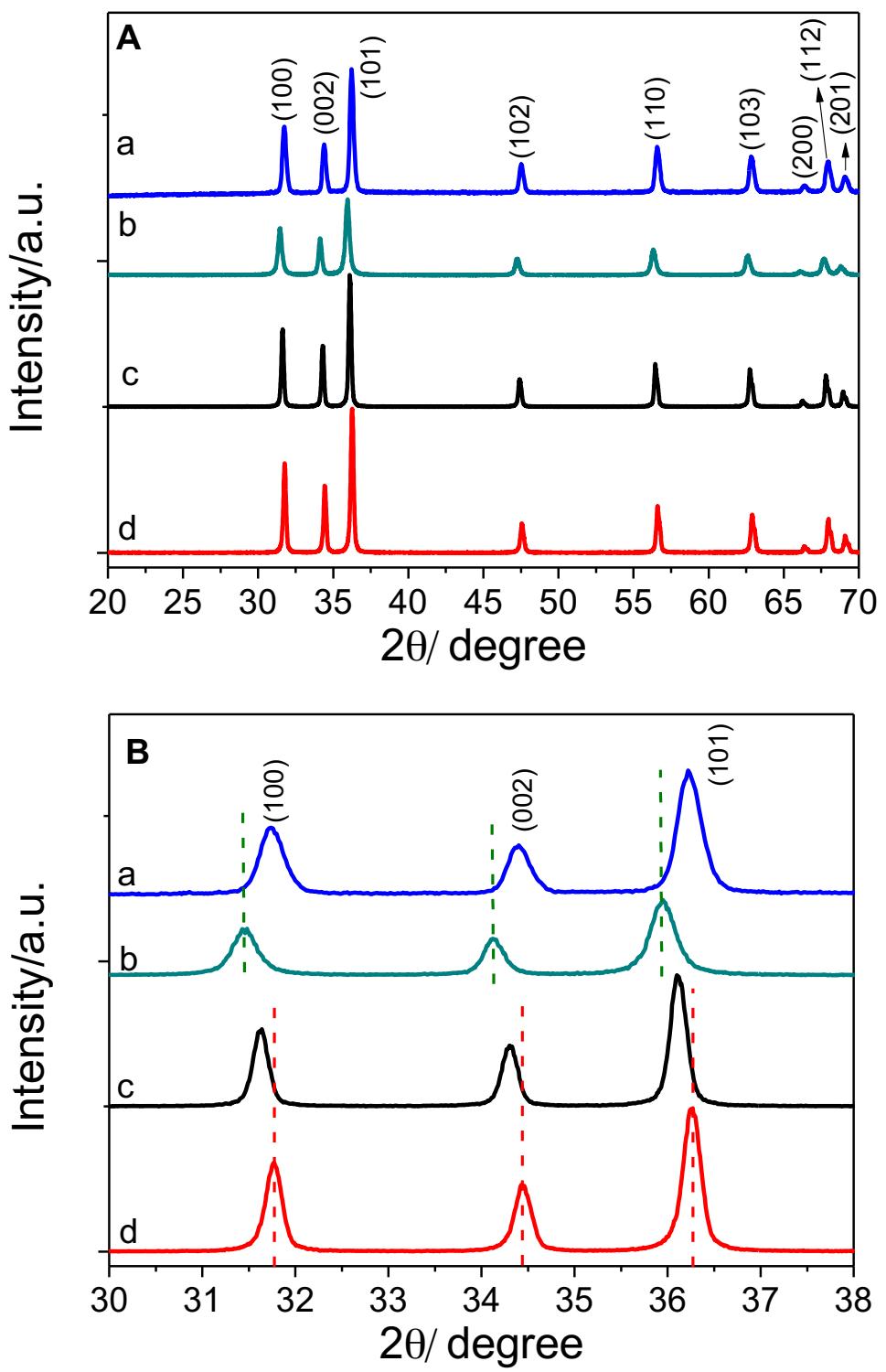


Figure 4.

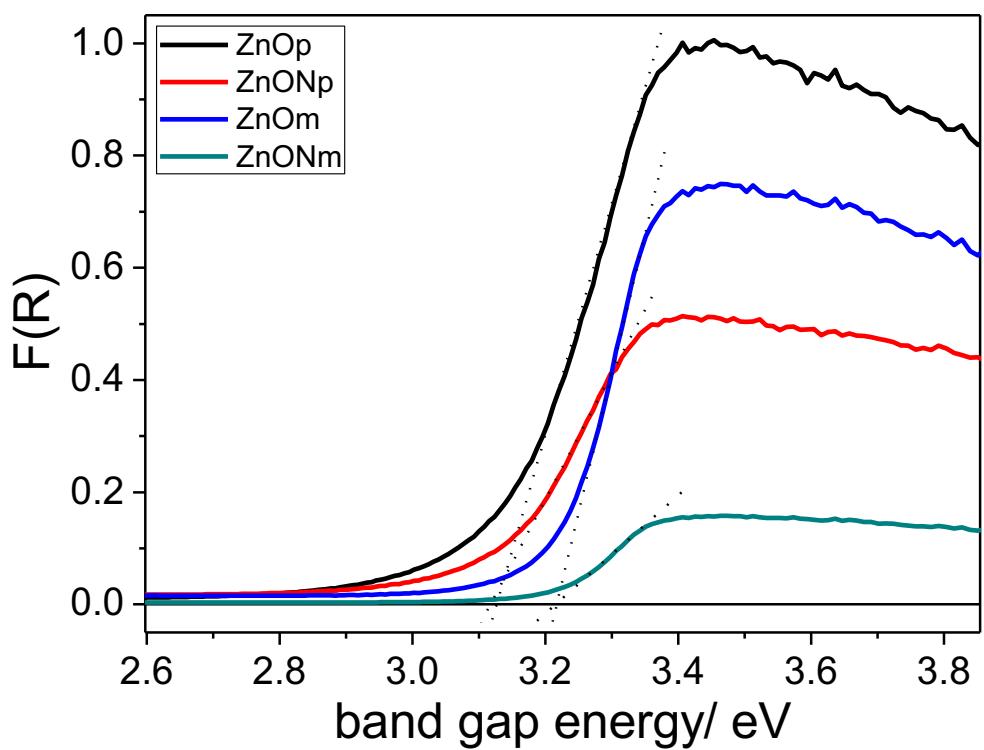


Figure 5.

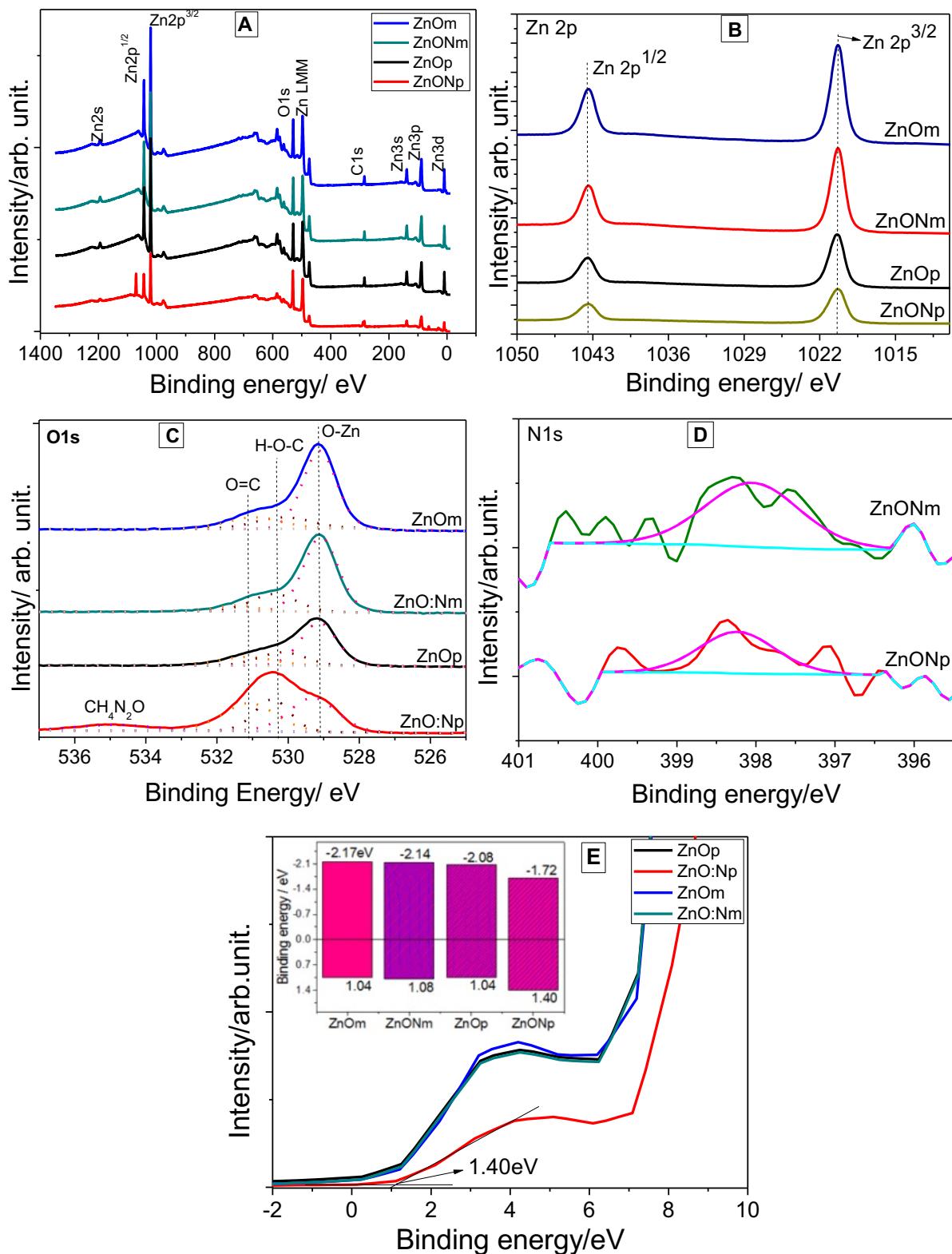


Fig 6.

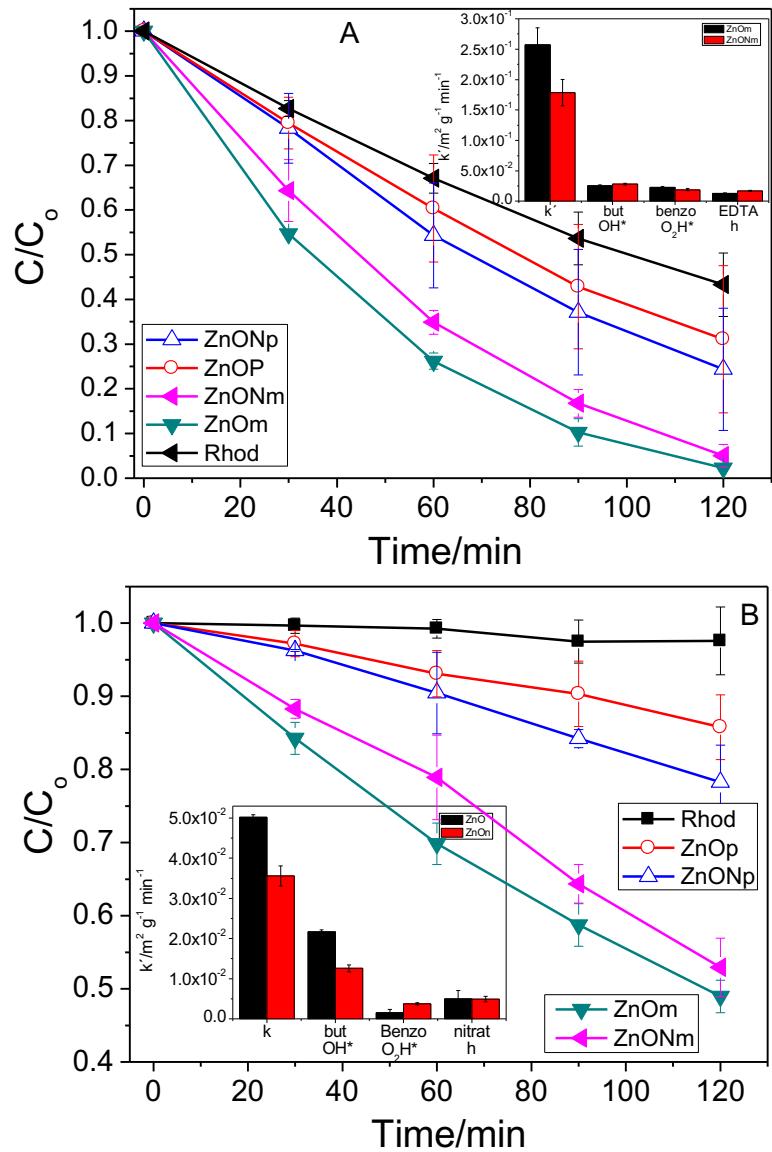


Figure 7.

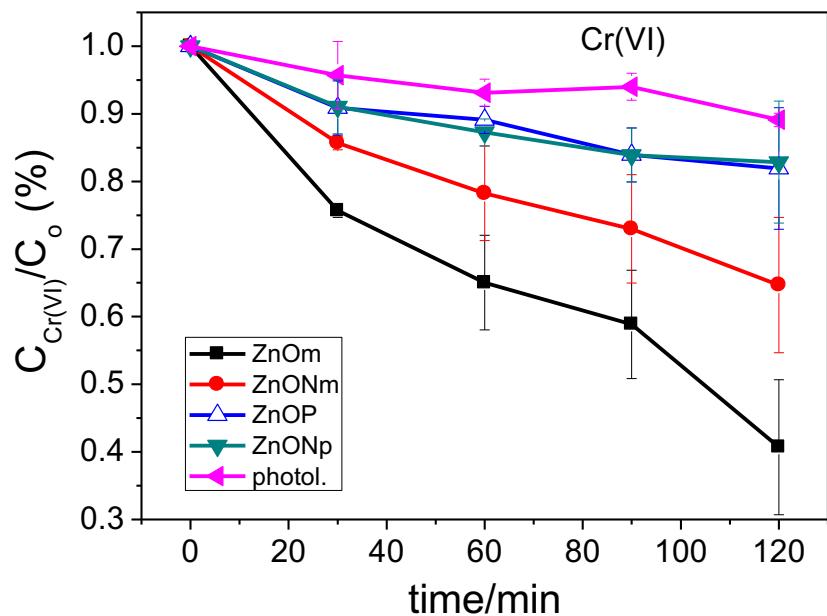


Figure 8.

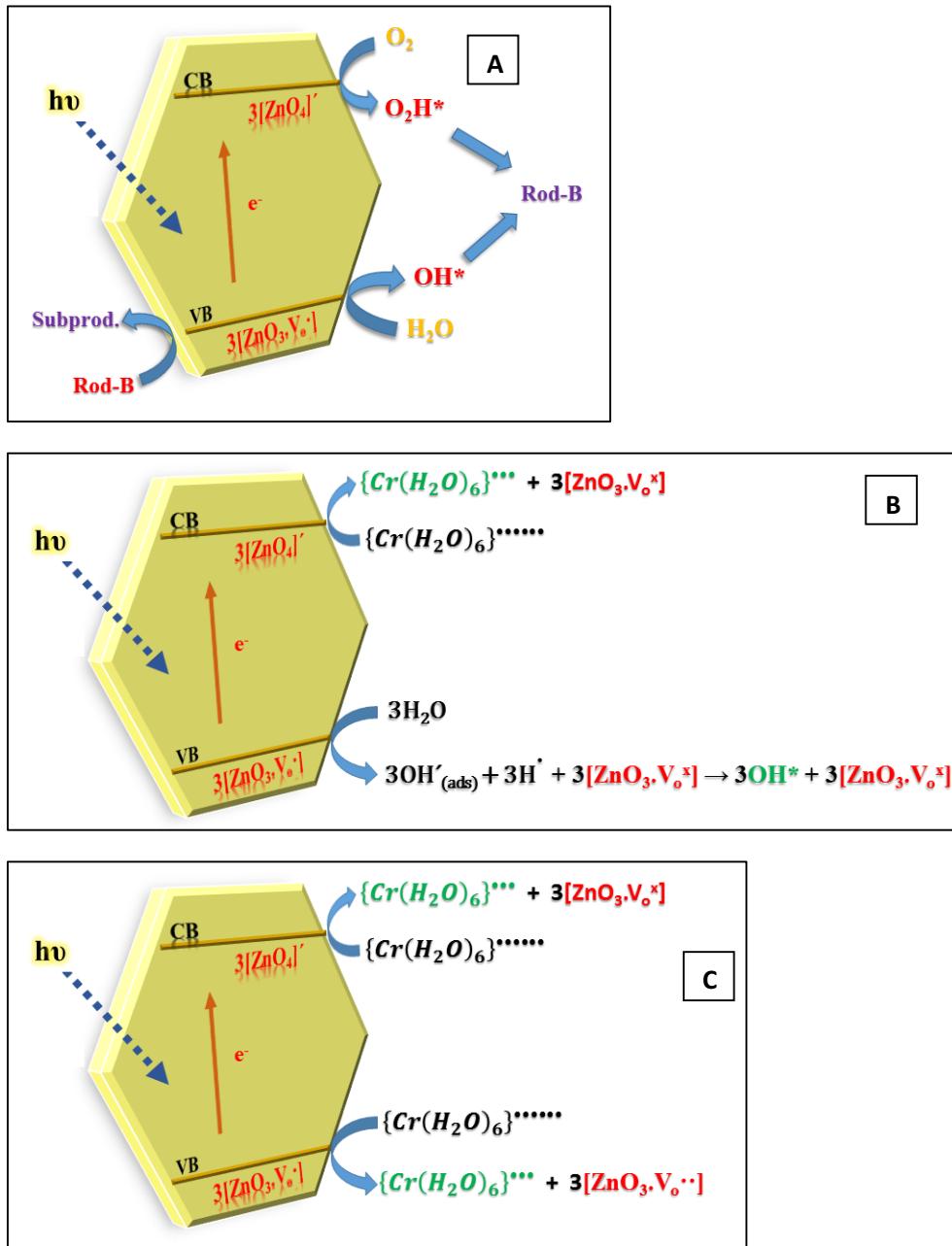


Figure 9.