

Oral\_Presentation\_ID\_3474

## Photocatalytic ozonation of sulfamethoxazole by synthesized zinc oxide nanoparticles immobilized on montmorillonite

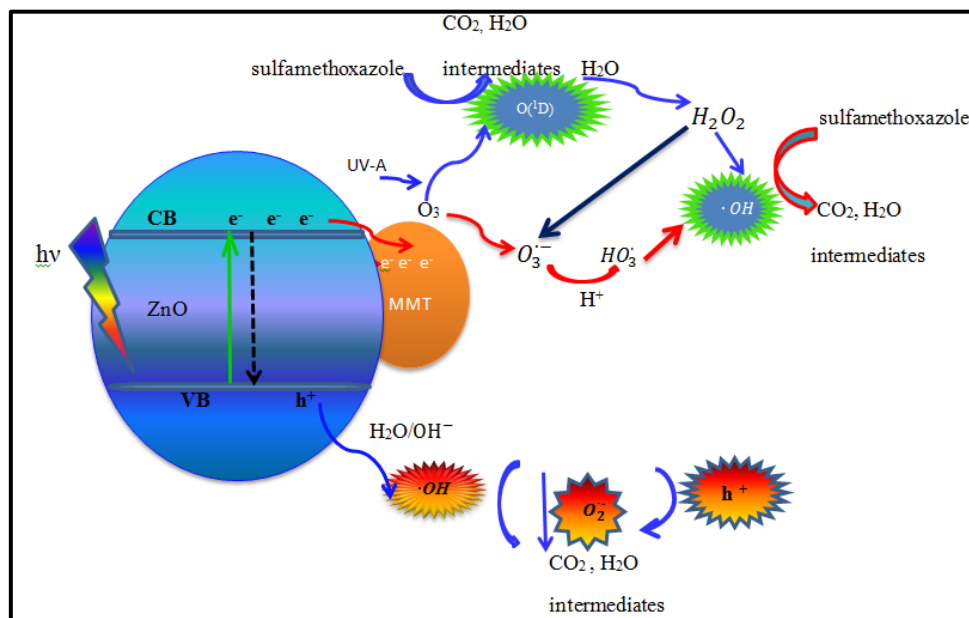
**Murat Kiransan<sup>a,\*</sup>, Işıl Nihan Korkmaz<sup>b</sup>, Semra Karaca<sup>b</sup>**

<sup>a</sup>*Department of Chemistry and Chemical Processing Technologies, Gümüşhane Vocational School, Gümüşhane University, Gümüşhane 29100, Turkey*

<sup>b</sup>*Department of Chemistry, Faculty of Science, Atatürk University, Erzurum 25240, Turkey*

[\\*murat.kiransan@gumushane.edu.tr](mailto:murat.kiransan@gumushane.edu.tr)

It is a natural photochemical treatment process from the advanced oxidation processes to the spontaneous cleaning in the surface by the direct sunlight of the organic matter. For these reasons, in recent years the dominant use of advanced oxidation processes (AOPs) for wastewater treatment has been striking [1]. Photocatalytic ozonation from these alternatives can be used alone or in combination with various physicochemical methods to effectively oxidize phenols, detergents, drug residues, pesticides and various organics in different aquatic environments [2]. It is the main class of contaminants due to unknown biological and ecotoxicological effects of drugs and personal care products [3]. These methodologies are used for the treatment of contaminated water and wastewater to evaluate in the decomposition of pollutants and to assess the treatment their capability treatment efficiencies of these combinations [4]. In the photocatalytic ozonation experiments with sulfamethoxazole drug substance, UV-A lamp was used as a beam source [5]. In the photocatalytic ozonation of sulfamethoxazole, the effect of operational parameters such as ozone flow rate, initial sulfamethoxazole concentration, ZnO/MMT catalyst concentration, initial pH of solution, addition of inorganic and organic radical scavenger added to sulfamethoxazole removal was investigated.



**Fig 1.** Schematic representation of Sulfamethoxazole degradation during photocatalytic ozonation with ZnO/MMT as photocatalyst.

### References

- [1] G. Camera-Roda, V. Loddo, V. Augugliaro, L. Palmisano, *Appl. Catal. B*: 178 (2015) 37–43.
- [2] D. H. Quinones, P. M. Alvarez, A. Rey, F. J. Beltran, *Sep. Purif. Technol.* 149 (2015) 132–139.
- [3] M. Fathinia, A.R. Khataee, *Appl. Catal. A*., 491 (2015) 136–154.
- [4] F.F.N. Moreira, C.A. Orge, A.R. Ribeiro, J.L. Faria, O.C. Nunes, M. F. R. Pereira, A. M.T. Silva, *Water Res.* 87 (2015) 87-96.
- [5] M. Mehrjoui, S. Müller, D. Möller, *Chem. Eng. J.* 263 (2015) 209–219.