

Advanced Oxidation Processes for Wastewater Treatment

**University of South Bohemia in
České Budějovice**

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Motivation

SCIENTIFIC ACHIEVEMENTS

- Basic research & investigation of the AOPs and its synergistic effect to establish functional system for wastewater treatment
- Decomposition of wide range of organic compounds resistant to biodegradation
- PC modeling
- Investigation of the AOPs system with respect to effectiveness and economic profitability

OTHER ACHIEVEMENTS

- Mutual cooperation between Czech & Norwegian partners
- Transfer of the knowledge, experiences
- Active involvement of Ph.D. students and young researchers
- Collective publications, participation on international conferences
- Establishment of future activities and long-term cooperation

Czech institutions

University of South Bohemia in České Budějovice

- Laboratories of the Department of Applied physics and Technique
- Laboratory of Environmental Chemistry and Biochemistry
- Institute of Chemistry and Biochemistry
- Laboratories of Electron Microscopy, Biological center, Czech Academy of Sciences

Czech Technical University in Prague

- Department of Material Sciences

Czech research team

University of South Bohemia in České Budějovice

- Leader of the project:
Ing. Marta Horáková, Ph.D.
- Participation of 3 Ph.D. students:
 - Analysis of decomposed organic compounds and treated wastewater
 - Experiments with different types of AOPs

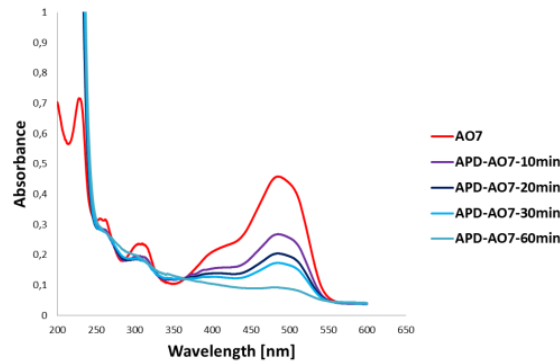
Czech Technical University in Prague

- Co-leader of the project:
prof. RNDr. Petr Špatenka, CSc.
- Participation of 2 Ph.D. students:
 - PC modeling
 - Creation and analysis of functional materials (photocatalysts)

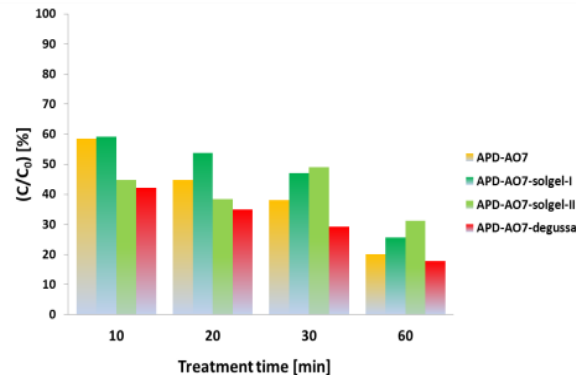
Estimated budget (CZ partners): 300 000 EUR

Preliminary results

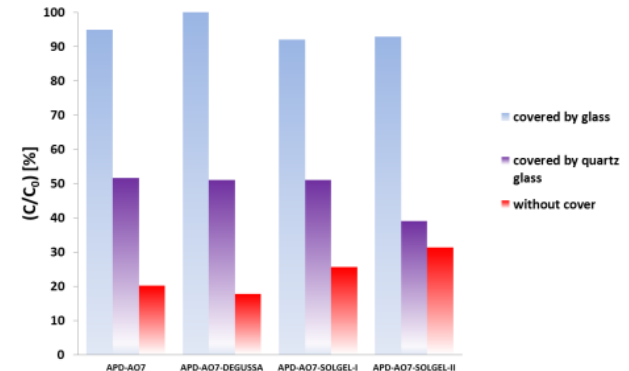
Degradation of AO7



UV/VIS spectra of AO7 treated by APD

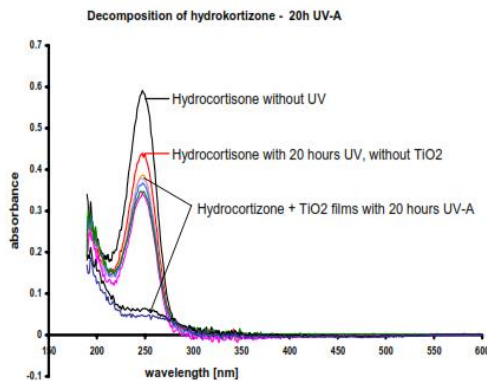


The influence of treatment time on degradation of AO7 treated by APD with different type of photocatalyst

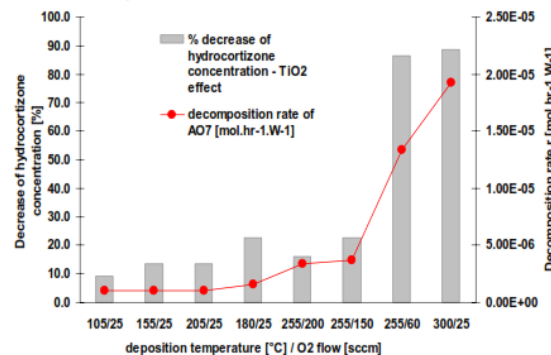


The influence of UV, oxidative species and energetic transfer on degradation of AO7 treated by APD with different type of photocatalyst

Degradation of Hydrocortisone

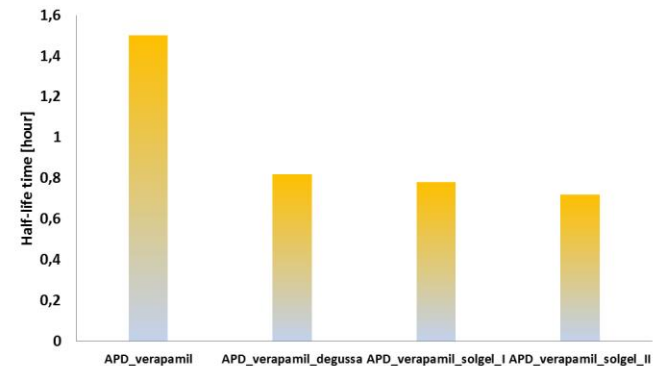


UV/VIS spectra of hydrocortisone solutions



The degradation of hydrocortisone treated by UV light in presence of photoactive PECVD-TiO₂ thin films

Degradation of Verapamil



The influence of the type of photocatalyst on degradation of Verapamil hydrochloride treated by APD

Thank you for your kind attention

