



**ZAJEDNIČKI SEMINAR Hrvatskog biofizičkog društva, Hrvatskog mikroskopijskog društva i
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Bentonite clays as (electro)catalysts and adsorbents

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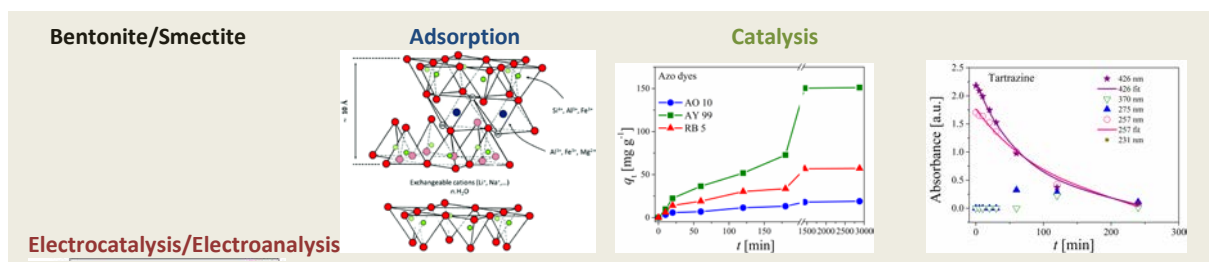
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In our previous investigations numerous of the functional materials based on bentonites were obtained. Organomodification with chitosan and quaternary alkylammonium cations, lead to obtainment of successful adsorbents for nicotine, azo dyes, their mixtures with toxic metallic cations¹, as well as radioactive TcO_4^- . Pillared clays (PILC) with incorporated Al or mixture of Al with Fe, Co, Ni oxide pillars, as well as Co-impregnated Al-PILC were proven as efficient heterogenous Fenton-like catalysts for removal of azo dyes, phenol and its derivatives in the presence of either hydrogen peroxides² or Oxone[®] ³.

Organobentonites and PILCs were also tested as electrode materials. Electrodes were prepared either in the form of thin layer deposited on the glassy carbon electrode or carbon paste electrode. It was found that the type of bentonite modification and the choice of active component are the key feature that prevents electrode deactivation during electrochemical oxidation of phenol and its derivatives⁴. Electrodes based on bentonite modified with chitosan or poly(vinyl alcohol) were successfully applied in simultaneous detection of phenol derivatives even in the real water⁵. Besides mentioned applications in environmental protection, non-enzymatic bentonite based electrode was proven to be applicable in quantitative determination of glucose regardless the presence of the interfering species commonly present in human blood⁶.



References

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