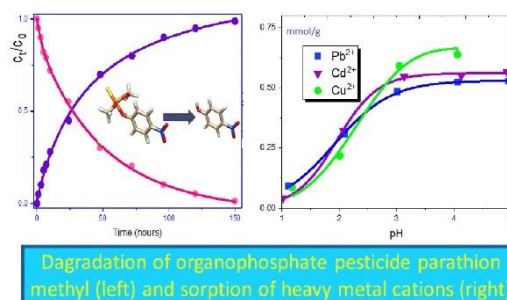




NEW KINDS OF CELLULOSE-BASED SORBENTS

Ideas on utilisation

Macroporous bead cellulose is an excellent matrix for sophisticated applications in many diverse areas including analytical chemistry, enzyme engineering or biotechnology, where its hydrophilic nature, high porosity and mechanical as well as chemical resistance are exploited. A new family of the cellulose-based sorbents developed in cooperation with the IONTOSORB Comp. exhibits some unusual capabilities, such as an enhanced selectivity towards some metal cations (heavy metals, lanthanides) or an ability to destroy highly toxic organophosphate compounds.



Degradation of organophosphate pesticide parathion methyl (left) and sorption of heavy metal cations (right)

or an ability to destroy highly toxic

Potential adopters of technology

Enterprises and R&D institutions dealing with ion exchange separations, water treatment or removal of toxic compounds. The sorbents can be used also in protein engineering or in analytical chemistry. The number of possible application areas is rapidly growing.

Advantages of technology

In comparison with other cellulose-based sorbents, the bead cellulose exhibits an excellent mechanical and chemical stability, durability and permeability. Easy-to-handle sorbents are compatible with intended applications in bio-sciences and biotechnology, and have a great potential for further targeted modifications.

Market and context of technology

- IONTOSORB is a well-established trademark, under which various bead cellulose-based sorbents with excellent ion-exchange capability, chelating ability or specific affinity are sold by the IONTOSORB Comp. According to our best knowledge there is no other producer of bead cellulose-based sorbents.
- A new family of the cellulose-based sorbents is under development in the cooperation between the IONTOSORB Comp. and the University of J. E. Purkyně, Faculty of Environment.
- The stage of the laboratory-scale operational reliability of the technology was reached. Several organophosphate pesticides were successfully decomposed under conditions simulating real world (pH, salinity, presence of surfactant). Sorbents were also used for capturing some metal ions.

Preconditions in adopting enterprises

- Application-specific development and pilot-plant testing is expected.