

Vás zve na seminář:

Automatic electrochemical determination of zinc, lead, cadmium and copper ions

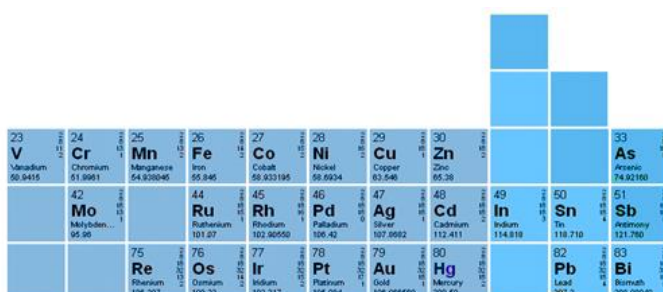
Mgr. Hoai Viet Nguyen, Ing. et Ing. David Hynek, Ph.D.

Abstrakt

Heavy metals pollution is a major health problem, representing a danger for worldwide citizens. "Heavy metal" term describes metallic species that typically include the transition metals, some metalloids, lanthanides, and actinides. Although many metals are essential for cell metabolism and function, excess amounts can be toxic. Some metals can bio-accumulate in the food chain and are regarded as serious environmental pollutants, because of their toxicity to higher species. In order to prevent the accumulation of these toxic chemical

species, it is needed for a portable, low cost monitoring of heavy metals concentrations.

Electrochemical detection is the very sensitive analytical methods available for determination of heavy metals ions. In this study, automatic electrochemical detection was employed for determination of zinc, cadmium, lead, and copper. Moreover,



this system was applied into the remote-controlled robotic platform ORPHEUS-HOPE. ORPHEUS-HOPE is a rugged robotic system which easily equipped with additional devices, such as radiation and biological sensors. The commercial carbon tip electrode was used as working electrode for detection of cadmium, lead, and copper ions. By applying a conditioning time of 60 s at -0.9 V into $\text{Hg}(\text{NO}_3)_2$ solution, thin-film mercury was created. This carbon tip electrode modified with mercury film was employed for detection of zinc ion.

pátek 27. 06. 2014, od 14:00

Ústav chemie a biochemie, Laboratoř metalomiky a nanotechnologií, Zemědělská 1, 613 00 Brno, Kontakt: kizek@sci.muni.cz

