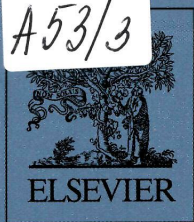


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ANALYTICA CHIMICA ACTA

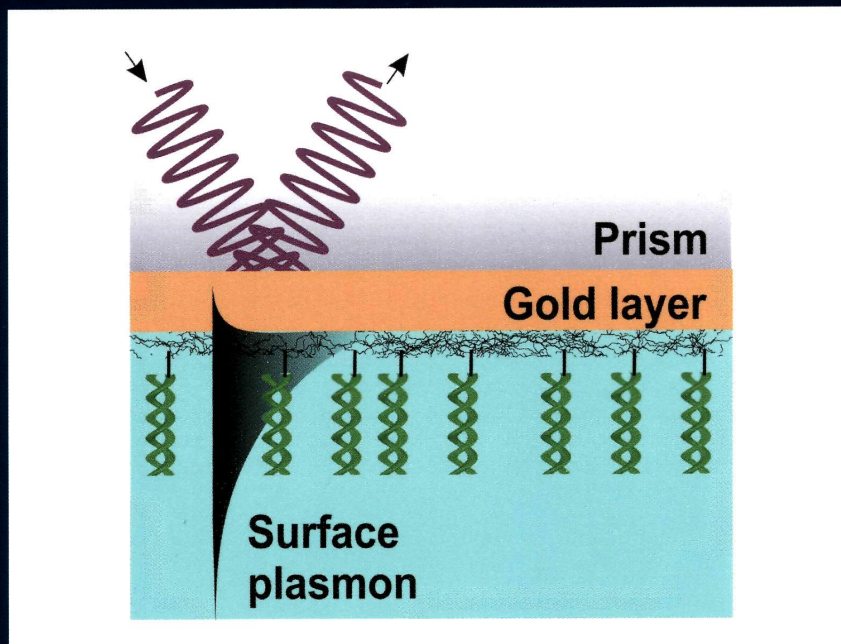
AN INTERNATIONAL JOURNAL DEVOTED TO ALL BRANCHES OF ANALYTICAL CHEMISTRY

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Review Article

Surface plasmon resonance sensing of nucleic acids: A review

Hana Šípová and Jiří Homola

(Published on pp. 9–23 of this issue)

Analytica Chimica Acta

Volume 773, Pages 1-104 (22 April 2013)

Editorial Board

Page iii

Tutorial

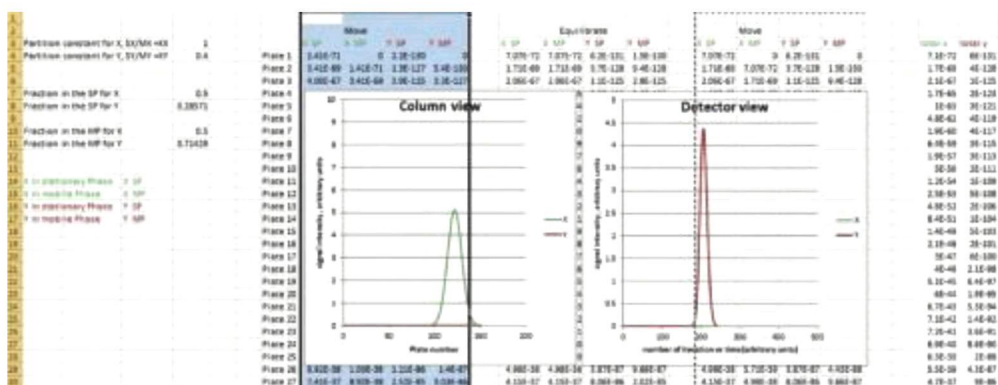
Tutorial: Simulating chromatography with Microsoft Excel Macros

Review Article

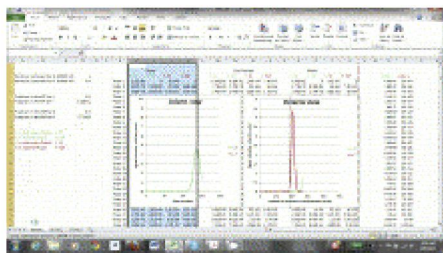
Pages 1-8

Akinde Kadjo, Purnendu K. Dasgupta

Graphical abstract



For a video abstract of a developing isocratic separation, see ScienceDirect Link to Video at .



(20895872 K)

Highlights

- This work describes modeling of chromatography using simple repeated equilibration. ►
- This is implemented in MS Excel, using macro subroutines. ► It is intended primarily for beginning students for pedagogic purposes. ► But it can model complex elution profiles, nonlinear isotherms etc.

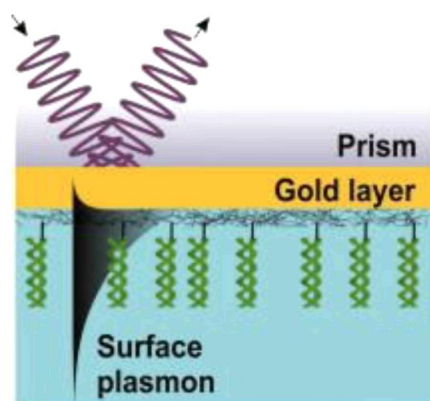
Surface plasmon resonance sensing of nucleic acids: A review

Review Article

Pages 9-23

Hana Šípová, Jiří Homola

Graphical abstract



Highlights

► Advances of nucleic acid (NA) surface plasmon resonance (SPR) sensors are presented. ► Bioanalytical applications of NA SPR biosensors are reviewed. ► Applications for study of molecular interactions involving NAs are also discussed.

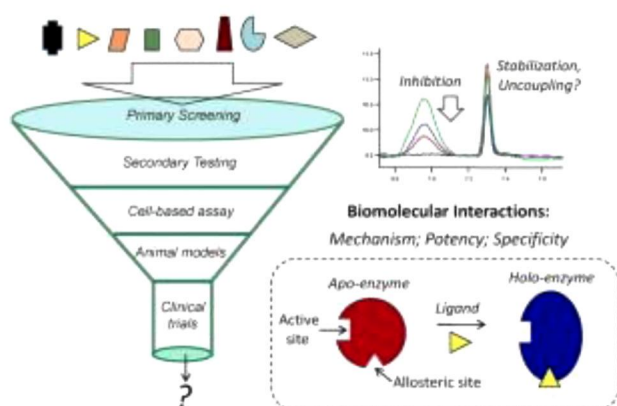
High quality drug screening by capillary electrophoresis: A review

Review Article

Pages 24-36

Meera Shanmuganathan, Philip Britz-McKibbin

Graphical abstract



Highlights

► Major configurations for conducting enzyme assays in capillary electrophoresis. ► New advances in drug screening for disease-related enzymes that reduce attrition. ► High quality screening of small molecules that function as inhibitors, stabilizers and/or catalytic uncouplers.

Atomic Spectrometry

Toward chromium speciation in solids using wavelength dispersive X-ray fluorescence spectrometry Cr K β lines

Original Research Article

Pages 37-44

J. Malherbe, F. Claverie

Graphical abstract



Highlights

► We investigate the potential of XRF to perform quantitative speciation analyses. ► As an example, we analyzed different soils and references containing chromium. ► We used three different chemometric methods to retrieve Cr(VI) mass fractions. ► We report accuracies in the range of $\pm 15\%$.

Electrochemistry

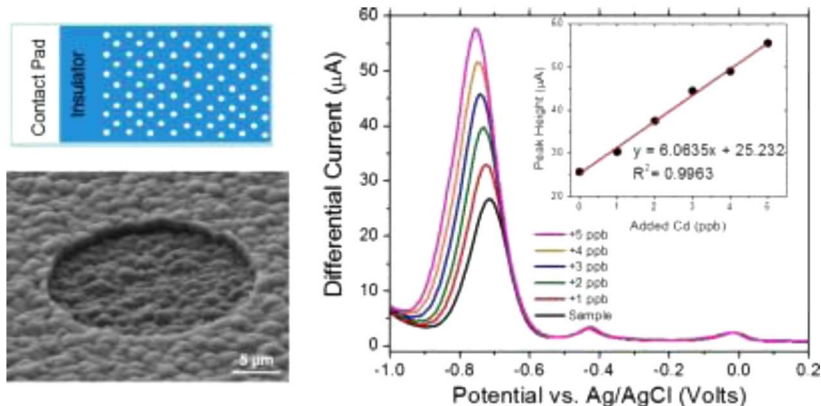
Highly sensitive detection of urinary cadmium to assess personal exposure

Original Research Article

Pages 45-51

Avni A. Argun, Ashley M. Banks, Gwendolynne Merlen, Linda A. Tempelman, Michael F. Becker, Thomas Schuelke, Badawi M. Dweik

Graphical abstract



Highlights

- ▶ An electrochemical sensor capable of detecting cadmium at parts-per-billion levels in urine.
- ▶ A novel fabrication method for Boron-Doped Diamond (BDD) ultramicroelectrode (UME) arrays.
- ▶ Unique combination of BDD UME arrays and a differential pulse voltammetry algorithm.
- ▶ High sensitivity, high reproducibility, and very low noise levels.
- ▶ Opportunity for portable operation to assess on-site personal exposure.

Extraction and Sample Handling

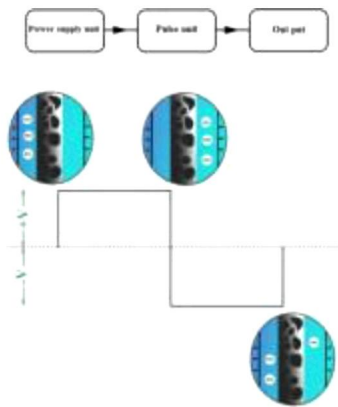
One-way and two-way pulsed electromembrane extraction for trace analysis of amino acids in foods and biological samples

Original Research Article

Pages 52-59

Maryam Rezazadeh, Yadollah Yamini, Shahram Seidi, Ali Esrafil

Graphical abstract



Highlights

► Pulsed electromembrane extraction (PEME) was used for extraction of some amino acids. ► A mixture of NPOE and DEHP was used as the organic liquid membrane. ► The method offers good linearity with correlation coefficient higher than 0.9979. ► The method was applied to determine amino acids in foods and biological samples. ► Two-way PEME was employed for highly selective extraction of tryptophan.

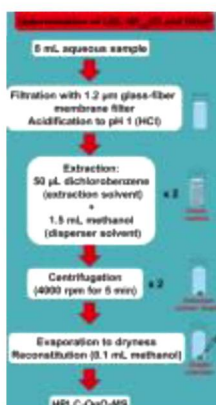
Determination of priority pollutants in aqueous samples by dispersive liquid–liquid microextraction

Original Research Article

Pages 60-67

Julia Martín, Dolores Camacho-Muñoz, Juan Luis Santos, Irene Aparicio, Esteban Alonso

Graphical abstract



Highlights

► Dispersive liquid–liquid microextraction for routine monitoring of pollutants ►
Determination of nonylphenols, sulfonates and phthalate in environmental samples ► Influence
of seven parameters in dispersive liquid–liquid microextraction ► Limits of detection in the
range 0.009–0.224 $\mu\text{g L}^{-1}$ with just 8 mL of sample ► Suitable for nonylphenol and phthalate
according to limits in Directive 2008/105/EC

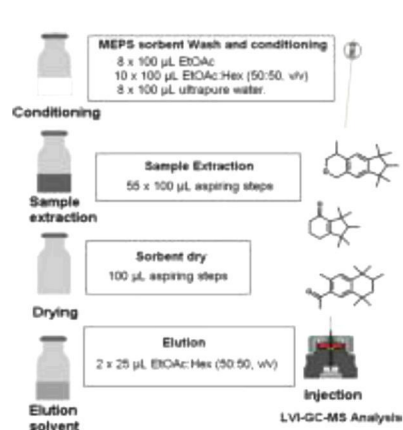
Determination of polycyclic and nitro musks in environmental water samples by means of microextraction by packed sorbents coupled to large volume injection–gas chromatography–mass spectrometry analysis

Original Research Article

Pages 68–75

J. Cavalheiro, A. Prieto, M. Monperrus, N. Etxebarria, O. Zuloaga

Graphical abstract



Highlights

► We developed a fully automated at-line MEPS-LVI-GC–MS method for musks analysis. ►
The analytes were detected in the ng L^{-1} range. ► The time for a MEPS extraction is reduced to
 ~ 10 min due to the high automation. ► Less matrix co-extraction was of special value for
analysis of wastewater samples. ► SBSE vs. MEPS were compared and good agreement
obtained except for DPMI analysis.

Mass Spectrometry

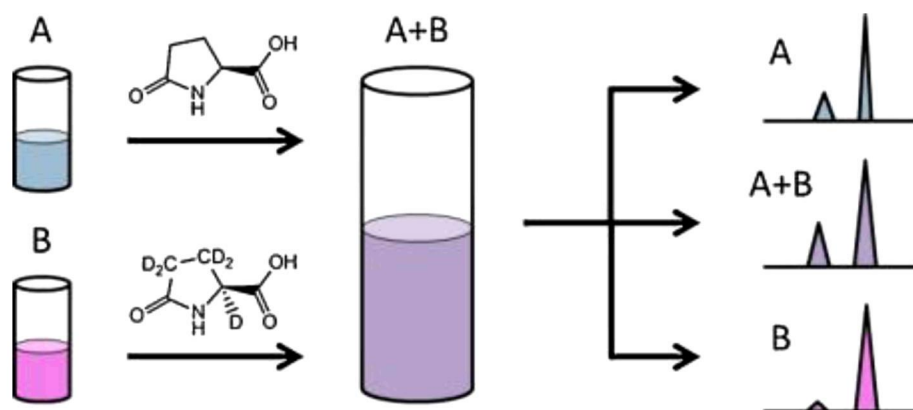
Relative quantification of enantiomers of chiral amines by high-throughput LC–ESI-MS/MS using isotopic variants of light and heavy L-pyroglutamic acids as the derivatization reagents

Original Research Article

Pages 76–82

Toshiki Mochizuki, Sayuri Taniguchi, Haruhito Tsutsui, Jun Zhe Min, Koichi Inoue, Kenichiro Todoroki, Toshimasa Toyo'oka

Graphical abstract



Highlights

► Development of chiral labeling reagent for a pair of amine enantiomers. ► High-throughput analysis of diastereomers by UPLC-ESI-MS/MS. ► Highly efficient separation and detection of the enantiomers. ► Differential analysis of enantiomer ratio in different sample groups using light and heavy labeling reagents.

Sensors and Bioselective Reagents

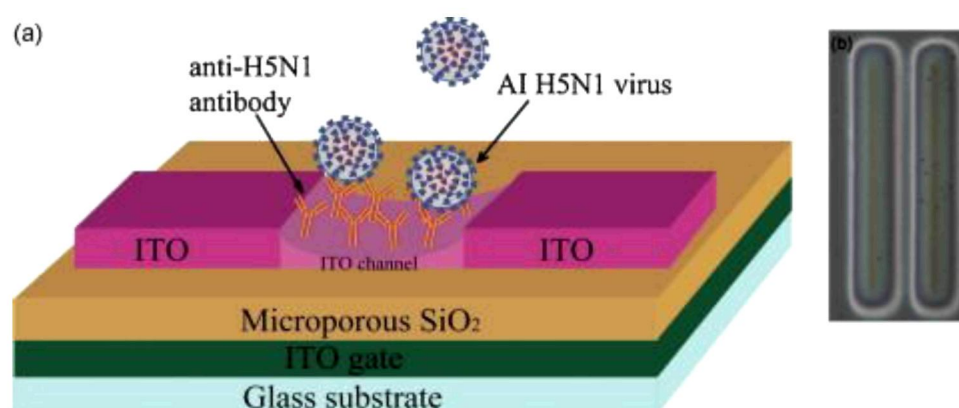
Indium-tin-oxide thin film transistor biosensors for label-free detection of avian influenza virus H5N1

Original Research Article

Pages 83-88

Di Guo, Ming Zhuo, Xiaoi Zhang, Cheng Xu, Jie Jiang, Fu Gao, Qing Wan, Qihong Li, Taihong Wang

Graphical abstract



Highlights

► A highly selective label-free biosensor is established based on indium-tin-oxide thin-film transistors (ITO TFTs). ► AI H5N1 virus was successfully detected through shift in threshold voltage and field-effect mobility of ITO TFT. ► The ITO TFT is applied in biosensor for the first time and shows good reusability and stability. ► Fabrication of the platform is simple with low cost, which is suitable for mass commercial production.

Separation Methods

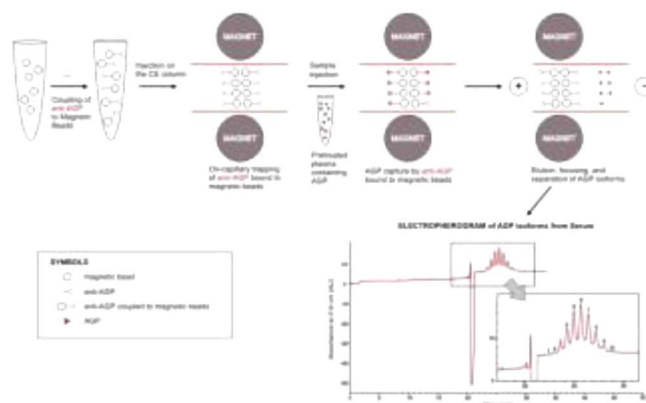
On-line immunoaffinity capillary electrophoresis based on magnetic beads for the determination of alpha-1 acid glycoprotein isoforms profile to facilitate its use as biomarker

Original Research Article

Pages 89-96

Gabriel Morales-Cid, Jose Carlos Diez-Masa, Mercedes de Frutos

Graphical abstract



Highlights

► On-line coupling of immunopurification and capillary electrophoresis is developed. ► Magnetic beads are captured by magnets placed in the cartridge of the instrument. ► Alpha-1 acid glycoprotein is immunocaptured by antibody bound to magnetic beads. ► The procedure allows analysis of 10 isoforms of alpha-1 acid glycoprotein in serum. ► On-line purification, concentration and isoforms separation takes about 1 h.

Detailed elucidation of hydrocarbon contamination in food products by using solid-phase extraction and comprehensive gas chromatography

with dual detection

Original Research Article

Pages 97-104

Giorgia Purcaro, Peter Q. Tranchida, Laura Barp, Sabrina Moret, Lanfranco S. Conte, Luigi Mondello

Graphical abstract

