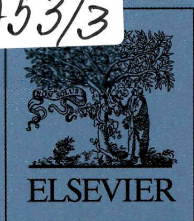


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# ANALYTICA CHIMICA ACTA

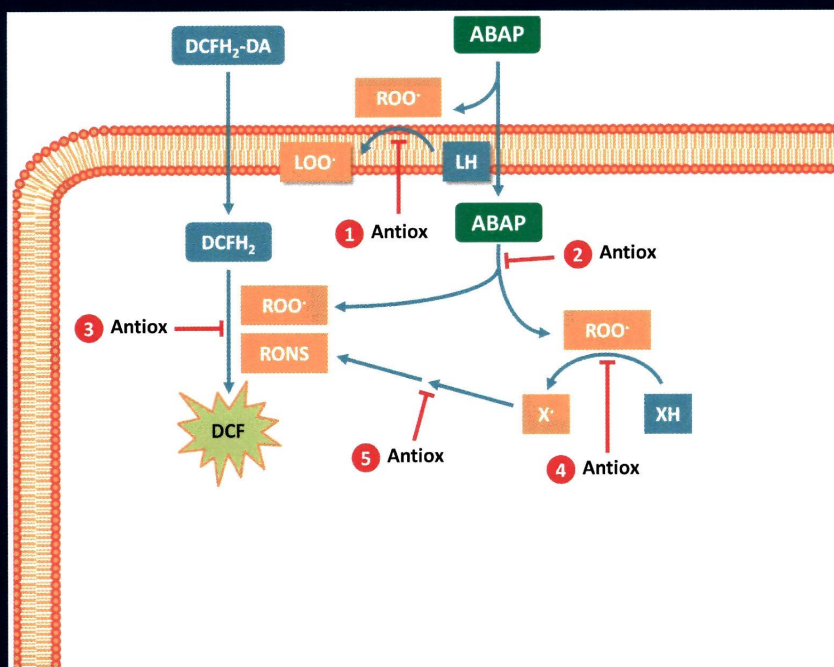
AN INTERNATIONAL JOURNAL DEVOTED TO ALL BRANCHES OF ANALYTICAL CHEMISTRY

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## Review Article

Evaluating the antioxidant capacity of natural products: A review on chemical and cellular-based assays

Camilo López-Alarcón and Ana Denicola

(Published on pp. 1–10 of this issue)

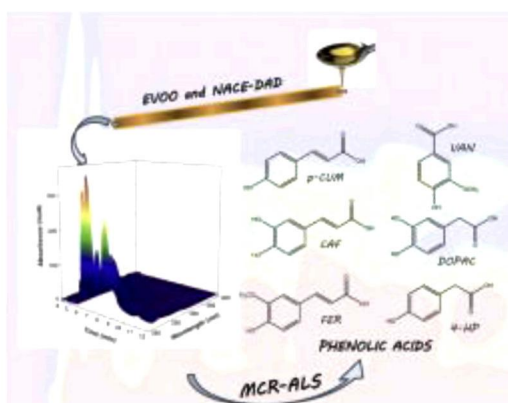


Original Research Article

Pages 11-19

María del Pilar Godoy-Caballero, María Julia Culzoni, Teresa Galeano-Díaz, María Isabel Acedo-Valenzuela

### Graphical abstract



### Highlights

► Novel combination of NACE and MCR-ALS for determination of phenolic acids in EVOO. ► Good results are achieved in less time than other CE method for these compounds. ► Resolution and quantitation without to be necessary a complex experimental work.

Electrochemistry

4<sup>1</sup>

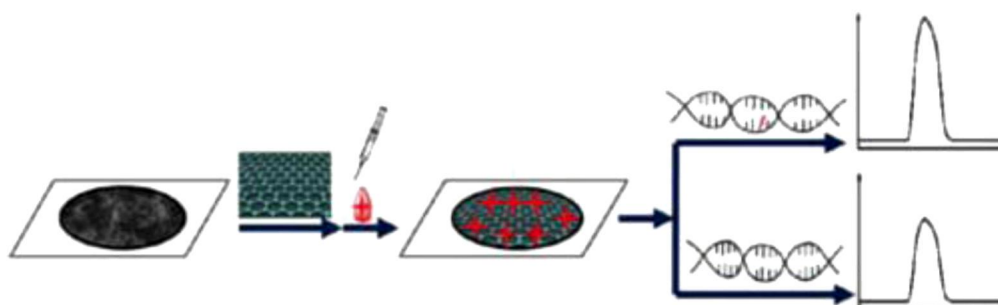
### Paper-based solid-state electrochemiluminescence sensor using poly(sodium 4-styrenesulfonate) functionalized graphene/nafion composite film

Original Research Article

Pages 20-27

Yuanhong Xu, Baohua Lou, Zhaozi Lv, Zhixue Zhou, Libing Zhang, Erkang Wang

### Graphical abstract



### Highlights

► Solid-state ECL sensor was introduced into paper-based chips for the first time. ► Composite film of functionalized graphene/Nafion was used for sensor fabrication. ► Excellent reproducibility and long-term stability were obtained for the sensor. ► Single-base mismatch detection in human urine was realized on paper-based chips.

5

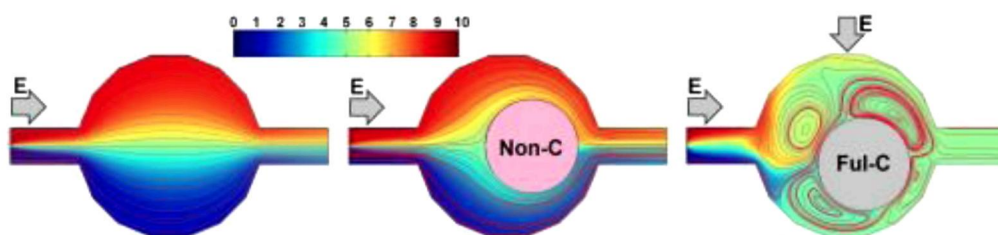
### Numerical study of a novel induced-charge electrokinetic micro-mixer

Original Research Article

Pages 28-37

Yasaman Daghighi, Dongqing Li

### Graphical abstract



### Highlights

► A novel micro-mixer is developed based on induced-charge electrokinetic (ICEK). ► Produced vortices around the electrically conducting particle enhance the mixing. ► Designed micro-mixer is very efficient and fast. ► This micro-mixer is simple to fabricate for lab-on-a-chip applications. ► Mixing efficiency is studied as a function of applied electric field.

Extraction and Sample Handling

6

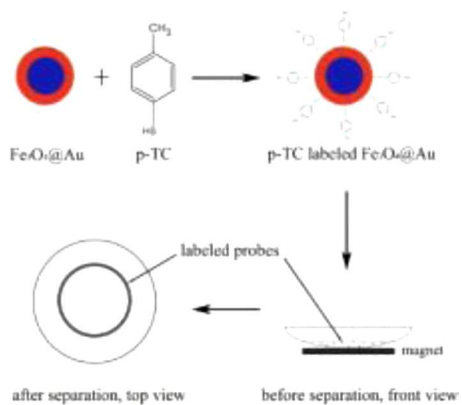
### Surface-enhanced Raman scattering from magneto-metal nanoparticle assemblies

Original Research Article

Pages 38-42

Hua Qu, Yuming Lai, Dongzi Niu, Shuqing Sun

### Graphical abstract



### Highlights

- ▶ Fe<sub>3</sub>O<sub>4</sub>@Au nanoparticle as substrates for SERS.
- ▶ The Fe<sub>3</sub>O<sub>4</sub>@Au nanoparticles are modified with analytes and magnetically separated.
- ▶ The non-optimized detection limit is 4.55 pM p-thiocresol ethanol-water solution.
- ▶ The detection sensitivity and reproducibility of SERS is improved.

Sensors and Bioselective Reagents

71

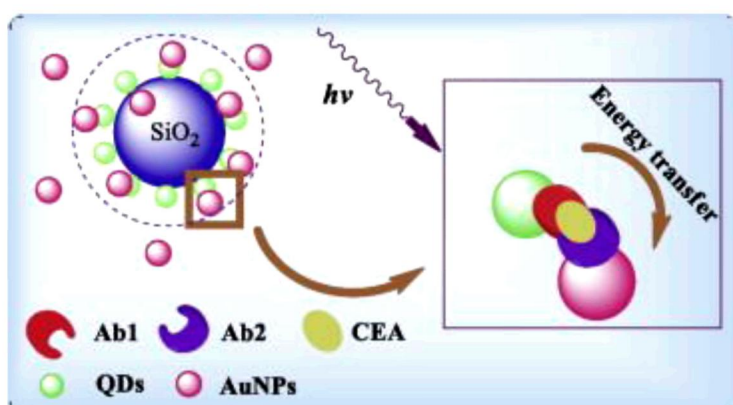
### A high-throughput homogeneous immunoassay based on Förster resonance energy transfer between quantum dots and gold nanoparticles

Original Research Article

Pages 43-49

Jing Qian, Chengquan Wang, Xiaohu Pan, Songqin Liu

### Graphical abstract



## Highlights

► A homogeneous immunosensing strategy based on FRET for detection of tumor marker was proposed. ► Close of QDs and AuNPs allow the occurrence of quenching the photoluminescence of nano-bio-probes. ► Signal quenching was monitored by a self-developed image analyzer. ► The fluorometric assay format is attractive for widespread carcinoma screening and even field use.

## Separation Methods

8

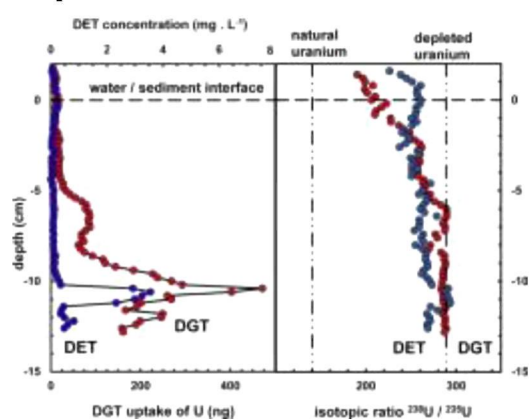
### High resolution characterization of uranium in sediments by DGT and DET techniques ACA-S-12-2197

Original Research Article

Pages 50-56

Michaela Gregusova, Bohumil Docekal

## Graphical abstract



## Highlights

► Probe for U detection by diffusive gradient in thin films technique is presented. ► Selective and spatially resolved depth profiles of U in sediments are monitored. ► U isotopic ratio profiles in DGT and DET measurements are obtained by ICP MS.

9

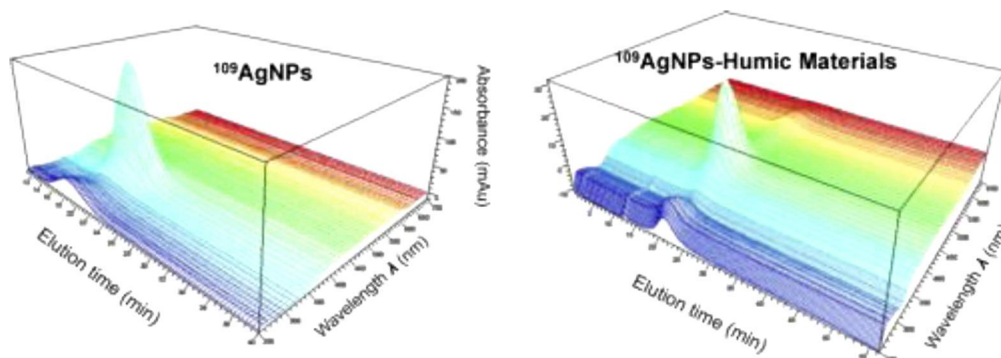
### Differentiation and characterization of isotopically modified silver nanoparticles in aqueous media using asymmetric-flow field flow fractionation coupled to optical detection and mass spectrometry

Original Research Article

Pages 57-66

Julien Gigault, Vincent A. Hackley

## Graphical abstract



## Highlights

► Isotopically modified and unmodified AgNPs characterization by A4F-DAD-MALS–DLS-ICP-MS. ► Size-resolved characterization and speciation in simple or complex media. ► Capacity to detect stable isotope enriched AgNPs in a standard estuarine sediment. ► New opportunities to monitor and study fate and transformations of AgNPs.

10<sup>1</sup>

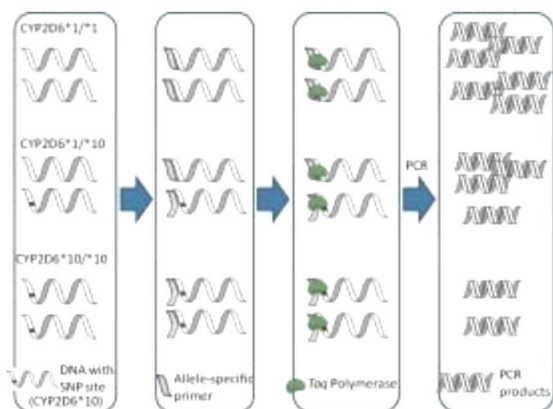
## Simultaneous detection of single nucleotide polymorphisms and copy number variations in the CYP2D6 gene by multiplex polymerase chain reaction combined with capillary electrophoresis

Original Research Article

Pages 67-75

Hsiao-Wei Liao, I-Lin Tsai, Guan-Yuan Chen, Chun-Ting Kuo, Ming-Feng Wei, Tzung-Jeng Hwang, Wei J. Chen, Li-Jiuan Shen, Ching-Hua Kuo

## Graphical abstract



### ***Highlights***

- ▶ Simultaneous detection of SNPs and CNVs in the CYP2D6 gene by multiplex PCR combined with CE.
- ▶ We established simulation equations to predict the CYP2D6 genotypes. ▶ Validation was made by analyzing human genomic DNA.