

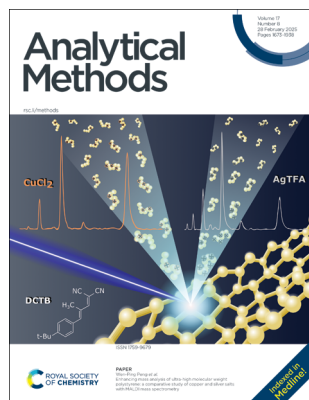
Analytical Methods

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IN THIS ISSUE

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Cover

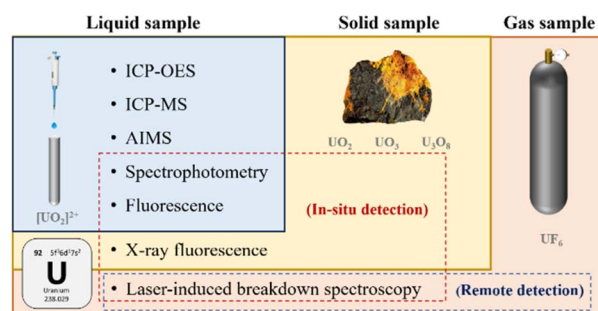
See Wen-Ping Peng *et al.*, pp. 1754–1764. Image reproduced by permission of Wen-Ping Peng from *Anal. Methods*, 2025, 17, 1754.

CRITICAL REVIEWS

1683

A review of uranium (U) elemental detection methods

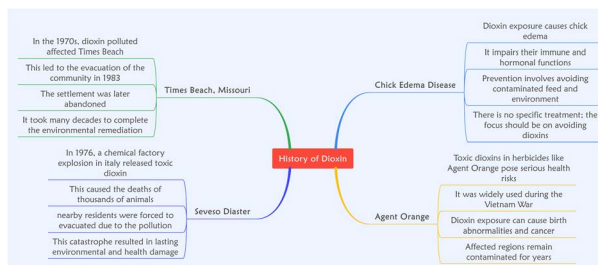
Xiang Yu,* Xuebin Su,* Zhe Wang, Zongyu Hou and Boping Li



1698

Dioxins and their impact: a review of toxicity, persistence, and novel remediation strategies

Nikhila Mathew, Arvinth Somanathan, Abha Tirpude, Anupama M. Pillai, Pabitra Mondal and Tanvir Arfin*



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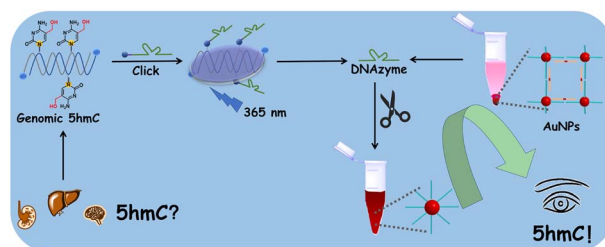
**Fundamental questions
Elemental answers**

COMMUNICATION

1749

A photo-elutable 8–17 DNAzyme labeling and PCR-free colorimetric quantification strategy for 5-hydroxymethylcytosine in mammalian genomic DNA

Mingfeng Lai, Shitao Lu, Bao Huang, Yanfeng Nie, Xu Wang, Jiaying Xiong and Zhenning Yu*

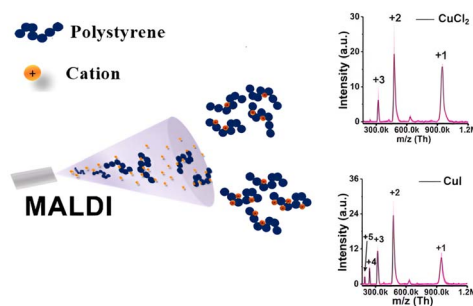


PAPERS

1754

Enhancing mass analysis of ultra-high molecular weight polystyrene: a comparative study of copper and silver salts with MALDI mass spectrometry

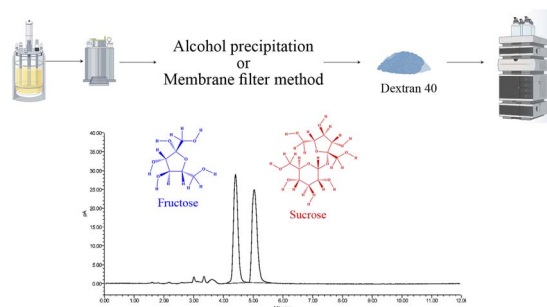
Avinash A. Patil, Thị Khánh Ly Lại, Ching-Chieh Lee, Yi-Pang Chiu, Zhe-Xuan Liu, Che-Jen Lin and Wen-Ping Peng*



1765

Quantitative analysis of carbohydrate residues in dextran 40 from various sources: a comparative study using high-performance liquid chromatography coupled with a charged aerosol detector

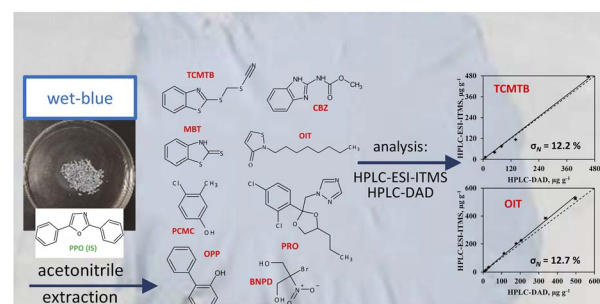
Shenggu Xie, Zhuyu Jin, Yan Huang and Qiaoqiao Huang*



1774

Determination of eight fungicides in tanned leather by liquid chromatography with mass spectrometry and with diode array spectrophotometric detection

Francisco Javier Acevedo-Aguilar, Israel Enciso Donis, Kazimierz Wrobel, Alma Rosa Corrales Escobosa, Luis Mario Magaña Maldonado and Katarzyna Wrobel*





Amrit Kaur, Mina Bagherifard, Alissa Brooke Anderson,
Neelam Tariq, Zois Syrgiannis and Ioannis Spanopoulos*

The diagram illustrates the experimental setup and the photocatalytic mechanism. On the left, the SPE-BDD electrode is shown with a potentiostat connected to it, with a voltage of +0.5 V and -0.2 V. The electrode is labeled with C, W, and R. On the right, the photocatalytic reaction mechanism is shown. The BDD surface is irradiated with UV light, generating e^- and e^+ holes. The e^- holes react with H_2O_2 to produce HO^\bullet , which then reacts with AP^{2-} to regenerate AP^{*2-} and produce $2OH^-$. The AP^{*2-} species is also shown reacting with H_2O_2 to produce HO^\bullet and AP^{2-} .

Comparison between electrochemiluminescence of luminol and electrocatalysis by Prussian blue for the detection of hydrogen peroxide

Isnaini Rahmawati,* Andrea Fiorani, Irkham,
Wulan Tri Wahyuni, Ruri Agung Wahyuono, Yasuaki Einaga
and Tribidasari A. Iyandini*

N-Nitroso Dabigatran Etilate impurity

Sample Solution

Centrifugation

Filtration

LC-MS/MS analysis

Data Collection & association

Chromatograms

Dabigatran Etilate Methylene

Is my drug safe?

Method Validation

System Precision

Method Precision

Intermediate Precision

Solution stability

Linearity

Limit of detection

Limit of Quantitation

Accuracy

Range

Ultrasensitive LC-MS/MS quantitation of the *N*-nitroso-dabigatran etexilate impurity in dabigatran etexilate mesylate using an electrospray ionization technique

Anant D. Yadav, Ashish C. Alaspure, Sandesh R. Lodha,
Amrutlal L. Prajapat and Anil H. Gore*

The diagram illustrates the detection of Hg²⁺ using a colorimetric assay based on AuNPs. The process involves several steps:

- Initial State:** A test tube containing a "Blood/Urine Sample" and AuNPs. A legend identifies the components: AuNP (yellow circle), AuNP (grey circle), M31 Biotin (green circle), M32 Biotin (red circle), and Neutrophil (blue cell). A scale bar indicates 10 μm.
- Incubation:** The sample is incubated for 10 min at 37 °C.
- Mixing:** The mixture is combined with "M31 Biotin" and "M32 Biotin".
- Binding:** The AuNPs bind to the biotinylated antibodies (M31 and M32) which are attached to the surface of the test tube.
- Color Change:** The color of the solution changes from red to blue, indicating the presence of Hg²⁺.
- Detection:** The color change is monitored using a "Spectrophotometer" (shown as a laptop with a monitor displaying a graph).
- Graph:** The graph shows "Absorbance" on the y-axis (0 to 1.0) versus "Wavelength (nm)" on the x-axis (2.0 to 1.0). Two peaks are visible: a red peak at approximately 520 nm and a blue peak at approximately 620 nm.

Advanced multiplexed electrochemical nanobiosensors for simultaneous detection of BK polyomavirus miRNAs in renal transplants

Mohammad Shenagari, Ammar Ebrahimi,
Elahe Bozorgzadeh,* Masoud Khosravi
and Elham Hasan-Alizadeh

PAPERS

1813

Fast preconcentration of Pb(II) and Cu(II) in liquid milk by syringe solid-phase extraction using alginate and PVA biopolymer loaded with activated carbon

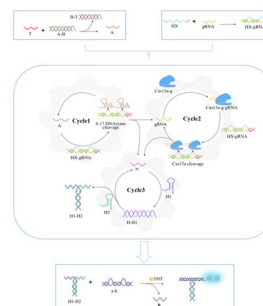
Ahmad Akhib Ainul Yaqin, Suherman Suherman, Dwi Siswanta* and Ahmad Hosseini-Bandegharai



1825

Multiple signal amplification strategy for ultrasensitive sensing of *Mycobacterium bovis* based on 8–17 DNAzyme and CRISPR-Cas13a

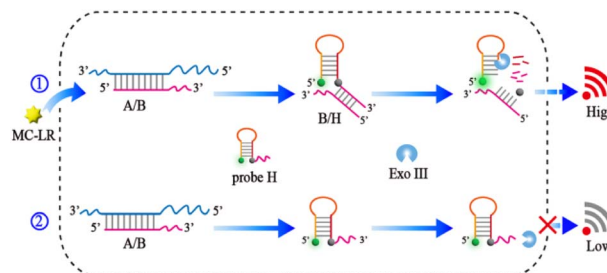
Xin Fu, Sainan Gao, He Zhang,* Wenjie Ma, Yong Chen, Jiamei Luo and Bin Ye



1834

A probe-mediated fluorescent biosensor for MC-LR detection using exonuclease III as a signal amplifier

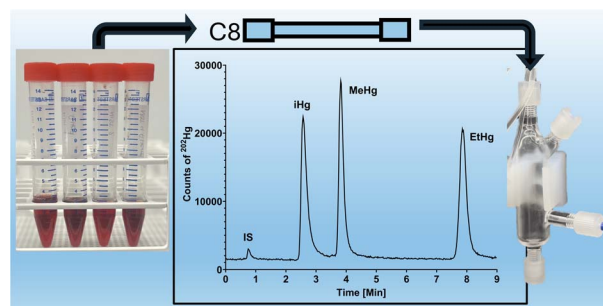
Yuyan Wang, Ying Zeng, Xiaoya Ren, Jun Qiu, Jiafeng Pan* and Fei Yang*



1840

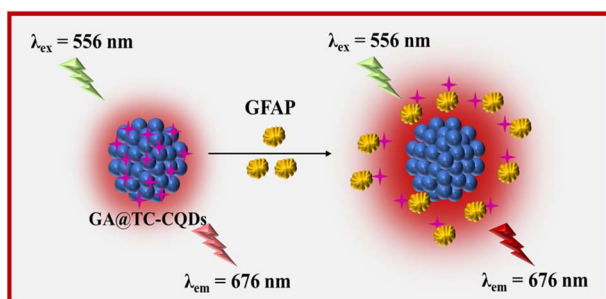
A rapid method for the determination of methylmercury and inorganic mercury species in whole blood by liquid chromatography with detection using vapor generation ICP-MS/MS

Emily J. Pacer, Christopher D. Palmer and Patrick J. Parsons*



PAPERS

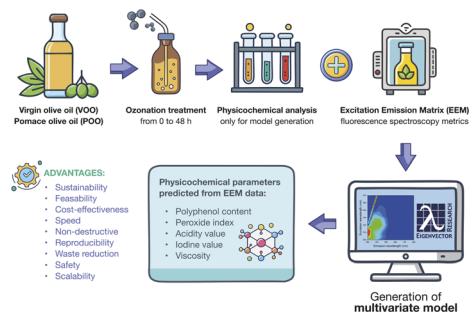
1850



Near infrared-emitting carbon dots for the detection of glial fibrillary acidic protein (GFAP): a non-enzymatic approach for the early identification of stroke and glioblastoma

Susan Varghese, Merin K. Abraham, Ali Ibrahim Shkhair, Geneva Indongo, Greeshma Rajeevan, Arathy B. K., Anju S. Madanan and Sony George*

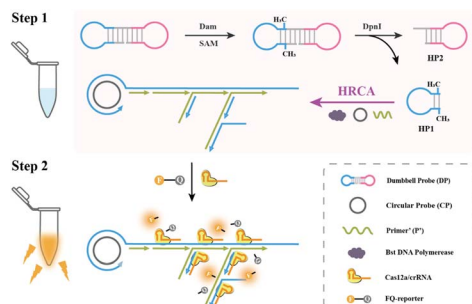
1860



Excitation–emission matrix spectroscopy coupled with chemometrics for monitoring ozonation of olive oil and olive pomace oil

Paula Domínguez-Lacueva, Ewa Sikorska and María J. Cantalejo-Díez*

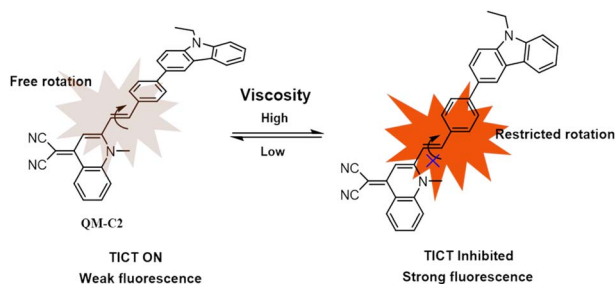
1870



A universal two-step strategy for multiple DNA MTase activity: enhancing sensitivity through CRISPR/Cas12a-assisted hyperbranched rolling circle amplification (CA-HRCA)

Shiying Zhou, Human Sun, Liyuan Deng, Shuyu Zhu, Jian Chen, Danqun Huo* and Changjun Hou*

1877



A quinoline-malononitrile-based fluorescent probe with aggregation-induced emission effect for the *in vivo* monitoring of viscosity

Wenjie Zhang, Qiuying Song, Jing He, Hongmin Jia,* Zhuye Shang,* Zhiqiang Zhang and Qingtao Meng*

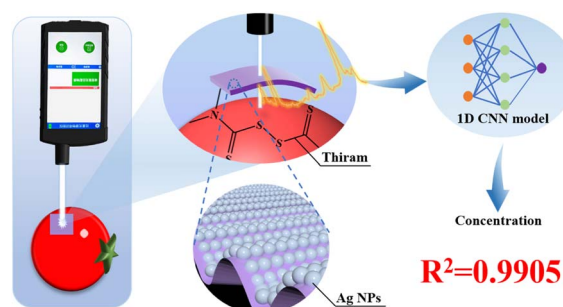


PAPERS

1884

Rapid detection and quantitative analysis of thiram in fruits using a shape-adaptable flexible SERS substrate combined with deep learning

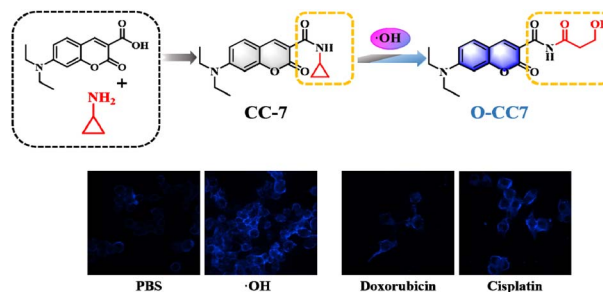
Hongjun Wang, Ziyang Bian, Yue Wang, Huijuan Niu, Zhenshan Yang and Hefu Li*



1892

Radical-triggered ring-opening of aminocyclopropane for detection of hydroxyl radicals in living cells

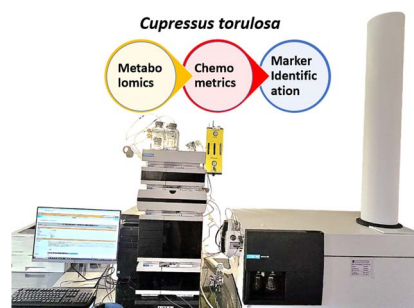
Shiqi Jin, Wang Qian, Ruiyang Suo, Yi Li, Huan Ling, Shuqi Li, Kai Deng, Yongchang Wei,* Bo Wu* and Huaixia Chen*



1900

UPLC-QTOF-MS-based metabolomics and chemometrics studies of geographically diverse *C. torulosa* needles

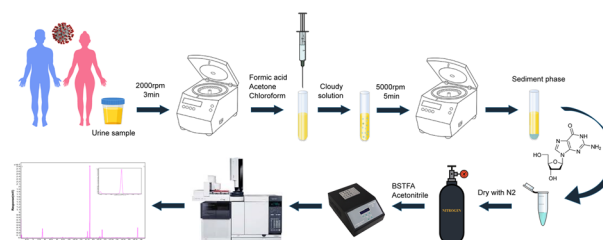
Radhika Khanna,* Khushaboo Bhadoriya, Gaurav Pandey and V. K. Varshney*



1915

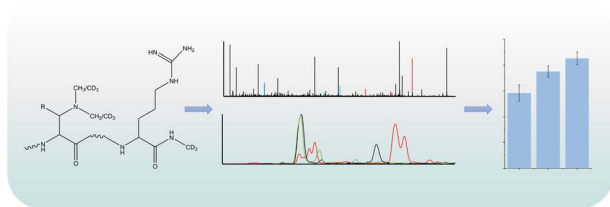
Dispersive liquid-liquid microextraction for the determination of urinary 8-hydroxy 2'-deoxyguanosine in COVID-19 patients by gas chromatography-mass spectrometry

Sanaz Zare, Zohreh Zahraei,* Mohammad Khodadadi,* Maryam Zarean and Azam Salehi



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1923

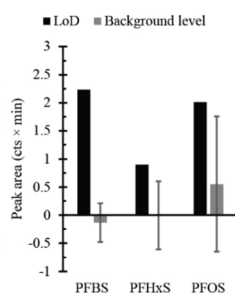


Analysis of phosphorylation site occupancy of peptides based on a chemical derivatization method

Xingdan Wang, Zhenghu Min, Xiaoqiu Yang, Qiwei Zhang* and Qi Zheng

TECHNICAL NOTE

1930



Homebuilt cost-effective nitrogen blowdown evaporator

Eamonn Clarke* and Marc D. Porter

