

Environmental Science: Advances

rsc.li/esadvances

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

IN THIS ISSUE

ISSN 2754-7000 CODEN ESANEB 3(5) 613–790 (2024)



Cover
See Freya C. Alldred, Darren R. Gröcke *et al.*, pp. 676–685. Image reproduced by permission of National Museums Liverpool from *Environ. Sci.: Adv.*, 2024, 3, 676.



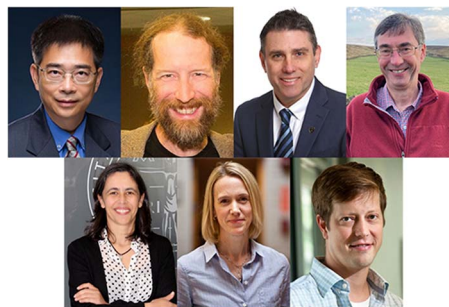
Inside cover
See Kunal Roy *et al.*, pp. 686–705. Image reproduced by permission of Kunal Roy from *Environ. Sci.: Adv.*, 2024, 3, 686.

EDITORIAL

620

2023 Outstanding Papers published in the *Environmental Science* journals of the Royal Society of Chemistry

Zongwei Cai, Neil Donahue, Graham Gagnon, Kevin C. Jones, Célia Manaia, Elsie Sunderland and Peter J. Vikesland

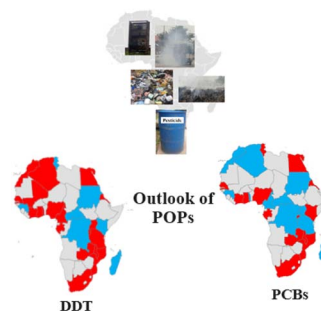


CRITICAL REVIEWS

623

Implementation of the Stockholm Convention on persistent organic pollutants (POPs) in Africa – progress, challenges, and recommendations after 20 years

Olumide Emmanuel Akinrinade,* Foluso O. Agunbiade, Rose Alani and Olusegun O. Ayejuyo



Advance your career in science

with professional recognition that showcases
your **experience, expertise and dedication**

Stand out from the crowd

Prove your commitment
to attaining excellence in
your field

Gain the recognition you deserve

Achieve a professional
qualification that inspires
confidence and trust

Unlock your career potential

Apply for our professional
registers (RSci, RSciTech)
or chartered status
(CChem, CSci, CEnv)

Apply now

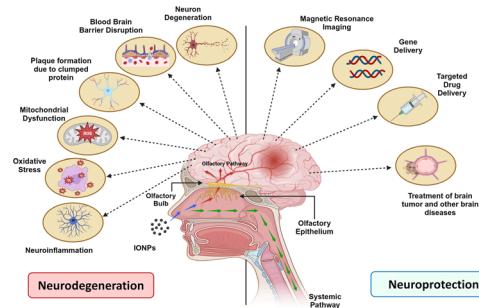
[rsc.li/professional-development](https://www.rsc.li/professional-development)



635

Iron oxide nanoparticles: a narrative review of in-depth analysis from neuroprotection to neurodegeneration

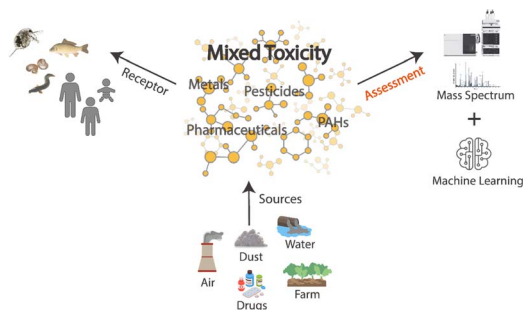
Ruchika Agarwal, Satadal Adhikary, Suchandra Bhattacharya, Sohini Goswami, Dipsikha Roy, Sohini Dutta, Abhratanu Ganguly, Sayantani Nanda and Prem Rajak*



661

A brief review on the assessment of potential joint effects of complex mixtures of contaminants in the environment

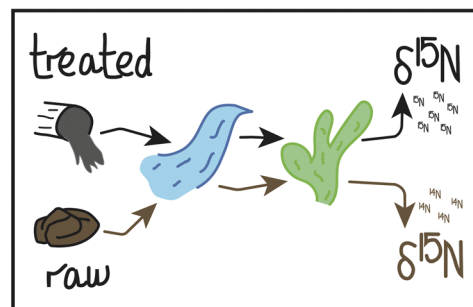
Yu Cheng, Jue Ding, Catherine Estefany Davila Arenas, Markus Brinkmann* and Xiaowen Ji



676

Nitrogen isotopes in herbaria document historical nitrogen sewage pollution in the Mersey Estuary, England

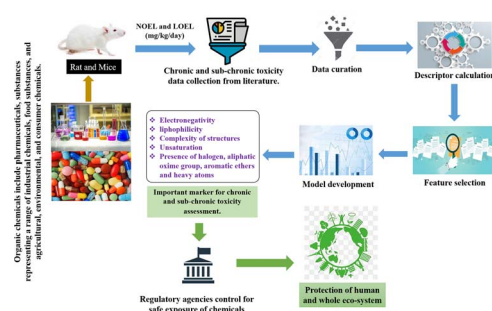
Freya C. Alldred,* Darren R. Gröcke,* Samuel E. Jackson and Geraldine Reid



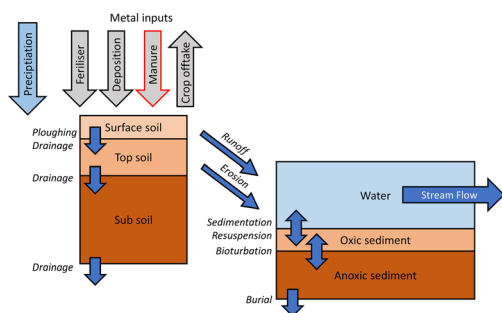
686

Chemometric modeling of the lowest observed effect level (LOEL) and no observed effect level (NOEL) for rat toxicity

Ankur Kumar, Probir Kumar Ojha and Kunal Roy*



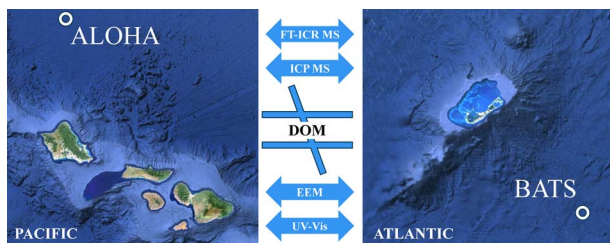
706



Environmental risk assessment of the use of zinc oxide medicated feeds for weaning piglets in the UK

Adam Peters,* Graham Merrington, Ken Stapleton and Stephen Lofts

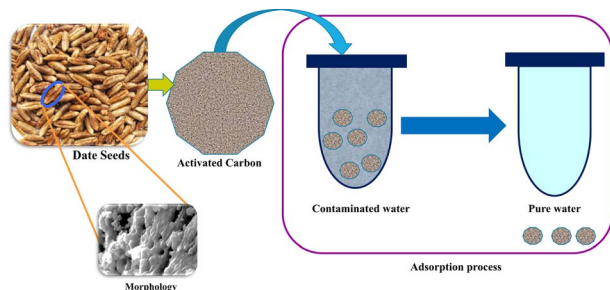
717



Optical properties and molecular differences in dissolved organic matter at the Bermuda Atlantic and Hawai'i ALOHA time-series stations

Michael Gonsior,* Madeline Lahm, Leanne Powers, Feng Chen, S. Leigh McCallister, Dong Liang, Grace Guinan and Philippe Schmitt-Kopplin

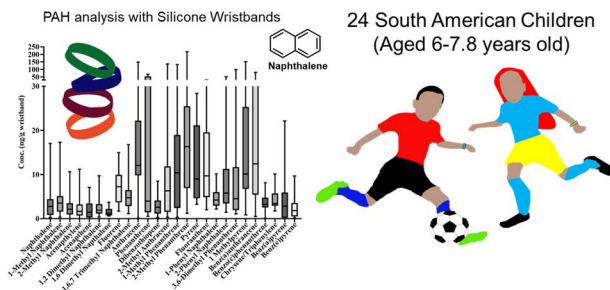
732



Industrial biomass waste as an economical, potential adsorbent for removing the Bismarck Brown R dye and zinc metal ions from effluents

Sivamani Sivalingam* and Sowmiya A.

751



Polycyclic aromatic hydrocarbons in silicone wristbands of Uruguayan children: measurement and exposure source exploration

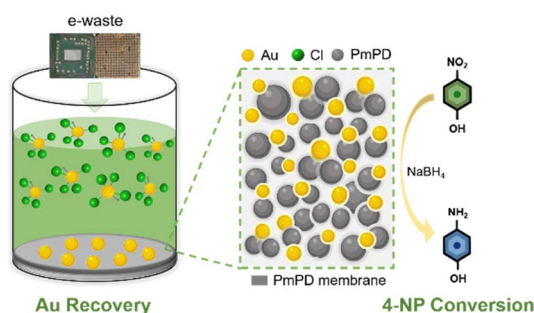
Logan S. Running, James R. Olson, Diana S. Aga, Steven C. Travis, Mónica Daleiro, Elena I. Queirolo and Katarzyna Kordas*



763

From waste to precious: recovering and anchoring Au from electronic wastewater onto poly(*m*-phenylenediamine) membranes for catalytic nitrophenol conversion

Youmei Xu, Yuchao Chen, Mengxia Wang, Yufei Shu, Siyu Cao and Zhongying Wang*



776

Fabrication of a novel palladium membrane sensor for its determination in environmental and biological samples

Adil O. S. Bahathiq, Ahmad O. Babalghith, Alaa S. Amin* and Abdelrazek M. Askar

