The Innovation, Volume *5*

Supplemental Information

Emerging contaminants: A One Health perspective

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Table S1. Some examples of advanced methods for the detection and analysis of emerging contaminants

Techniques	Detectors	Target analytes	Sample matrix	Sample pretreatment	Identification	Quantification	References
GC-QTOF	HRMS	N-(1,3-dimethylbutyl)-N′-phenyl-p-phenylenediamine (6PPD)	Tire tread wear particle leachates	Fractionation	✓		(Tian et al., 2021)
		Organophosphate flame retardants	Air particulates	Pressurized liquid extraction	✓		(Liu et al., 2021)
LC-QTOF/ LC-Orbitrap	HRMS	6PPD-quinone	Diluted extracts of roadway runoff and	Fractionation	✓	✓	(Tian et al., 2021)

		receiving water samples				
	Endocrine-disrupting chemicals	Source and drinking water sampled from major rivers	Solid-phase extraction	✓		(Li et al., 2023)
	Thiol reactive DBPs	Waters treated using both chemical disinfection and advanced	*Solid-phase extraction, glutathione (GSH) incubation*	✓		(Yeung et al., 2023)

			oxidation processes			
IM-QTOF	HRMS	Bisphenols, alternative plasticizers, organophosphate flame retardants, perfluoroalkyl substances	Urine samples	Dilute-and-shoot	✓	(Belova et al., 2021)
LC-IM-QTOF	HRMS	Per- and polyfluoroalkyl substances	Aqueous film-forming foams	Dilute-and-shoot	✓	(Luo et al., 2020)
FT-ICR-MS	UHRMS	Unknown DBPs	Chlorinated and	Ultrafiltration, XAD	✓	(Dong et al., 2023)

			chloraminated drinking water	Resin Extraction			
SFC-QTOF	HRMS	Halogenated sulfonic acids	Water samples from drinking water production, tap water, and swimming pool	Freeze-drying	✓	✓	(Nihemaiti et al., 2023)
Pyr-GC-MS	MS	Pyrolysis products of MP	Sea water, beach sand, sediment,	Filtering, density separation,	✓	✓	(Zhang et al., 2023)

			air, rice, seafood, human blood	solvent-based extraction			
spICP-MS	MS	MPs	Consumer products	Filtration and dilution		✓	(Laborda et al., 2021)
	HRMS	MPs	Aqueous suspensions	Dilute-and-shoot		✓	(Hendriks and Mitrano, 2023)
NMR	Various nuclei (^{1}H, ^{13}C, ^{15}N, ^{19}F, ^{31}P)	Metals and organic compounds	Solution, solid and gels	Various, depending on the sample type	✓	✓	(Simpson and Simpson, 2014)

Antibody	Electrochemical	-	PAHs	Oysters interstitial fluid	Filtration	✓	✓	(Prossner et al., 2022)
	Electrochemical	Metallic nanoparticles	Cocaine	Urine, sweat, saliva, serum	-	✓	✓	(Sanli et al., 2020)
Aptamer	UV-Vis absorption spectrum	Cage Au@Au nanoparticles	Chloramphenicol	Honey	Dissolve in ultrapure water	✓	✓	(Zhou et al., 2022)
	Electrochemical	Graphene@black phosphorus nanocomposites	Bisphenol A	Wastewater	Filtration	✓	✓	(Gao et al., 2022)

	Electrochemical	Poly (propylene imine) dendrimer-carbon nanofiber nanocomposite	Bisphenol A	Water	Dilution with Tris-HCl buffer	✓	✓	(Tsekeli et al., 2021)
	Photo-electrochemical	$Au/Bi_{24}O_{31}Br_{10}$	Enrofloxacin	Sewage river water	-	✓	✓	(Dong et al., 2022)
Algae	Luminescence	Microfluidic device	Pesticides	Tap water	-	✓	✓	(Tahirbegi et al., 2017)
	Luminescence	Porous silicone	Herbicides	Aquatic samples	-	✓	✓	(Haigh-Flórez et al., 2014)

The table provides a selection of advanced methods for detecting and analyzing emerging contaminants, but it's important to recognize that there are numerous other methods available for this purpose. While the table illustrates specific examples or groups of contaminants analyzed by each method, it's essential to understand that one method can be utilized to analyze multiple emerging contaminants.

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