

Outline

Highlights

Abstract

Graphical abstract

Keywords

Nomenclature

1. Introduction

2. Materials and methods

3. PFASs exposure pathways

4. Monitoring of PFASs in human and environmental mat...

5. Future research directions and implications for stakeho...

6. Conclusions

Author contribution statement

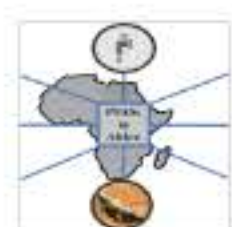
Declaration of competing interest

Acknowledgement


References

Show full outline 

Figures (1)



Tables (4)

 Table 1 Table 2 Table 3 Table 4

Science of The Total Environment

Volume 739, 15 October 2020, 139913



Review

Environmental levels and human body burdens of per- and poly-fluoroalkyl substances in Africa: A critical review

Patrick Ssebugere ^{a, g, ✉}, Mika Sillanpää ^{b, c, d}, Henry Matovu ^{a, e}, Zhanyun Wang ^f, Karl-Werner Schramm ^g, Solomon Omwoma ^h, William Wanasolo ⁱ, Emily Chelangat Ngeno ^a, Silver Odongo ^aShow more <https://doi.org/10.1016/j.scitotenv.2020.139913>

Get rights and content

Highlights

- Limited data is available due to limited capacity to monitor PFASs in Africa.
- PFASs are present at low levels in human and environmental samples in Africa.
- No biomagnification of PFASs could be confirmed in aquatic systems in Africa.
- Poor waste management, WWTPs and consumer products are major sources of PFAS.
- Policy makers need to prioritize resources for research on PFASs in hotspot areas.



Download PDF


Share

Export

Search ScienceDirect



Advance

Recommended articles Simultaneous removal of acetaminophen and i...
Groundwater for Sustainable Development, Volume 11... Download PDFView details Assemble a new functional PEDOT-ZIS electro...
Journal of Water Process Engineering, Volume 37, 202... Download PDFView details Novel adsorptive membrane through embeddin...
Journal of Water Process Engineering, Volume 37, 202... Download PDFView details 1 2 Next 

Citing articles (0)

Abstract

Per- and polyfluoroalkyl substances (PFASs) are known organic pollutants with adverse health effects on humans and the ecosystem. This paper synthesises literature about the status of the pollutants and their precursors, identifies knowledge gaps and discusses future perspectives on the study of PFASs in Africa. Limited data on PFASs prevalence in Africa is available because there is limited capacity to monitor PFASs in African laboratories. The levels of PFASs in Africa are higher in samples from urban and industrialized areas compared to rural areas. Perfluorooctane sulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) are the dominant PFASs in human samples from Africa. Levels of PFOS and PFOA in these samples are lower than or comparable to those from industrialized countries. PFOA and PFOS levels in drinking water in Africa are, in some cases, higher than the EPA drinking water guidelines suggesting potential risk to humans. The levels of PFASs in birds' eggs from South Africa are higher, while those in other environmental media from Africa are lower or comparable to those from industrialized countries. Diet influences the pollutant levels in fish, while size and sex affect their accumulation in crocodiles. No bioaccumulation of PFASs in aquatic systems in Africa could be confirmed due to small sample sizes. Reported sources of PFASs in Africa include municipal landfills, inefficient wastewater treatment plants, consumer products containing PFASs, industrial wastewater and urban runoff. Relevant stakeholders need to take serious action to identify and deal with the salient sources of PFASs on the African continent.