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Corrigendum: Microplastic rapid screening method development using automated mineralogy

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KEYWORDS

microplastic, QEMSCAN®, sediment screening, mounting medium, species identification protocol, EDS, automated mineralogy, SEM

A Corrigendum on

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In the published article, the second author's name was incorrectly written as Louise Blythe Hamdy. The correct spelling is Louise B. Hamdy. The fourth author's name was also incorrectly written as David Patrick Gold. The correct spelling is David P. Gold.

In the published article, there was also an error with incorrect initials used in the **Author Contributions** statement. The corrected statement appears below:

Author contributions

GHR, ALM and DPG contributed to conceptualization of method, GHR and LBH contributed to conceptualization of experiment, GHR and ALM contributed to sample preparation methodology development, LBH contributed to sample preparation, GHR contributed to experimental development, GHR contributed to data acquisition, GHR and LBH contributed to data analysis and manuscript preparation.

Incorrect initials were also used in the **Conflict of Interest** statement. The corrected statement appears below:

Conflict of interest

Authors GHR, LBH, ALM, and DPG are employed by CGG.

In the published article, there was also an error in numerous reference citations. Some citations used the authors' first name, rather than their surname. A correction has been made to the **Introduction**, Paragraph 1. This sentence previously stated:

“Automated mineralogy (AM) is a highly diverse analytical tool that, as well as its more common applications within geological analysis, has also been used to study a variety of materials including spent lithium ion battery powders (Anna et al., 2021), sewage sludge ash (Guhl et al., 2020), and soil samples: for the identification of particulate trace evidence in forensic investigations (Pirrie et al., 2009), and for studying the partitioning of metal (loid)s in topsoil affected by mining (Marek et al., 2020).”

The corrected sentence appears below:

“Automated mineralogy (AM) is a highly diverse analytical tool that, as well as its more common applications within geological analysis, has also been used to study a variety of materials including spent lithium ion battery powders (Vanderbruggen et al., 2021), sewage sludge ash (Guhl et al., 2020), and soil samples: for the identification of particulate trace evidence in forensic investigations (Pirrie et al., 2009), and for studying the partitioning of metal (loid)s in topsoil affected by mining (Tuhý et al., 2020).”

A correction has been made to the **Introduction**, Paragraph 2. This sentence previously stated:

“Microplastic pollution is a growing issue of concern worldwide, with particles in the millimeter and sub-millimeter range being detected in many diverse host materials including marine (LisbethVanreusel et al., 2013) and river sediments (Klein et al., 2015), terrestrial and agricultural soils (Fabio et al., 2019), animal (Sajjad et al., 2018) and plant tissues (Li et al., 2020), as well as suspended within aquatic ecosystems (Wenya et al., 2019) and in the air column (Sajjad et al., 2019).”

The corrected sentence appears below:

“Microplastic pollution is a growing issue of concern worldwide, with particles in the millimeter and sub-millimeter range being detected in many diverse host materials including marine (Cauwenberghe et al., 2013) and river sediments (Klein et al., 2015), terrestrial and agricultural soils (Corradini et al., 2019), animal (Abbasi et al., 2018) and plant tissues (Li et al., 2020), as well as suspended within aquatic ecosystems (Wenya et al., 2019) and in the air column (Abbasi et al., 2019).”

A correction has been made to the **Introduction**, Paragraph 2. This sentence previously stated:

“Indeed, so ubiquitous is plastic pollution, that it may be considered a stratigraphic “technofossil” marker of the Anthropocene (Jan et al., 2016).”

The corrected sentence appears below:

“Indeed, so ubiquitous is plastic pollution, that it may be considered a stratigraphic “technofossil” marker of the Anthropocene (Zalasiewicz et al., 2016).”

A correction has been made to the **Introduction**, Paragraph 3. This sentence previously stated:

“Separation techniques often include a combination of methods including: picking particles by hand under a light microscope (Miguel Eduardo et al., 2021), sieving (Norhazwani et al., 2020), density separation using a highly concentrated salt solution (Rachel et al., 2017), and oleophilic separation techniques using oil and water (Mani et al., 2019; Lechthaler et al., 2020), possibly aided by freezing (Costanza et al., 2020).”

The corrected sentence appears below:

“Separation techniques often include a combination of methods including: picking particles by hand under a light microscope (Felismino et al., 2021), sieving (Jaafar et al., 2020), density separation using a highly concentrated salt solution (Coppock et al., 2017), and oleophilic separation techniques using oil and water (Mani et al., 2019; Lechthaler et al., 2020), possibly aided by freezing (Scopetani et al., 2020).”

A correction has been made to the **Introduction**, Paragraph 3. This sentence previously stated:

“In instances where the plastic particles are difficult to remove from surrounding organic matter, such as investigations on plant rich sediments or animal carcasses, it may be necessary to digest the matter through the use of Fenton's reagent (Tagg et al., 2017), potassium hydroxide solution (Alexandre et al., 2016) or *via* enzymatic digestion (Cole et al., 2014).”

The corrected sentence appears below:

“In instances where the plastic particles are difficult to remove from surrounding organic matter, such as investigations on plant rich sediments or animal carcasses, it may be necessary to digest the matter through the use of Fenton's reagent (Tagg et al., 2017), potassium hydroxide solution (Dehaut et al., 2016) or *via* enzymatic digestion (Cole et al., 2014).”

A correction has been made to the **Introduction**, Paragraph 4. This sentence previously stated:

“The shape of microplastic particles is associated with the fragmentation process and how long the material has been in a marine environment: smooth edges can suggest a longer residence time and more angular fragments with sharper edges may be indicative of more recent pollution or of the breakup of larger pieces (Miriam et al., 2011; Hidalgo-Ruz et al., 2012).”

The corrected sentence appears below:

“The shape of microplastic particles is associated with the fragmentation process and how long the material has been in a marine environment: smooth edges can suggest a longer residence time and more angular fragments with sharper edges may be indicative of more recent pollution or of the breakup of larger pieces (Doyle et al., 2011; Hidalgo-Ruz et al., 2012).”

A correction has been made to the **Introduction**, Paragraph 4. This sentence previously stated:

“When considering the direct danger to fauna, the size and shape of microplastics are fundamental as there is a higher chance of ingestion of smaller particles and more angular geometries may be more difficult to excrete (Yuchuan et al., 2020).”

The corrected sentence appears below:

“When considering the direct danger to fauna, the size and shape of microplastics are fundamental as there is a higher chance of ingestion of smaller particles and more angular geometries may be more difficult to excrete (Meng et al., 2020).”

A correction has been made to the **Discussion**, Paragraph 4. This sentence previously stated:

“Below the 32 μm range is comparable to the smaller dimensions of microplastics of interest that can be imaged by $\mu\text{-FTIR}$ (Ling et al., 2021), and lies in the lower range of the dimensions of natural materials such as silt, sawdust, coal and clay (Engineering ToolBox, 2005).”

The corrected sentence appears below:

“Below the 32 μm range is comparable to the smaller dimensions of microplastics of interest that can be imaged by

$\mu\text{-FTIR}$ (Yang et al., 2021), and lies in the lower range of the dimensions of natural materials such as silt, sawdust, coal and clay (Engineering ToolBox, 2005).”

The references in question have also been corrected in the **References** list. The corrected references appear below: (Matsuoka et al., 2002).

The authors apologize for these errors and state that this does not change the scientific conclusions of the article in any way. The original article has been updated.

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