**Data for**

Microplastics from consumer plastic food containers: Are we consuming it?

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**Abstract**

Microplastics (MPs) pollution have become a major global concern. Attention is being given to the sources of human exposure to microplastics as one of the preliminary steps in understanding the possible health risk of these ubiquitous emerging pollutants. The data presented here were derived from sealed consumer plastic food containers and disposable cup that were purchased from two local supermarket in Beijing. The weights of the plastic containers and disposable cup were determined. After that, the MPs inside the newly manufactured plastic containers and disposable cup were extracted through ultrapure water. The extracted particles were recovered through freeze drying and then characterized using FT-IR and SEM. The particles were later quantified and the mass of MPs obtained per pack and individual container were estimated. The implications of the data obtained were discussed in our main article.

**Keywords**

Microplastics, human exposure, plastic food containers, health risk

**Specifications Table**

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| --- | --- |
| **Subject** | Environmental Science (General) |
| **Specific subject area** | Sources of human exposure to MPs |
| **Type of data** | Image, Figure |
| **How data were acquired** | Fourier-transform infrared (FTIR) spectrometry, Scanning Electron Microscope (SEM) and weighing balanceImageJ, Microsoft excel, Origin Pro 8 |
| **Data format** | Raw; Analyzed |
| **Parameters for data collection** | The plastic containers used only for food delivery and product packaging as well as commonly used disposable plastic cup were selected for data collection. |
| **Description of data collection** | Determination of individual weight of the plastics and the MPs, identification and characterization of the surface of the MPs |
| **Data source location** | Beijing, China |
| **Data accessibility** | With the article |

**Value of the Data**

* It provides the morphological description of MPs that humans are possibly exposed to daily and also real environmental MPs
* Environmental and health researchers, plastics producing industries and policy makers
* The data shows for the first time, the contributions of unintentionally produced MPs to human exposure and the environment. It gives further insights on possible way to estimate MPs in the environment.

**Data Description**

The data expressed in figure 1 of the main article is the FT-IR spectra of round shaped (CPC), rectangular shaped (RPC) and disposable plastic cup (DPC) obtained using Fourier-transform infrared (FTIR) spectrometry1 (FT/IR-6100, JASCO Corporation, Tokyo, Japan) (FT\_IR for fig 1). Figure 2 consists of the images of the MPs presence on the surface of the newly manufactured plastic containers and disposable cup obtained with the scanning electron microscope (SEM Images for 2&3). The images of the plastics containers from which the SEM images were obtained were also included. In Figure 3, we selected different observed morphology of MPs from the three sampled plastics both at low and high magnifications. We used ImageJ to measure the diameters of the various sizes and shapes of the MPs using the images obtained from the SEM transferred to excel file. The distribution pattern based on diameter were plotted using Origin Pro 8. Figure 4 data is the average weight of each plastic container and disposable cup obtained by measuring a minimum of 10 pieces of each plastic containers. The MPs obtained from each pack of the plastic containers and disposable plastic cup in triplicates were carefully transferred into a pre-weighed glass vial and differences in weight was taken. This was plotted as the average weight per pack using Origin Pro 8 (Data for Fig 4).

**Experimental Design, Materials, and Methods**



**Extraction of plastic particles.** The purchased food containers were unsealed inside the hood to prevent any contamination from ambient air particles during the extraction process. Each container was quickly covered with the lids to prevent any form of external contamination. 10ml of ultrapure water was dispensed into each of the plastic containers. The containers were shaken for 2-3 minutes using a mechanical shaker in order to wash the inner of the container effectively. The procedure was repeated twice. Thereafter, the extracted solutions were vacuum dried using Christ freeze drier (Alpha 1-4 LDplus, An der UnterenSose 50, Germany) after removal from -800C for 30 min, to get rid of the water leaving the extracted particles in the vail. The weight of the extracted particles was determined using empty pre-weighed glass vials and difference in weight were taken as the weight of the MPs. Two controls were set up, which are: ultrapure water used for the extraction of the microplastics (SC1), and ultrapure water left open in the laboratory experimental hood through the period of extraction (SC2).

**Characterization of particles.** The extracted plastic particles were analyzed using Fourier-transformed infrared (FT-IR) spectrometry (FT/IR-6100, JASCO Corporation, Tokyo, Japan) to identify the functional groups. The sample spectra were recorded as 64 scans in the spectral range of 500−4000 cm−1 at a resolution 4 cm−1 and were compared to the polymer library (KnowItAll, Bio-Rad) to verify the polymer type. Approximately 1 mg ml-1 concentration of the obtained particles was prepared and 1 µl was placed on a glass disk, fixed onto the SEM aluminum sample disk. The samples were characterized using the scanning electron microscopy2 (SU 8020, HITACHI, Tokyo, Japan) to obtain the surface morphology of the particles. No plastic particle was observed in any of the controls set up for the experiment, when observed under the microscope, except for fibres which have not similar features with our samples.

**Particle size measurement and image analysis.** Twenty different images each of the samples were obtained and a minimum of five hundred particles were measured using ImageJ software (NIH, USA) to obtain different particle sizes distribution that were observed. OriginPro 8 software (Northampton, MA, USA) was used for the plot.

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**Author contributions**

**Oluniyi O. Fadare:** Conceptualization, Methodology, Investigation, Writing- Original draft **Wan Bin: Supervision,** Writing-Reviewing and Editing **Lixia Zhao and LiangHong Guo:** Resources and Fund Acquisition

**Competing interests: The authors declare no competing interests**

The authors declare that they have no known competing financial interests or personal relationships which have, or could be perceived to have, influenced the work reported in this article.

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