Supporting information

Abundance, characteristics, and risk assessment of microplastics in summer of urban river eastern China

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Fig.S1 Photographs of typical microplastics identified by microscopes

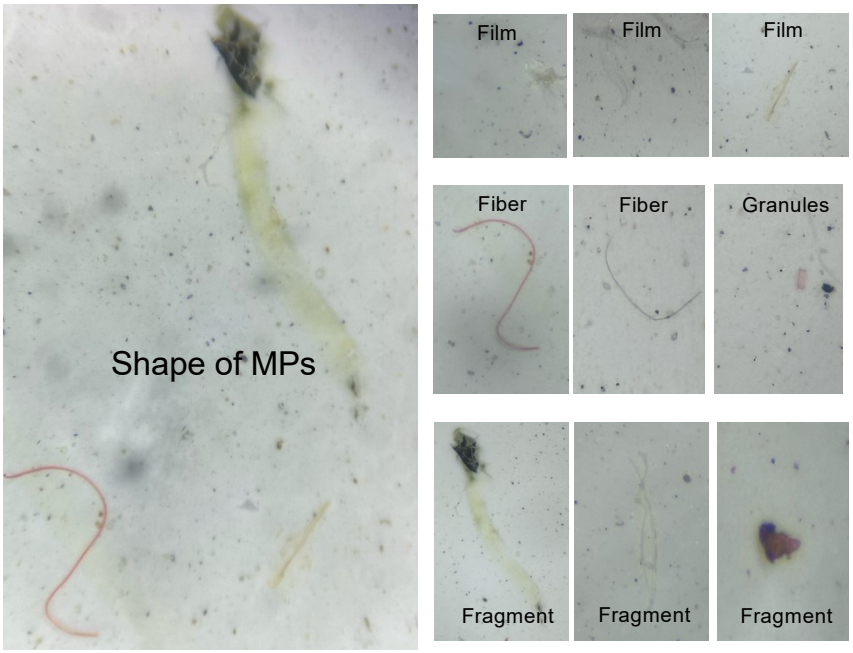


Fig.S2 **ATR-Fourier transform infrared spectra (FTIR) of the selected microplastics**

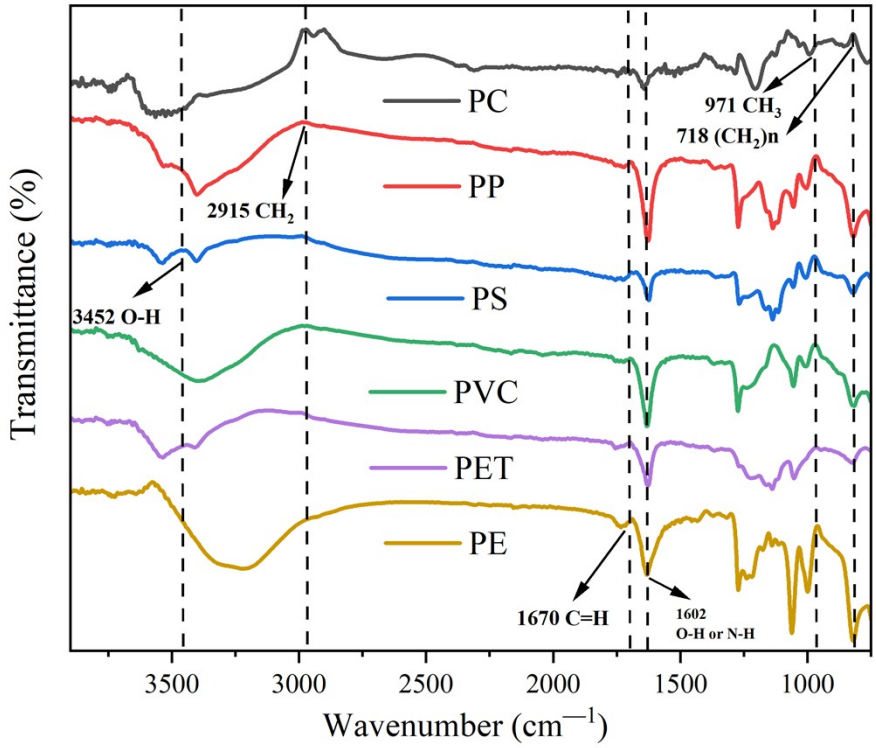
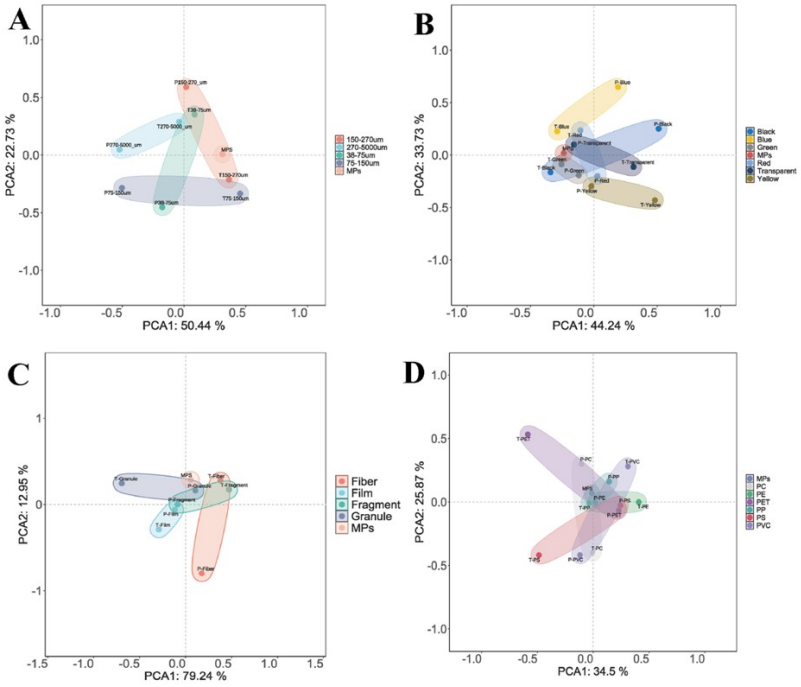


***Fig.S3* PCA analysis of MPs concentration and characteristics**



The correlation between microplastic concentration and characteristics in different rain seasons can be observed by principal component analysis (PCA). T represents typhoon rain seasons, while P represents plum rain seasons (Fig.S3). Microplastic concentrations are easier to correlate with typhoon rain seasons (Fig.S3A and Fig.3B). The abundance of MPs was significant with the small-sized MPs (75-150 μm and 38-75 μm) and colors of red, green and blue. In contrast, microplastics are more related to polymer type in the plum rain season, with the predominant correlation of PP, PE and PET (Fig. S3D). For the shape of microplastics, the correlation was revealed to the Fragment instead of the rainy seasons (Fig. S3C).

Fig.S4 **The potential risk index of different polymer type (Delete PC and PVC)**

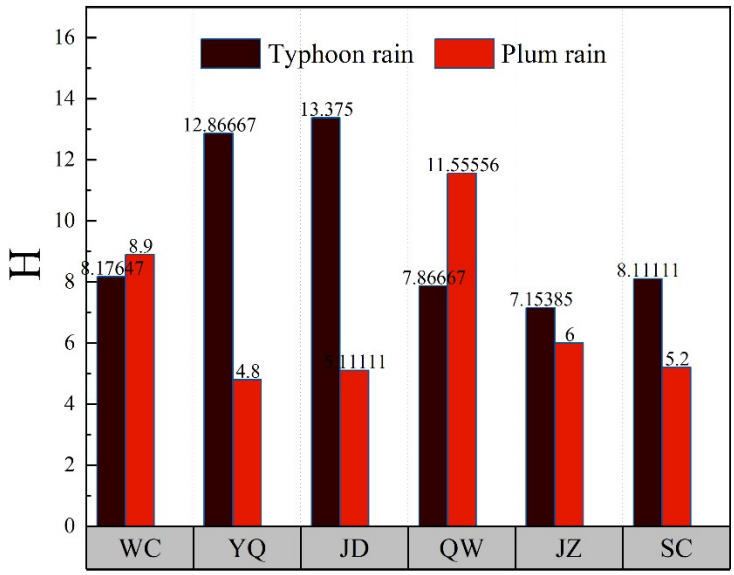


Table.S1 **Sampling locations for microplastics of Qinhuai River in Nanjing, eastern China**

Sampling sites	Location	Longitude (E)	Latitude (N)
WC	Wucha Bridge	118.90	31.77
YQ	Yang Qiao(Bridge)	118.85	31.88
JD	Jiangjundadao Bridge	118.77	31.96
QW	Qiqiaowen Bridge	118.83	32.01
JZ	Jiezhi Estuary	118.67	31.96
SC	Sancha Estuary	118.73	32.08

Table S2 **Hazard scores for microplastic polymers**

Polymer	Hazard score (highest level)
PP	1
PET	4
PE	11
PS	30
PVC	10551
PA	47
PC	1177

Table S3: **Categories employed in the microplastics polymeric risk assessment (H), pollution loading index (PLI)**

items	Ecological risk level			
	I	II	III	IV
Ecological Risk Index（H）	<10	10-100	101-1000	>1000
Pollution Load Index（PLI）	<10	10-20	20-30	>30

Table S4 **Risk level criteria for microplastic pollution**

Value of the polymer index (H)	<10	10-100	100-1000	>1000
Typhoon rain August			JD (819.94) SC (138.89)	WC (2008.59) YQ (1498.13) QW (2821.47) JZ (2623.08)
Plum rain June			JZ (398.33)	WC (1181.7) YQ (1177.6) JD (1439) QW (1445.44) SC (4225.6)
Risk category	I	II	III	IV

Table S5 **Risk level criteria for microplastic pollution (Exclude PC and PVC content)**

Value of the polymer index (H)	<10	10-100	100-1000	>1000
Typhoon rain August	WC (8.18) YQ (12.87) QW (7.87) JZ (7.15) SC (8.11)	JD (13.38)		
Plum rain June	WC (8.9) YQ (4.8) JD (5.11) QW (6) SC (5.2)	QW (11.56)		
Risk category	I	II	III	IV

Table S6 **The value of the pollution load index in each sampling sites (C_{0i} takes mean value of 218 items/L and 278 items/L in Plum rain and Typhoon rain, respectively)**

Sampling sites	Value of the pollution load index (PLI)	
	Typhoon rain	Plum rain
WC	1.48	1.22
YQ	1.49	1.05
JD	1.34	1.23
QW	1.84	1.25
JZ	1.19	1.48
SC	1.53	1.35