

## Supplementary Information

### Preliminary indoor evidences of microplastic effects on freshwater benthic macroinvertebrates

Luca Gallitelli<sup>1</sup>, Alessandra Cera<sup>1</sup>, Giulia Cesarini<sup>1\*</sup>, Loris Pietrelli<sup>2</sup>, Massimiliano Scalici<sup>1</sup>

#### Authors' addresses:

<sup>1</sup> University of Roma Tre, Department of Sciences, Viale G. Marconi 446, 00146 Rome, Italy

<sup>2</sup> Sapienza University of Rome, Department of Chemistry, P.le A. Moro, 5, 00185 Rome, Italy

\* Corresponding author: giulia.cesarini@uniroma3.it

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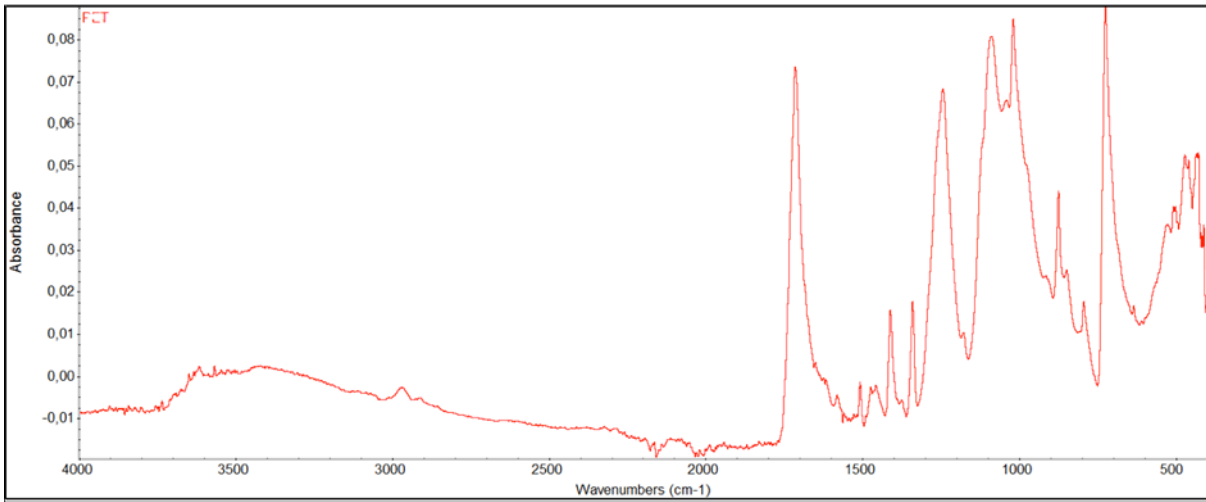
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**Table S1.** Biometries (length, width, weight, volume) of natural cases and number of large microplastics (IMP) occurred in *Odontocerum albicorne* cases.

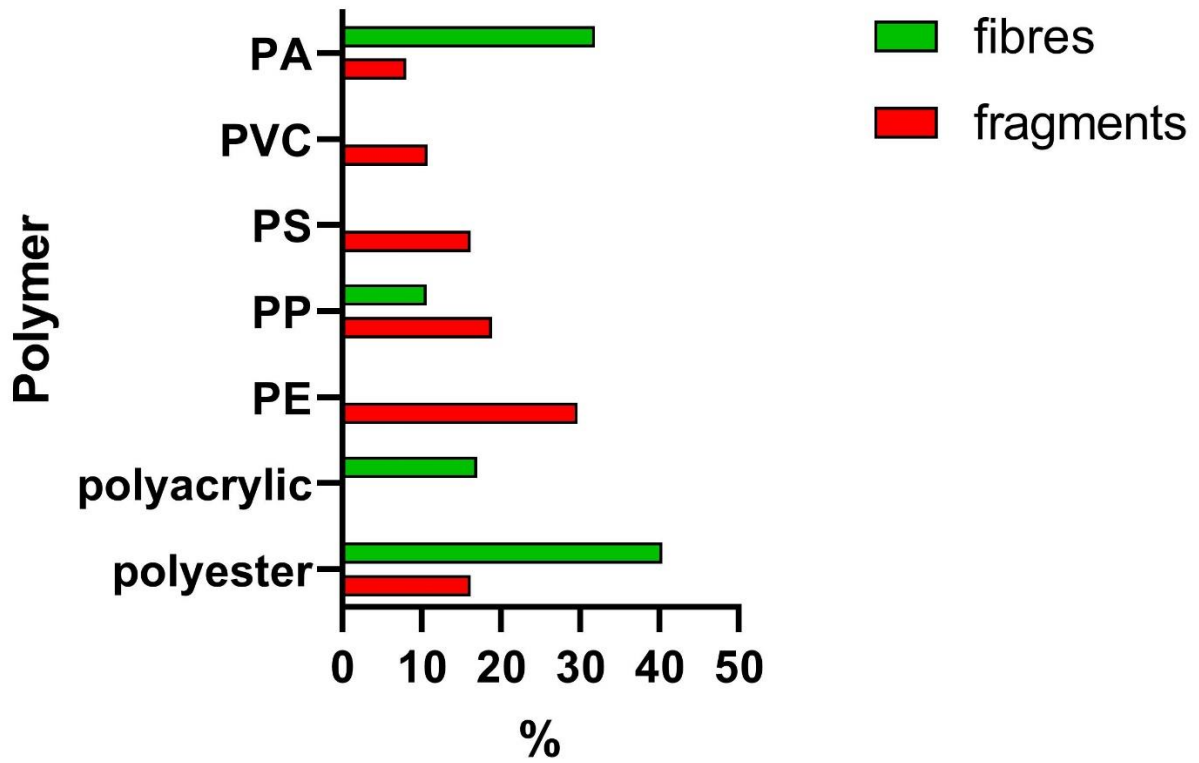
Natural cases					
caddisfly ID	length (cm)	width (cm)	weight (g)	volume (cm <sup>3</sup> )	number of IMP
1	1.83	0.63	0.2	0.57	26
2	2.55	0.78	0.4	1.22	54
3	2.62	0.66	0.3	0.90	51
4	2.41	0.58	0.3	0.64	28
5	2.39	0.58	0.2	0.63	13
6	2.16	0.60	0.3	0.61	41
7	1.99	0.81	0.5	1.02	13
8	1.94	0.64	0.2	0.62	16
9	2.65	0.67	0.3	0.93	9
10	2.27	0.59	0.2	0.62	10
11	1.99	0.69	0.2	0.74	29
12	2.75	0.61	0.2	0.80	12
13	1.92	0.52	0.1	0.41	2
14	2.13	0.62	0.2	0.64	5
15	2.13	0.66	0.3	0.73	11
16	1.94	0.54	0.2	0.44	5
17	2.28	0.68	0.4	0.83	13
18	2.23	0.61	0.3	0.65	3
19	2.43	0.66	0.3	0.83	12
20	2.65	0.61	0.4	0.77	9
21	2.44	0.57	0.4	0.62	4
22	2.84	0.74	0.4	1.22	10
23	2.68	0.66	0.4	0.92	21
24	2.48	0.64	0.3	0.80	21
25	2.55	0.59	0.4	0.70	10
26	1.86	0.52	0.1	0.39	14
27	2.83	0.58	0.4	0.75	16

**Table S2.** Colour and shape of large microplastics (fragments, fibres, films) occurred in each natural case of *Odontocerum albicorne*.

caddisfly ID	Natural cases										
	fragments					fibres					films
	blue	red	white	green	black	blue	red	white	green	black	white
1	0	0	0	0	0	10	4	0	1	11	0
2	1	0	0	0	0	40	7	0	0	5	1
3	2	0	0	0	0	27	7	0	1	14	0
4	1	0	5	0	0	11	2	0	4	5	0
5	0	0	1	0	0	4	0	0	3	5	0
6	0	0	0	1	0	14	6	1	7	12	0
7	0	0	0	1	0	9	1	0	0	2	0
8	2	0	0	0	0	6	1	0	0	7	0
9	0	0	0	0	0	5	0	3	1	0	0
10	0	0	0	0	1	5	1	0	0	3	0
11	0	0	1	0	0	14	3	4	1	6	0
12	0	0	1	0	0	7	0	0	0	4	0
13	0	0	0	0	0	2	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	5	0
15	0	0	2	0	0	2	1	0	0	6	0
16	0	0	2	0	0	0	0	0	1	2	0
17	0	0	0	0	0	3	2	0	0	8	0
18	0	0	0	0	0	2	0	0	0	1	0
19	1	0	0	0	1	8	0	0	0	2	0
20	0	0	0	0	0	3	1	1	0	4	0
21	0	0	0	0	0	1	0	0	0	3	0
22	2	0	0	0	0	5	0	0	0	3	0
23	0	0	0	0	0	17	2	0	0	2	0
24	1	1	0	0	0	13	3	0	0	3	0
25	2	0	0	0	0	2	3	1	0	2	0
26	1	0	0	0	0	6	2	0	0	5	0
27	0	0	0	0	0	5	1	1	0	9	0
<b>total</b>	<b>13</b>	<b>1</b>	<b>12</b>	<b>2</b>	<b>2</b>	<b>221</b>	<b>47</b>	<b>11</b>	<b>19</b>	<b>129</b>	<b>1</b>



**Figure S1.** FTIR spectrum of polyester fiber found in natural cases of *Odontoceram albicorne*.



**Figure S2.** Relative amount (%) of microplastic polymer materials (polyester; polyacrylic; PE: polyethylene; PP: polypropylene; PS: polystyrene; PVC: polyvinylchloride; PA: polyamide) of fragments and fibres found in natural cases of *Odontoceram albicorne*.

**Table S3.** Biometrics (length, width, volume) of artificial cases rebuilt by *Odontocerum albicorne* during experiment 1 (EXP1).

Artificial cases EXP1			
caddisfly ID	length (cm)	width (cm)	volume (cm <sup>3</sup> )
1	0.50	0.28	0.03
2	0.72	0.44	0.11
3	1.33	0.34	0.12
4	0.50	0.40	0.06

**Table S4.** Biometrics (length, width, volume) of artificial cases rebuilt by *Odontocerum albicorne* during experiment 2 (EXP2).

Artificial cases EXP2			
caddisfly ID	length (cm)	width (cm)	volume (cm <sup>3</sup> )
1	0.81	0.48	0.15
2	0.45	0.36	0.05
3	0.39	0.17	0.01

**Table S5.** Biometrics (length, width, volume, weight, density) of artificial cases rebuilt by *Odontocerum albicorne* during experiment 3 (EXP3). n.a.= measures not available.

Artificial cases EXP3					
caddisfly ID	length (cm)	width (cm)	volume (cm <sup>3</sup> )	weight (g)	density (g/cm <sup>3</sup> )
1	1.35	1.29	1.76	0.4	0.23
2	2.03	1.23	2.41	0.5	0.21
3	1.37	0.95	0.97	0.3	0.31
4	3.15	1.12	3.10	0.6	0.19
5	2.19	1.05	1.90	0.8	0.42
6	2.37	1.03	1.97	0.7	0.35
7	n.a.	n.a.	n.a.	0.7	n.a.
8	1.85	0.87	1.10	0.2	0.18

**Table S6.** Body length (cm) of *Ephemera danica* burrowed in different substrates. NAT = natural substrate, MIX = mixture of natural and microplastic substrates, IMP = microplastic substrate.

Body length of mayflies occurred in each substrate		
NAT	MIX	IMP
1.23	1.14	1.22
1.41	1.29	1.24
1.44	1.35	1.30
1.45	1.40	1.33
1.51	1.42	1.33
1.52	1.46	1.39
1.55	1.50	1.42
1.62	1.52	1.44
1.62	1.52	1.46
1.63	1.53	1.47
1.66	1.54	1.52
1.73	1.56	1.53
1.73	1.57	1.53
1.75	1.61	1.56
1.80	1.67	1.59
1.81	1.69	1.60
1.84	1.69	1.62
2.01	1.71	1.62
2.01	1.72	1.64
2.02	1.76	1.65
2.12	1.8	1.68
2.40	1.80	1.71
2.58	1.82	1.77
-	1.85	1.77
-	1.93	1.77
-	1.98	1.78
-	1.99	1.81
-	2.01	1.81
-	2.05	1.81
-	2.07	1.91
-	2.15	1.91
-	2.16	1.92
-	2.16	1.93
-	2.19	1.93
-	2.21	1.95
-	2.21	1.97
-	2.22	2.08
-	2.26	2.11
-	-	2.22
-	-	2.27
-	-	2.27
-	-	2.29
-	-	2.34
-	-	2.54
-	-	2.60