SUPPLEMENTARY INFORMATION

A novel method for preparing microplastic fibers

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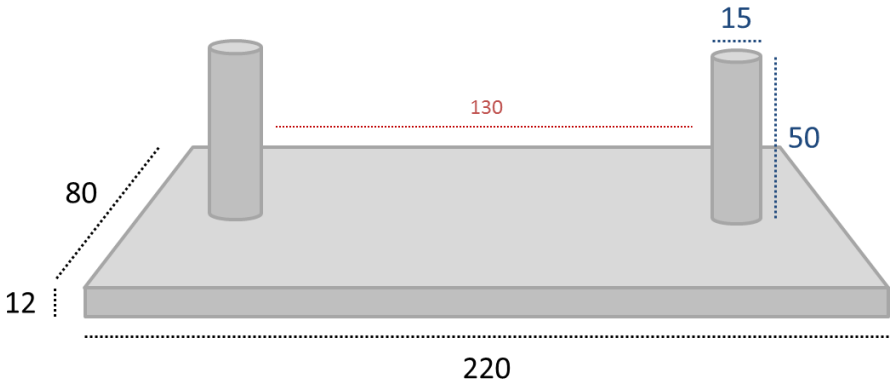

Figure S1. A custom designed 'spool' was manufactured to assist in the rapid alignment of fibres. Dimensions (mm) of the spool can be modified per the requirements of the researcher.

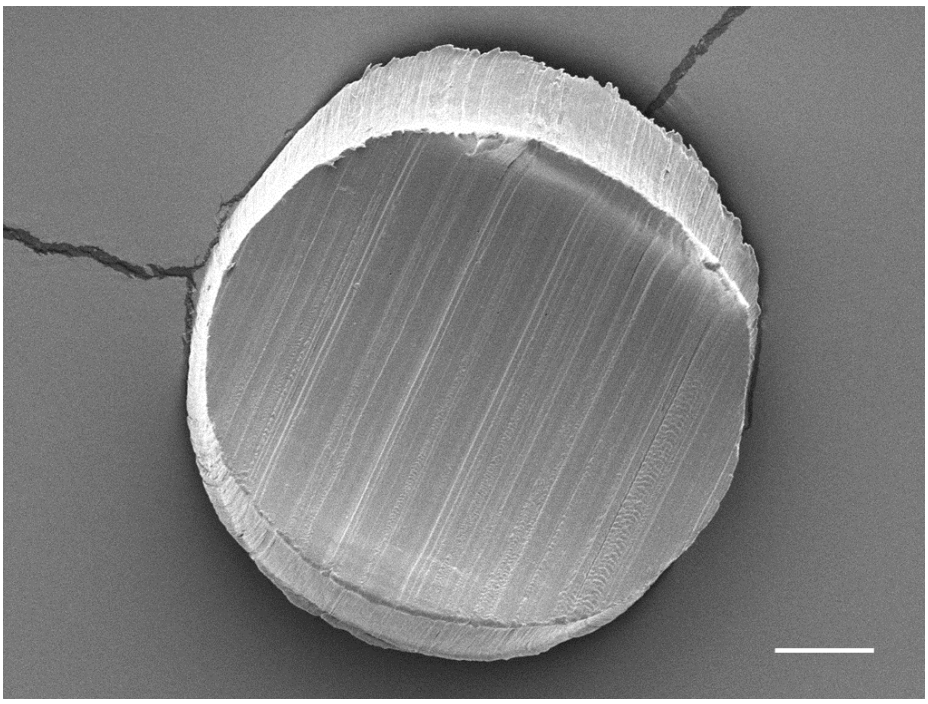

Figure S2. Microplastic 'discs' were prepared by sectioning 100 µm Nylon monofilament fibre into 10 µm lengths. Electron micrograph taken at x700 magnification (5 kV, Jeol JSM 6390 LV scanning electron microscope); white bars: 20 µm. Photographed by Dr Matthew Cole.

Table S1. Laboratory based microplastic research papers published 2000-2015. Research papers identified via Google Scholar using 'microplastic' or 'plastic' search terms. Only laboratory studies considering uptake and/or toxicity of microplastics (<5 mm) were selected. Representative microplastics were categorised as 'spherical microbeads', 'irregularly shaped particles', 'pellets' or 'fibers'. Microplastic polymer (PS, polystyrene; PE, polyethylene; PP, polypropylene; PVC, polyvinyl chloride; CA, cellulose acetate) and size (μm) are given where provided.

STUDY ORGANISM	POLYMER	SIZE (μm)	AUTHOR
Spherical microbeads: beads, spheres, microspheres (24 studies)			
Mytilus edulis	PS	3-10	Browne, et al. [1]
Mytilus edulis	PS	0.1	Ward and Kach [2]
Freshwater algae	PS	0.02	Bhattacharya, et al. [3]
Mytilus edulis	PS	0.03	Wegner, et al. [4]
Zooplankton (various)	PS	2-30	Cole, et al. [5]
Mytilus edulis	PS	0.5	Farrell and Nelson [6]
Tripneustes gratilla	PE	32-35	Kaposi, et al. [7]
Tigriopus japonicus	PS	0.05-6	Lee, et al. [8]
Pomatoschistus microps	PE	1-5	Oliveira, et al. [9]
Talitrus saltator	PE	10-45	Ugolini, et al. [10]
Daphnia magna	PS	0.05	Besseling, et al. [11]
Paracentrotus lividus	PS	-	Della Torre, et al. [12]
Idotea emarginata	PS	10	Hämer, et al. [13]
Zooplankton (various)	PS	10	Setälä, et al. [14]
Carcinus maenas	PS	8-10	Watts, et al. [15]
Hyalella azteca	PP	10-27	Au, et al. [16]
Mytilus edulis	PS	0.05	Canesi, et al. [17]
Calanus helgolandicus	PS	20	Cole, et al. [18]
Crassostrea gigas	PS	0.7-20	Cole and Galloway [19]
Tetraselmis chuii	PE	1-5	Davarpanah and Guilhermino [20]
Pomatoschistus microps	PE	420-500	de Sá, et al. [21]
Danio rerio	PE	10-106	Khan, et al. [22]
Marine algae (various)	PS	2	Long, et al. [23]
Pomatoschistus microps	PE	1-5	Luís, et al. [24]
Irregularly shaped particles: crystals, fluff, powder, granules, fragments, shavings (8 studies)			
Benthic invertebrates (various)	-	20-2000	Thompson, et al. [25]
Sea cucumbers (various)	PVC	250-1500	Graham and Thompson [26]
Mytilus edulis	PE	80	von Moos, et al. [27]
Arenicola marina	PS	400-1300	Besseling, et al. [28]
Arenicola marina	PVC	230	Browne, et al. [29]
Arenicola marina	PVC	130	Wright, et al. [30]
Idotea emarginata	PS	<100	Hämer, et al. [13]
Dipsastrea pallida	PP	10-2000	Hall, et al. [31]
Pellets: nurdles, pre-production pellets (4 studies)			
Sea cucumbers (various)	-	250-1500	Graham and Thompson [26]
Oryzias latipes	PE	3000	Rochman, et al. [32]
Oryzias latipes	PE	3000	Rochman, et al. [33]
Lytechinus variegatus	PE	various	Nobre, et al. [34]
Fibers: fibers, microfibers, strands, rope (6 studies)			
Sea cucumbers (various)	PA	250-1500	Graham and Thompson [26]
Nephrops norvegicus	PP	5000	Murray and Cowie [35]
Idotea emarginata	PA	-	Hämer, et al. [13]
Hyalella azteca	PP	20-75	Au, et al. [16]
Carcinus maenas	PP	>500	Watts, et al. [36]
Hediste diversicolor	CA	~120	Wright, et al. [37]

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