Physicochemical and biological ageing processes of (micro)plastics in the environment: a multi-tiered study on polyethylene

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Supplementary information, Tables S1-S2 and Figs. S1-S3

Table S1 Chemical features of lake water used in the experiments.

Variable	Unit	Value
Date	-	18/02/2021
pH	-	8.2
Electrical conductivity	µS/cm	210
Alkalinity	mmol/l	1.5
Chemical Oxygen Demand	mg/L	18
Na^+	mg/L	2.84
NH_4^+	mg/L	0.95
K^+	mg/L	1.59
Mg^{2+}	mg/L	3.88
Ca^{2+}	mg/L	16.75
F^-	mg/L	1.3
Cl^-	mg/L	3.73
NO_3^-	mg/L	3.55
SO_4^{2-}	mg/L	15.7

Table S2 Chemical composition of salt depositions in biofouled plastics after UV ageing in air, analyzed by means of SEM-EDX. Data are shown as average ± standard deviation after 5 measurements.

Element	Concentration (wt%)
C	47.81±18.55
O	30.1±10.44
Ca	21.41±1.58
Cl	7.2±4.69
K	4.36±4.84
Na	2.61±1.01

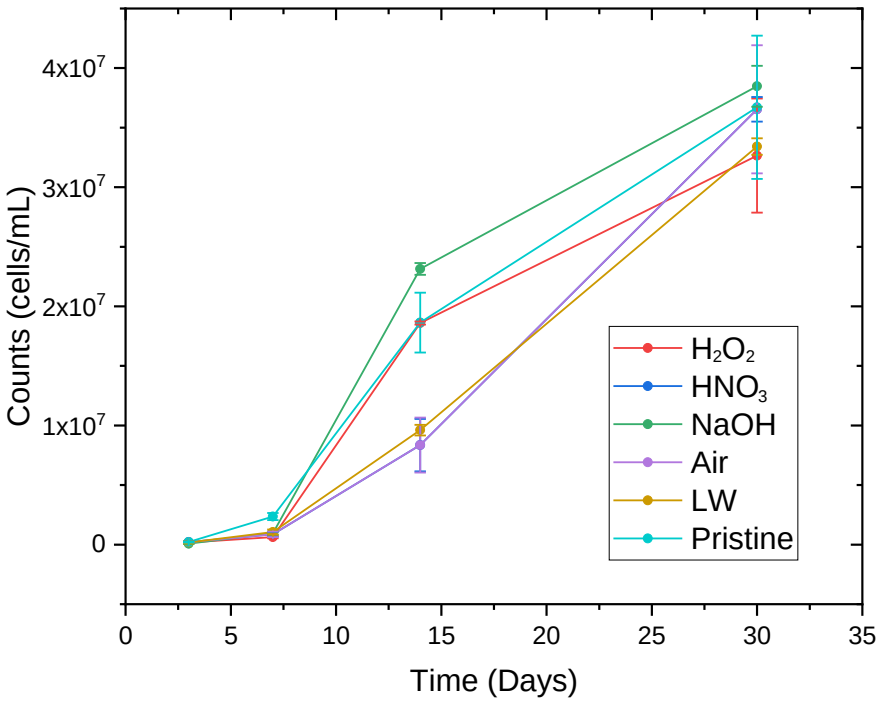

Fig. S1 Algal growth in all the incubation batches for pristine PE fragments (in light blue), and previously UV aged in H_2O_2 (in red), HNO_3 (in blue), NaOH (in green), air (in purple), and lake water (LW, in brown). Error bars indicate the standard deviation values after 3 measurements.

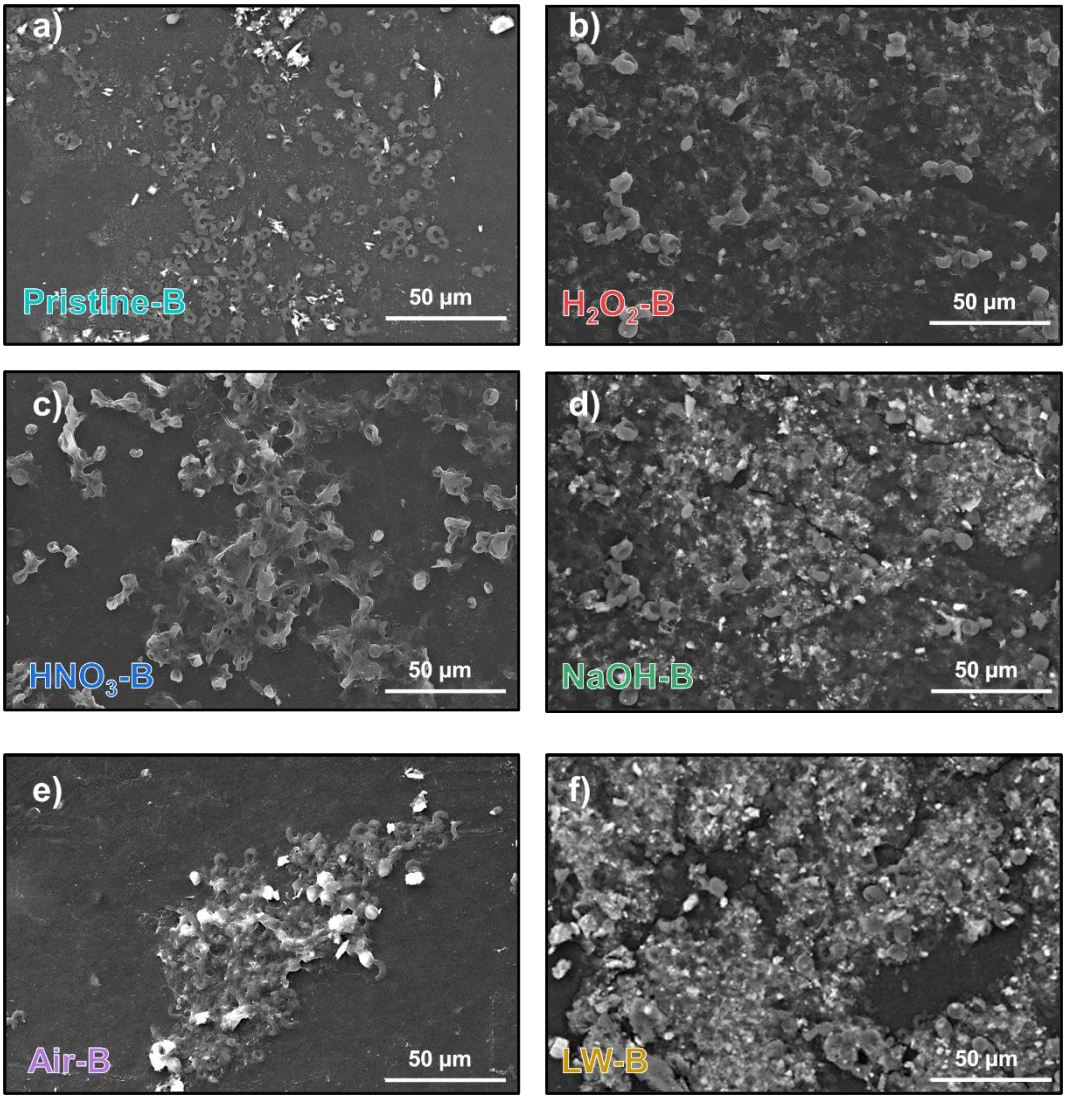

Fig. S2: SEM micrographs of the different PE MPs at 500x magnifications after 30 days of biofouling. a) pristine PE (Pristine-B), and previously UV aged in: b) H_2O_2 (H_2O_2-B), c) HNO_3 (HNO_3-B), d) NaOH (NaOH -B), e) air (Air-B), and f) lake water (LW-B).

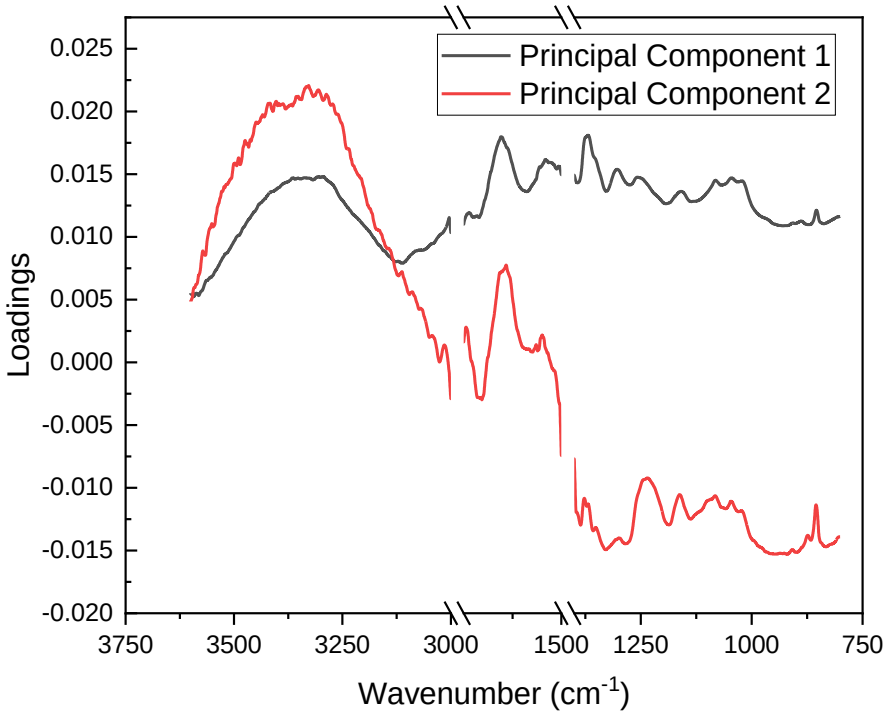

Fig. S3 Loading values at different FT-IR bands for principal component 1 (in black) and 2 (in red), representing the 96.91% and 1.99% of the total variance, respectively.