

UV Light Causes Structural Changes in Microplastics Exposed in Bio-Solids

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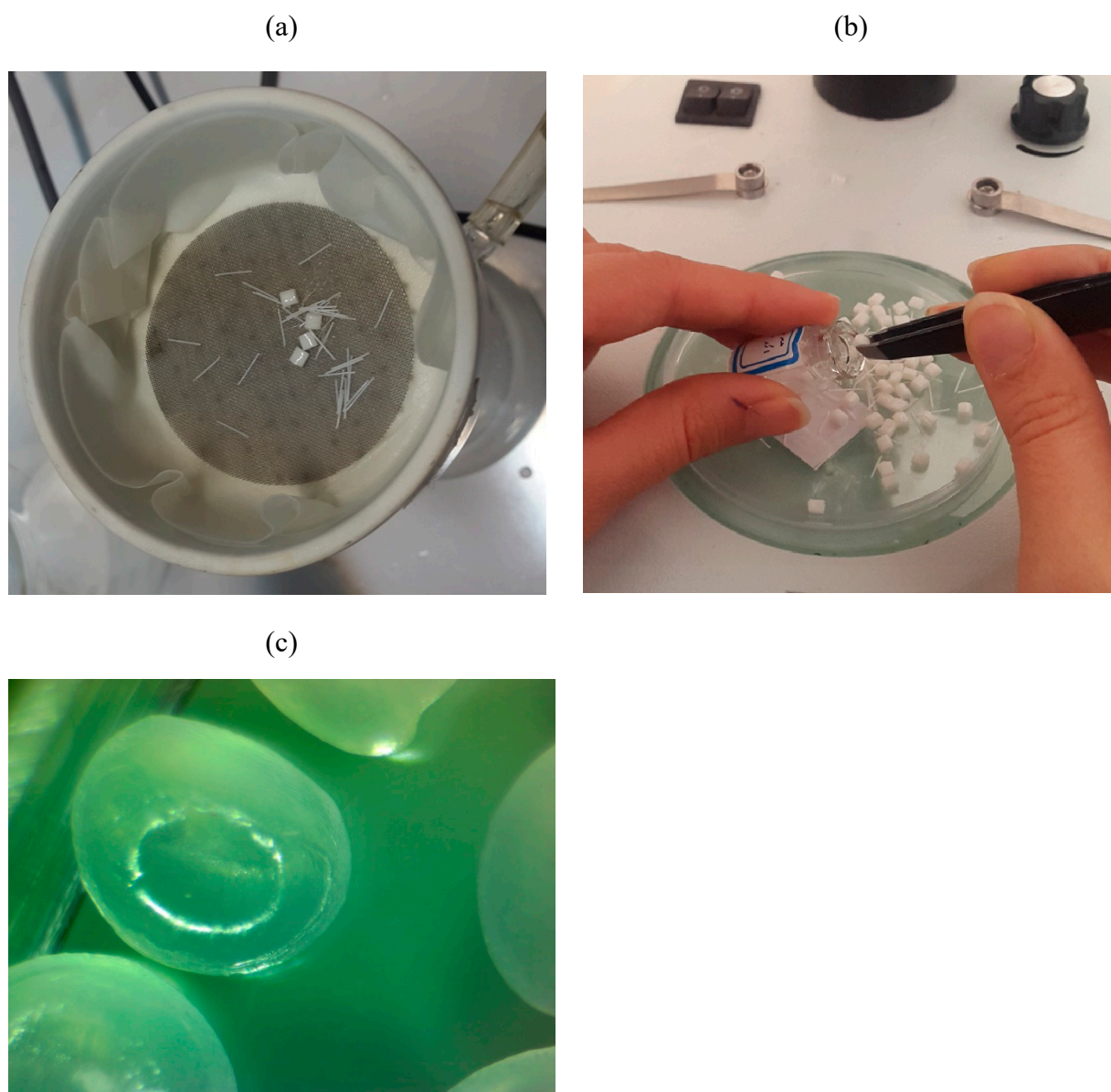
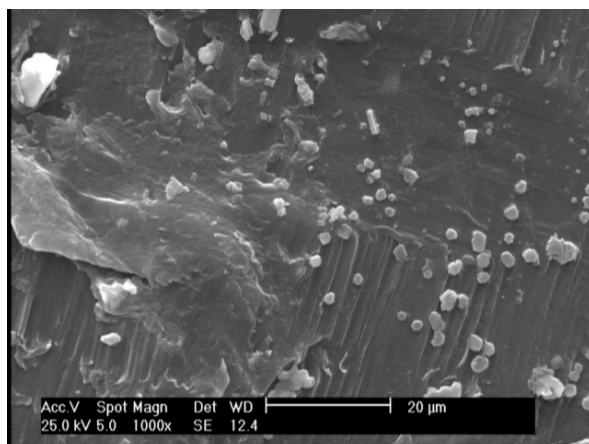
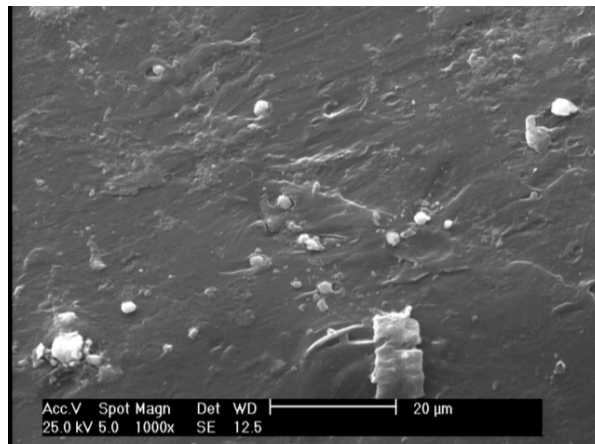


Figure S1. Photos of the samples: (a) lines and granules on filter system, (b) granules, (c) zoom of granules.

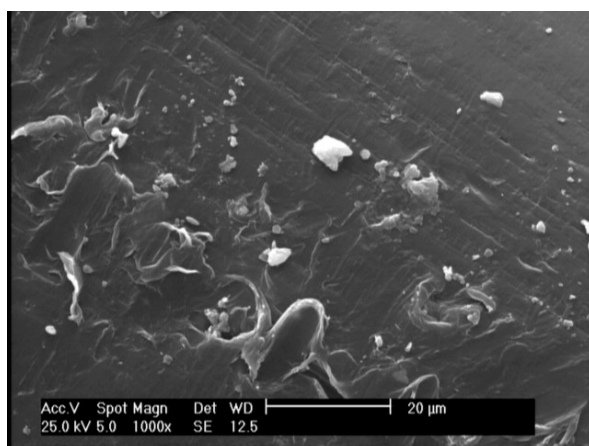
(a)



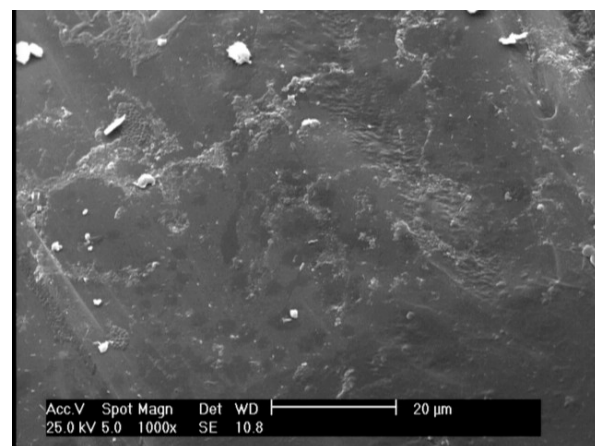
(b)



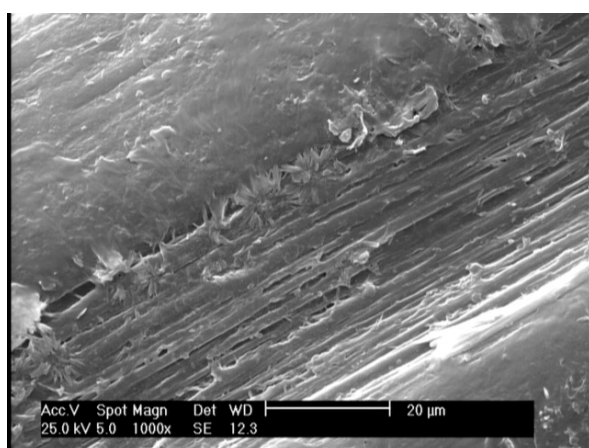
(c)



(d)



(e)



(f)

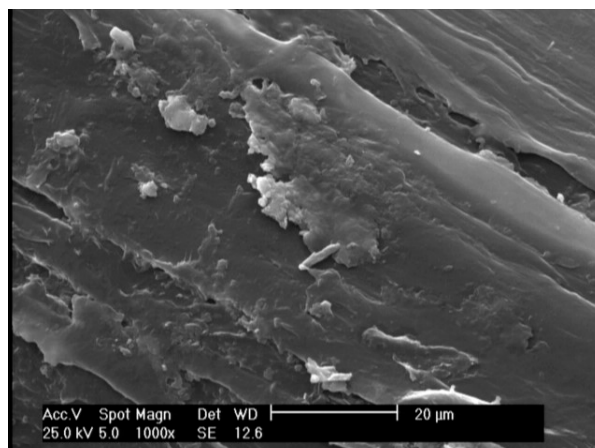
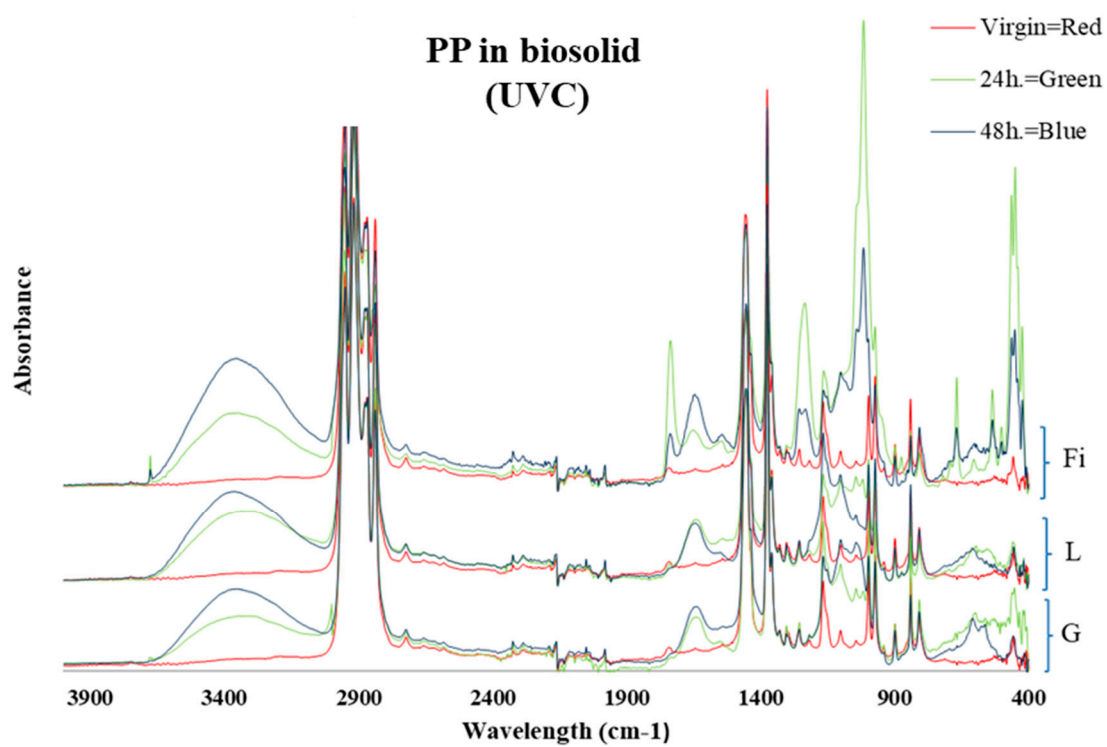
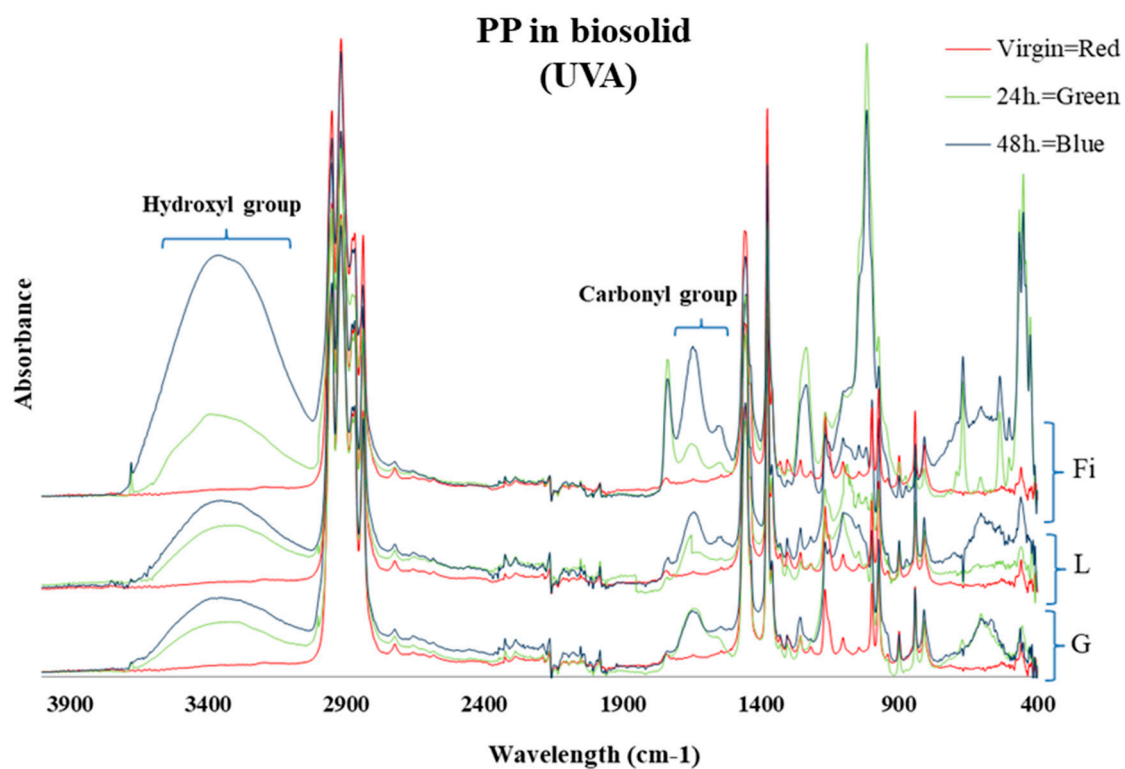
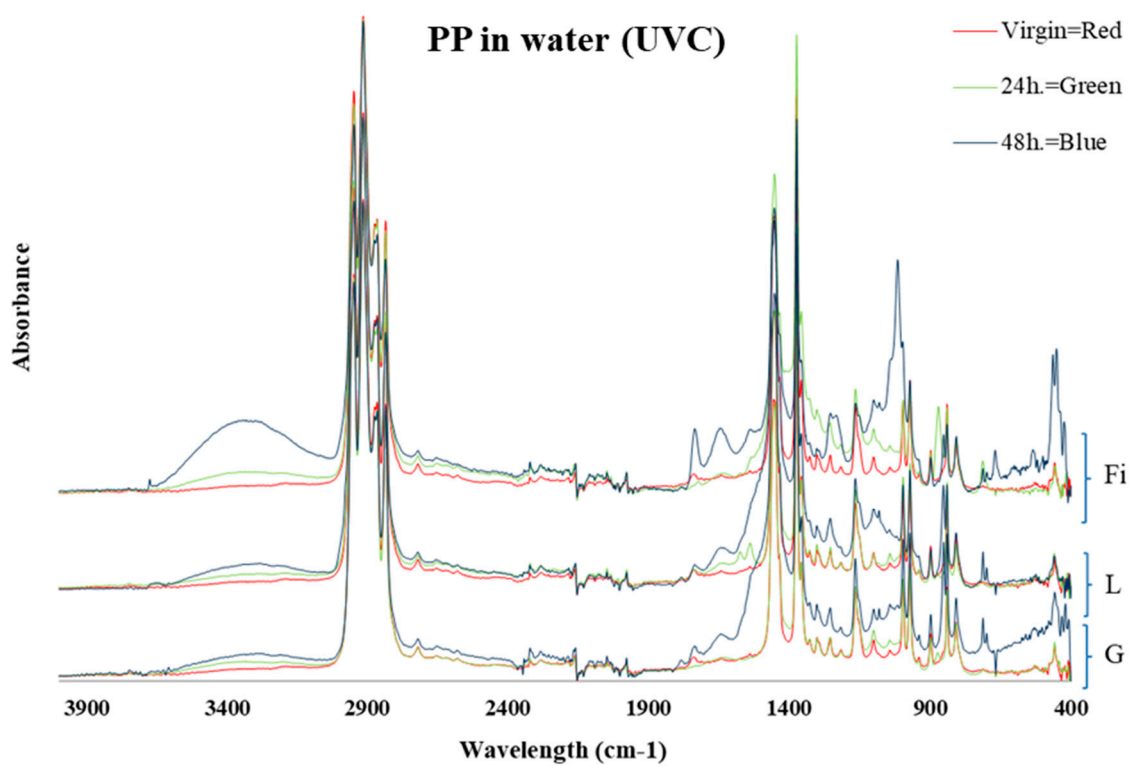
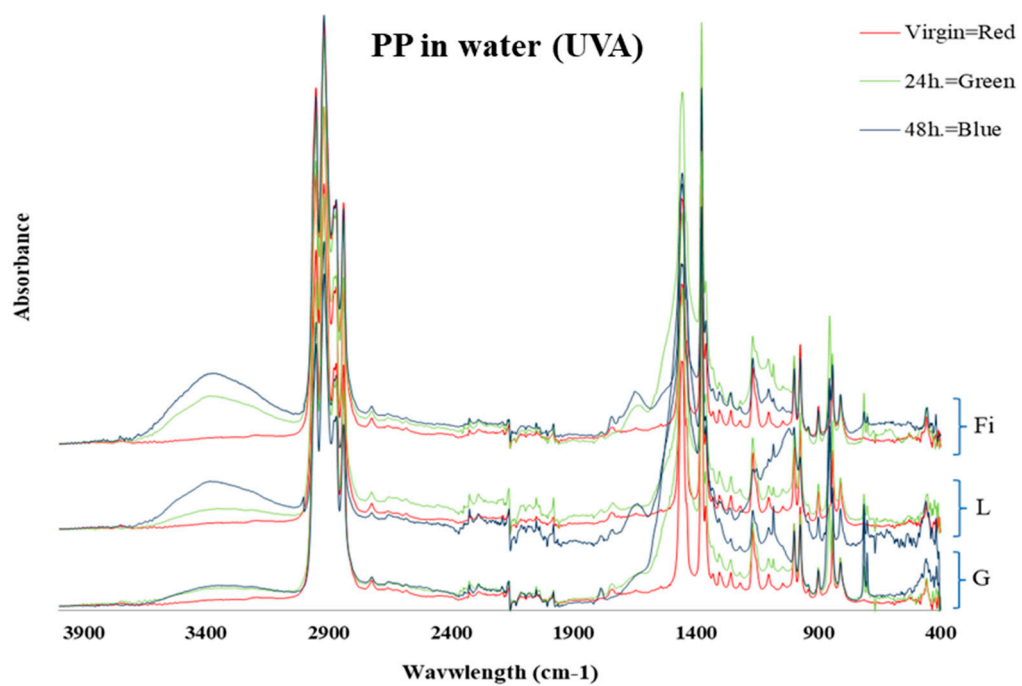
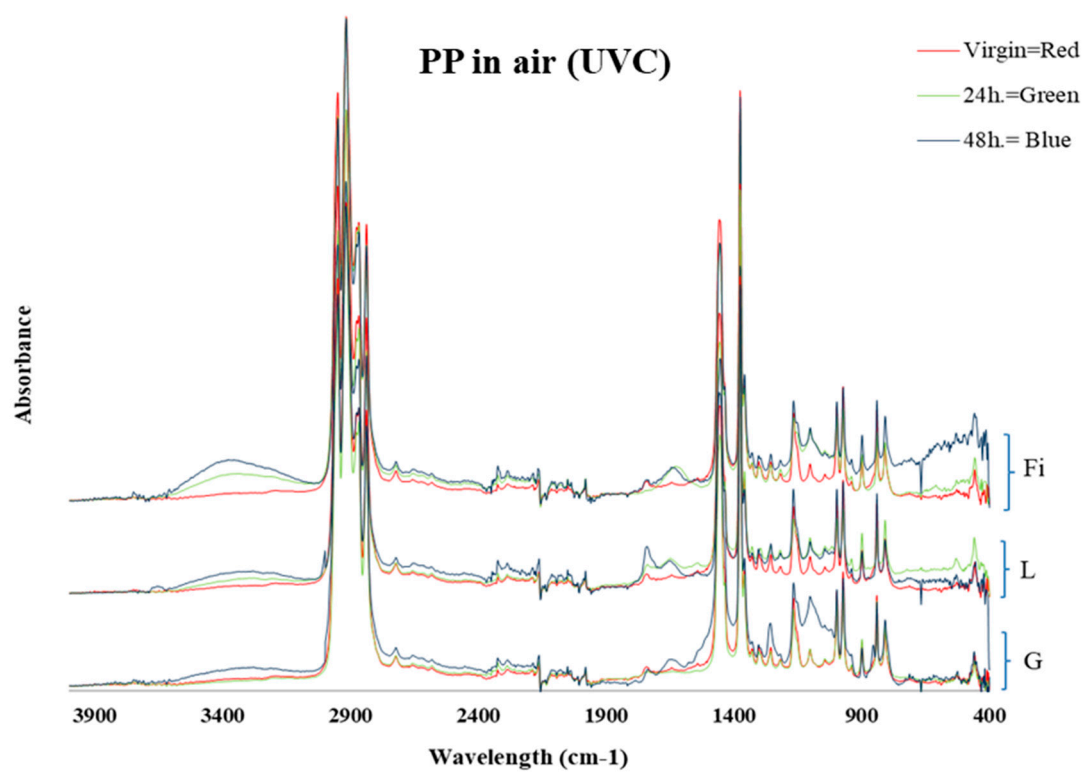
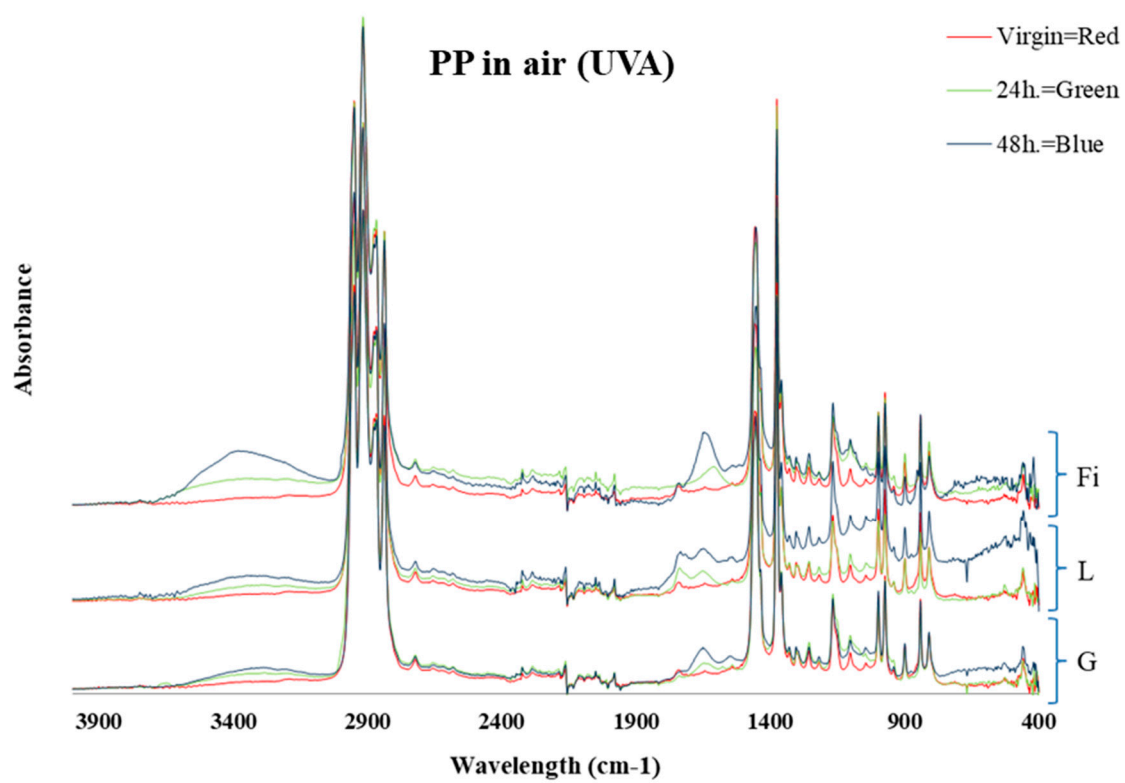
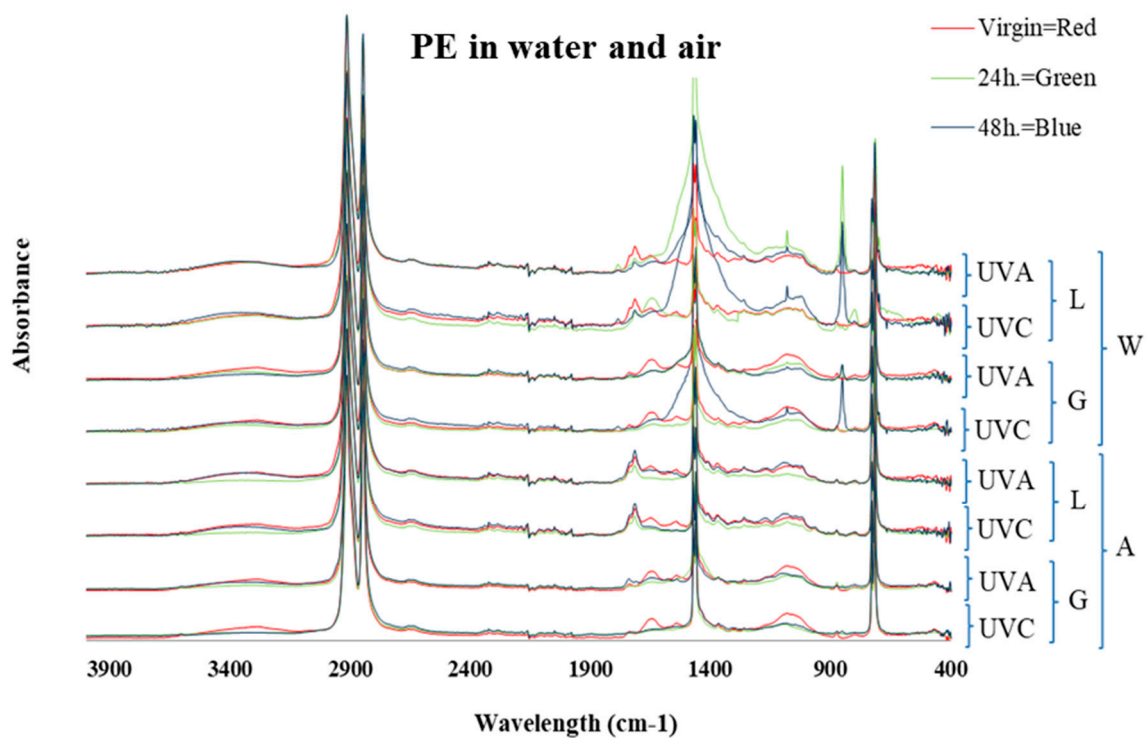
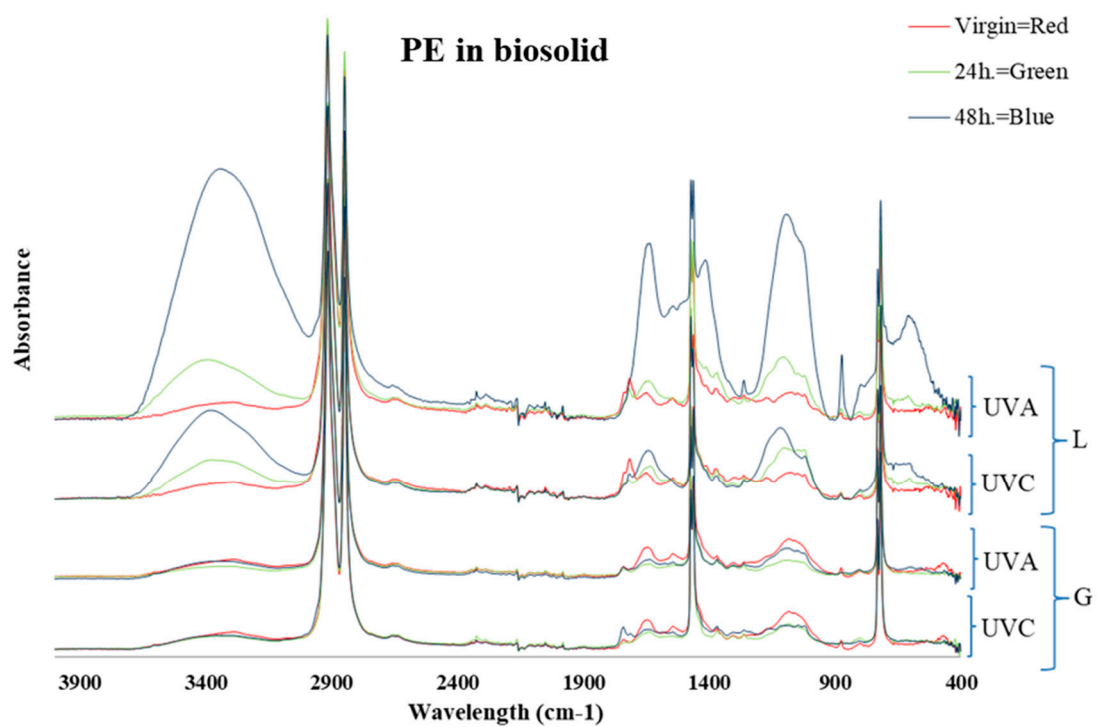


Figure S2. SEM images of: - **first line** (a) PE lines and (b) PP lines after 48h exposure to UVA; **second line** (c) PE granules and (d) PP granules after 24h exposure to UVA; **third line** (e) PE granules and (f) PP granules after 48 h exposure to UVC.









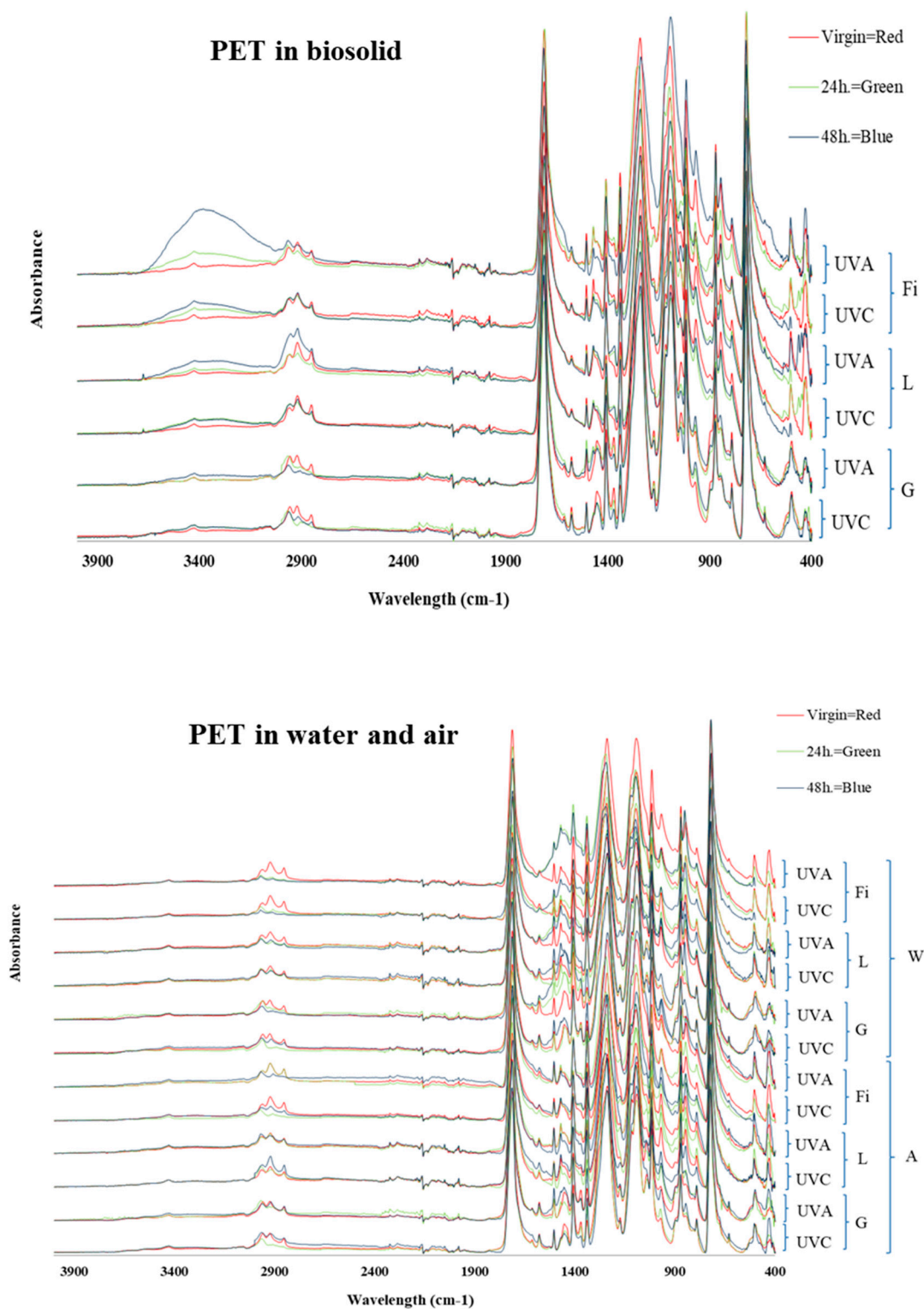


Figure S3. FTIR spectra ($400\text{--}4000\text{ cm}^{-1}$) and induction of carbonyl ($\text{C}=\text{O}$; $\sim 1700\text{ cm}^{-1}$) and hydroxyl (OH , $\sim 3300\text{ cm}^{-1}$) groups in different shapes of polypropylene (PP) microplastics in air, water and biosolids exposed for 24 h and 48 h to UV-A and UV-C light, at 70°C , and compared with virgin (reference) samples. (Y axis is related to the adsorption peaks). Fi: Filament, L: line, G: Granule, W: water, A: Air.

Table S1. CI and HI for virgin samples (the samples at 0 min of UV irradiation).

| HI | PP | PE | PET |
|----|------|-------|------|
| Fi | 1.04 | ----- | 0.98 |
| L | 1.04 | 1.02 | 0.99 |
| G | 1.04 | 1.01 | 1 |

| CI | PP | PE | PET |
|----|------|------|-----|
| Fi | 1.03 | ---- | 1 |
| L | 1.03 | 1.03 | 1 |
| G | 1.03 | 1.03 | 1 |