

Supporting information

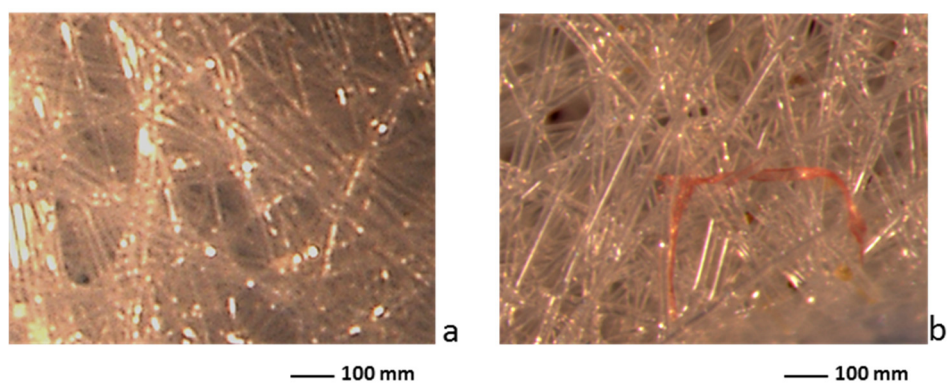


Figure S1. Appearance of the membrane a) before and b) after filtration

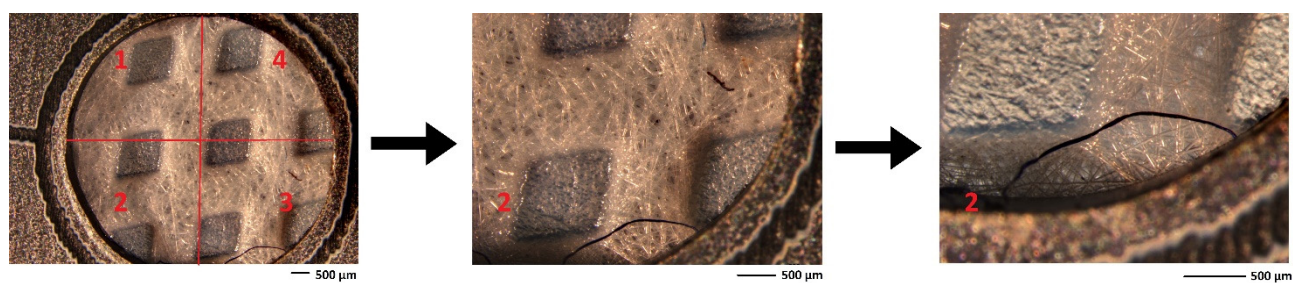


Figure S2. Description of the method used to count microfibrils on the filters surface.

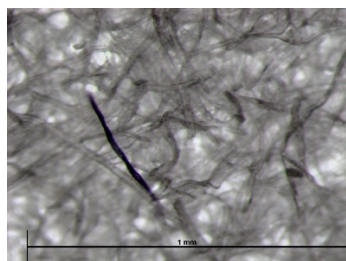


Figure S3. Microfiber recovered in the Petri dishes placed on microscopy table during sample observation.

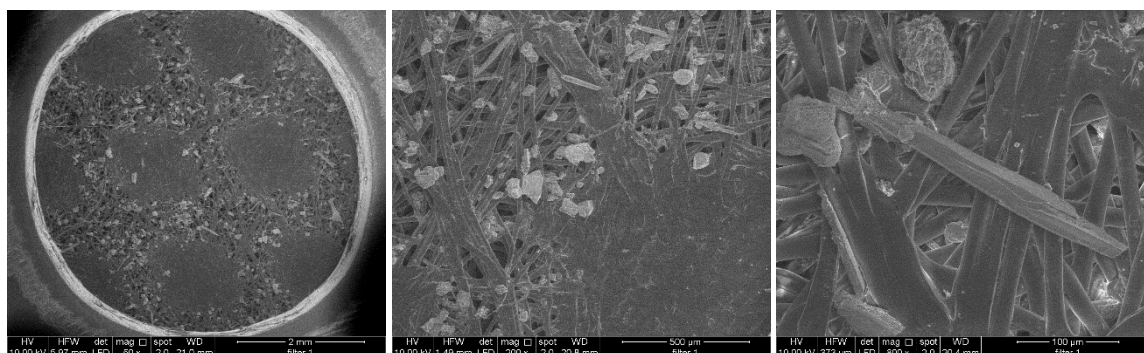

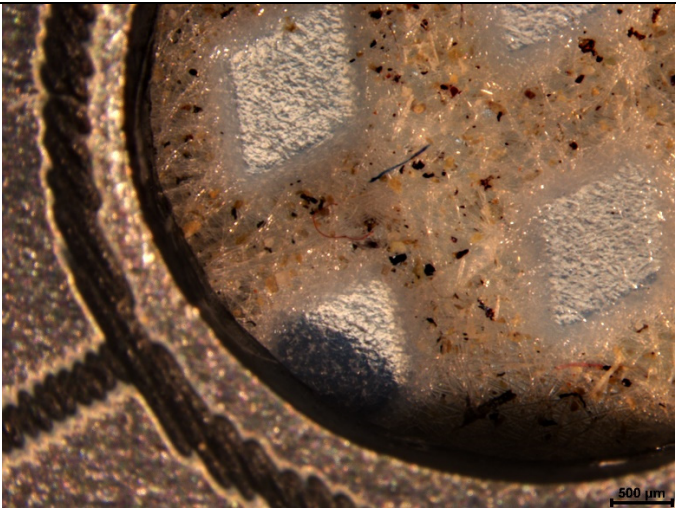
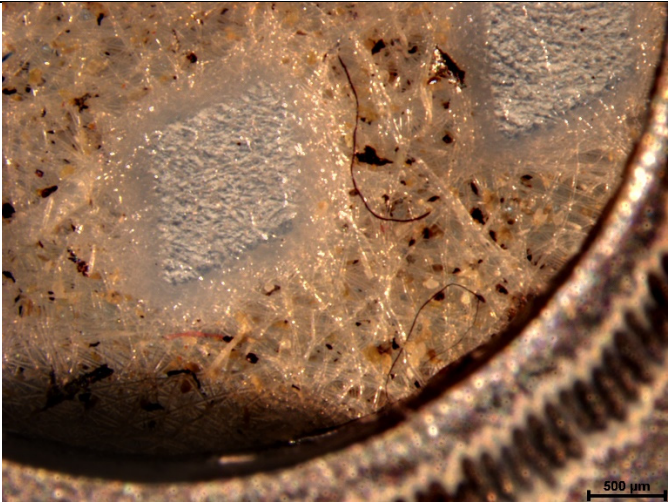
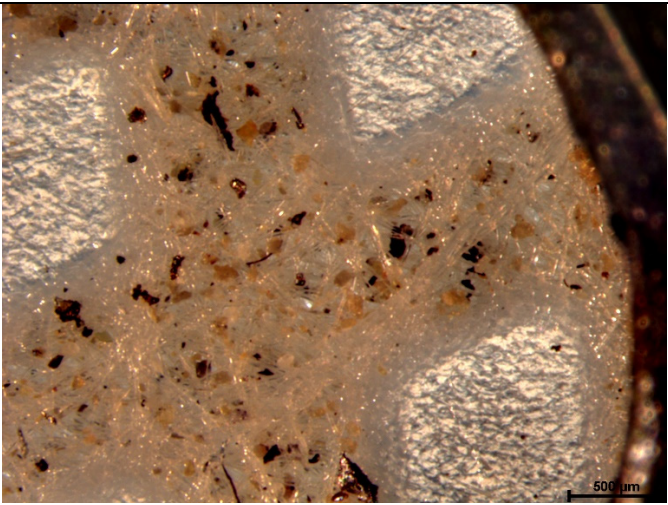
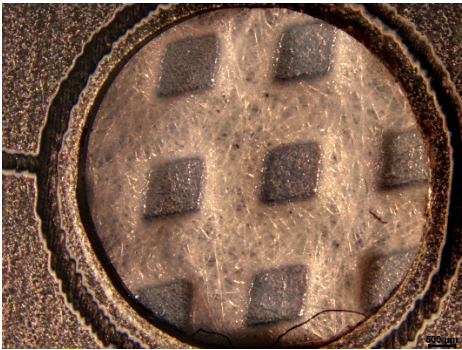
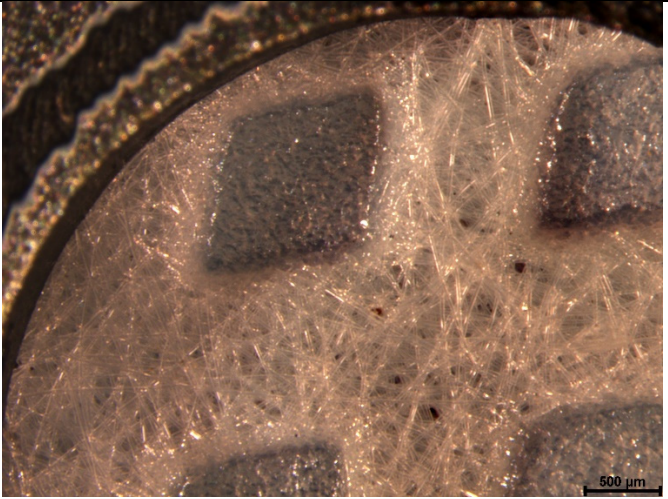
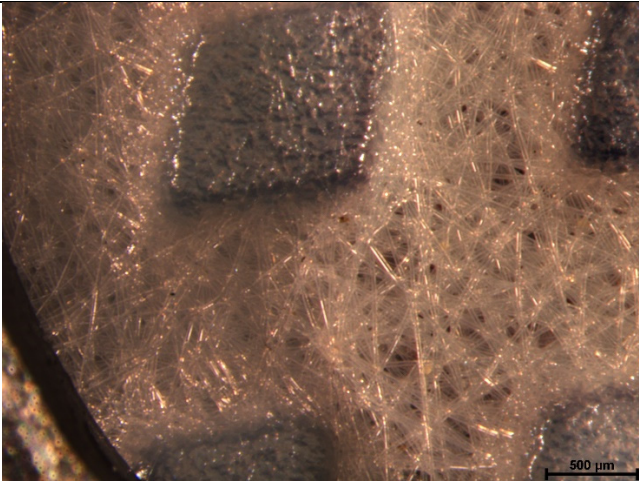
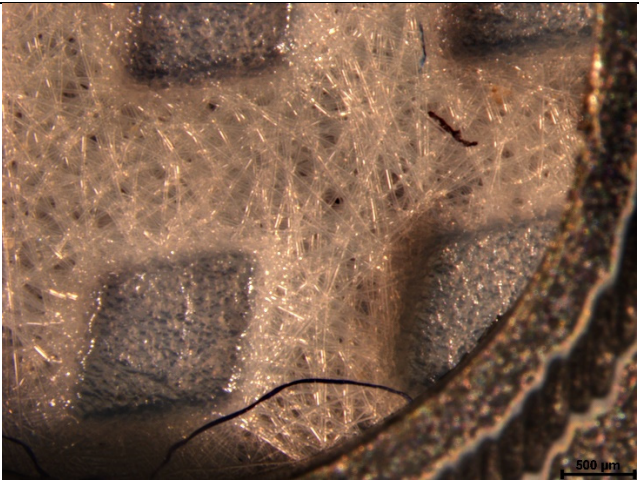
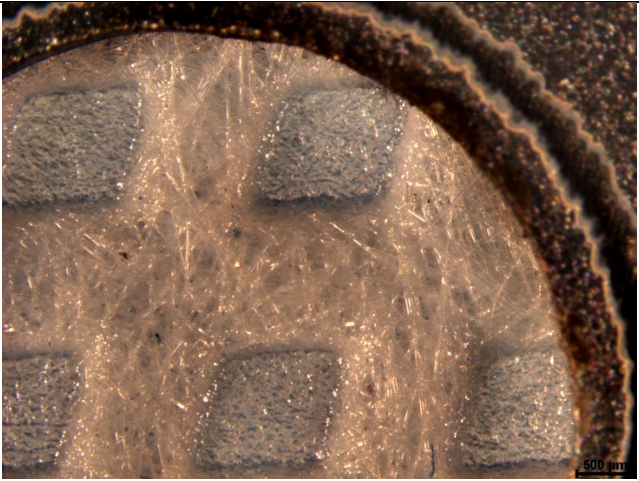


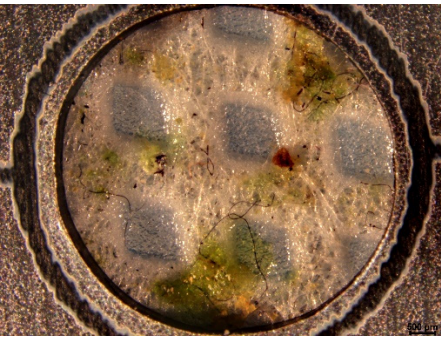
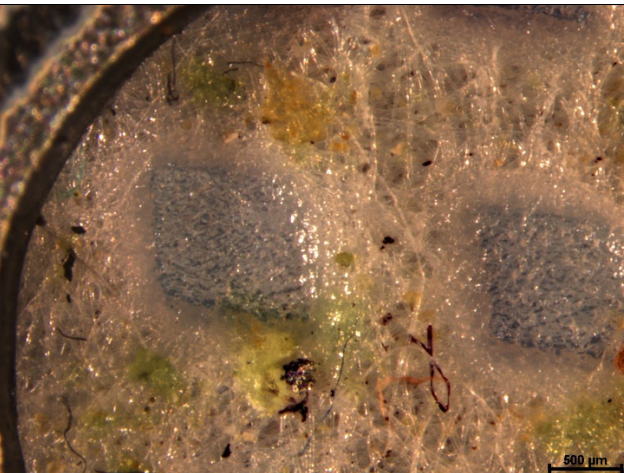
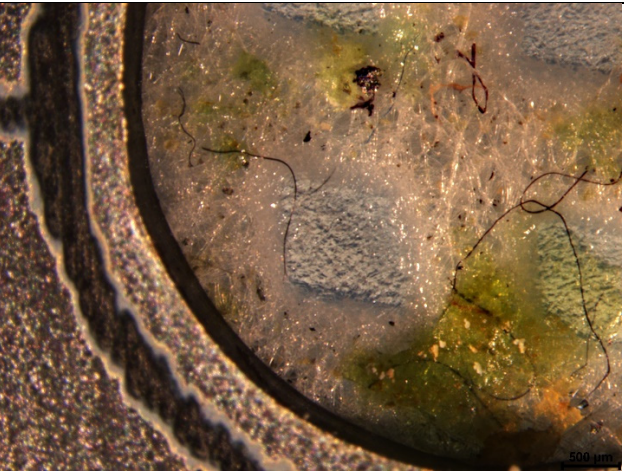
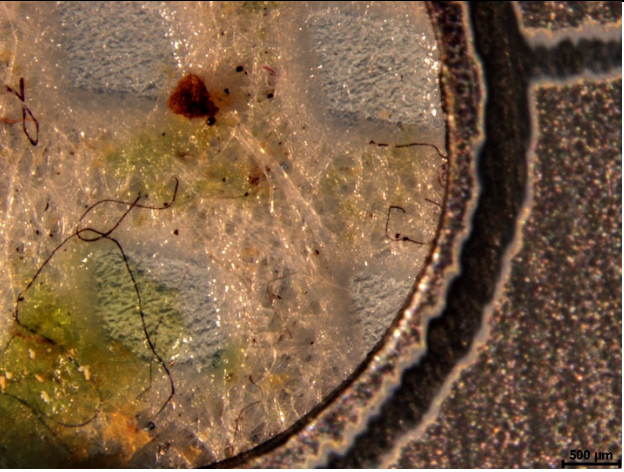
Figure S4. SEM micrographs of filter surface


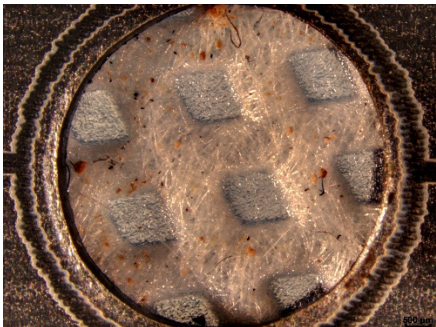
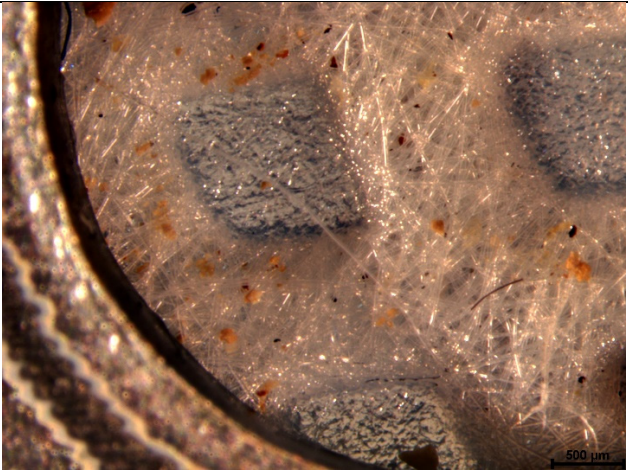
Table S1. Acquisitions of microfibrils recovered from the filter divided in the four ideal frames.

| Sample | | |
|--------|---------|--|
| Nr1 | Frame 1 |  |
| | Frame 2 |  |

| | | |
|-----|---------|--|
| | Frame 3 |  <p>Micrograph showing a textured surface with fibers and dark particles. A scale bar in the bottom right corner indicates 500 μm.</p> |
| | Frame 4 |  <p>Micrograph showing a textured surface with fibers and dark particles. A scale bar in the bottom right corner indicates 500 μm.</p> |
| Nr2 | Frame 1 |  <p>Micrograph showing a circular structure with a grid of dark squares. A scale bar in the bottom right corner indicates 500 μm.</p>  <p>Micrograph showing a textured surface with fibers and dark particles. A scale bar in the bottom right corner indicates 500 μm.</p> |

| | | |
|--|---------|---|
| | Frame 2 |  <p>Micrograph showing a material surface with a grid pattern of dark, rectangular regions. The surface is covered with a dense network of fine, light-colored fibers. A scale bar in the bottom right corner indicates 500 μm.</p> |
| | Frame 3 |  <p>Micrograph showing a material surface with a grid pattern of dark, rectangular regions. The surface is covered with a dense network of fine, light-colored fibers. A curved edge is visible on the right side. A scale bar in the bottom right corner indicates 500 μm.</p> |
| | Frame 4 |  <p>Micrograph showing a material surface with a grid pattern of dark, rectangular regions. The surface is covered with a dense network of fine, light-colored fibers. A curved edge is visible on the right side. A scale bar in the bottom right corner indicates 500 μm.</p> |

| | | |
|---|----------------|--|
| <p>Nr3</p>  | <p>Frame1</p> |  |
| | <p>Frame 2</p> |  |
| | <p>Frame 3</p> |  |

| | | |
|------|---------|--|
| | Frame 4 |  <p>Micrograph showing a biological specimen, likely a cross-section of a plant or animal tissue. The image displays a dense network of fibers and structures, with a prominent green and yellow area in the upper right. A scale bar in the bottom right corner indicates 500 µm.</p> |
| Nr 4 | Frame 1 |  <p>Micrograph showing a circular structure, possibly a cross-section of a plant or animal tissue. The image displays a grid-like pattern of cells or structures, with a scale bar in the bottom right corner indicating 500 µm.</p> |
| | Frame 2 |  <p>Micrograph showing a biological specimen, likely a cross-section of a plant or animal tissue. The image displays a grid-like pattern of cells or structures, with a scale bar in the bottom right corner indicating 500 µm.</p> |

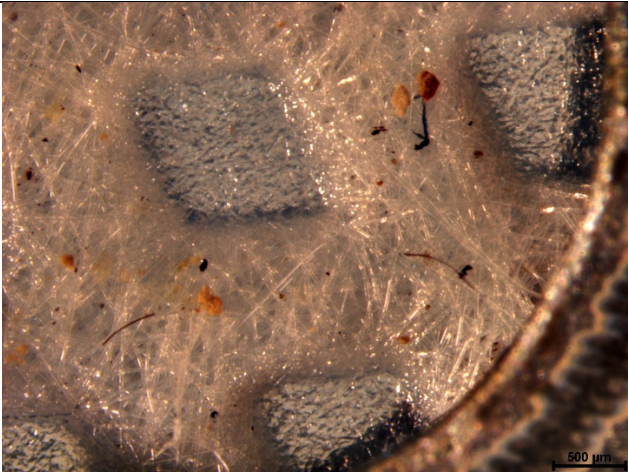
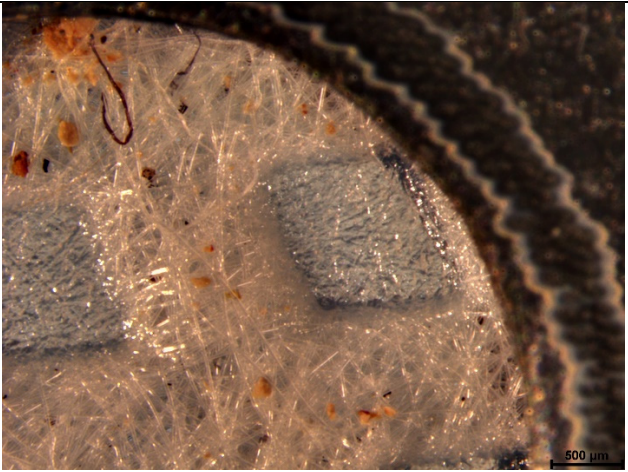
| | | |
|--|---------|---|
| | Frame 3 |  |
| | Frame 4 |  |

Table S2 – Summery of microfiber characteristics.

| | Microfibers (N) | Min. length (µm) | Max. length (µm) | Mean length (µm) | Number of synthetic microfibers (N) | Mean diameter of synthetic microfibers (µm) | Number of natural/artificial microfibers (N) | Mean diameter of natural/artificial microfibers (µm) | Colour of recovered fibers |
|---|--------------------|------------------------|------------------------|------------------------|--|---|---|--|--|
| 1 | 16 | 242 | 1576 | 638 | 6 | 10 ± 4 | 10 | 18 ± 6 | 2 pink 9 black 5 blue |
| 2 | 3 | 356 | 4908 | 2033 | | | 3 | 19 ± 4 | 1 black 2 blue |
| 3 | 28 | 120 | 4021 | 1208 | 13 | 11 ± 2 | 15 | 20 ± 6 | 2 pink 2 yellow 21 black 3 blue |
| 4 | 10 | 124 | 1311 | 646 | 3 | 9 ± 4 | 7 | 20 ± 5 | 7 black 3 blue |