

SUPPORTING INFORMATION

Table 2. Copper number (N(Cu)), moisture content (MC), number-average degree of polymerization (DP_n), crystalline index (CrI) and lateral size of the crystallite of cellulose (L (002)) for P2 Ctrl and P2 oxidized with NaClO at pH 7.

| | N(Cu) (g Cu ₂ O) | MC (%) | DP_n (viscom.) | DP_n (SEC-MALS) | CrI | L (002) (Å) |
|---------|--------------------------------|-----------|---------------------|----------------------|------|----------------|
| P2 Ctrl | 0.28 ± 0.04 | 6.2 | 991 ± 11 | 997 ± 6 | 88.4 | 67 |
| P2 ox1 | 1.0 ± 0.10 | 5.5 | 611 ± 22 | 789 ± 22 | - | - |
| P2 ox2 | 4.30 ± 0.33 | 5.3 | 512 ± 17 | 545 ± 17 | - | - |
| P2 ox3 | 5.31 ± 0.06 | 5.2 | 302 ± 24 | 249 ± 13 | 93.8 | 66 |

Table 3. AMDES uptake, cold extract pH before and after AMDES treatment (pH_{bef} , pH_{aft}), copper number before and after AMDES treatment ($N(Cu)_{bef}$, $N(Cu)_{aft}$), trichromatic coordinate value after treatment b^*_{aft} , and total color difference ΔE^* (between a given sample and his AMDES treated counterpart) for P2 Ctrl and P2 oxidized with NaClO at pH = 7.

| | Uptake (% wt/wt) | | | $N(Cu)_{bef}$ (g Cu ₂ O) | $N(Cu)_{aft}$ (g Cu ₂ O) | ΔE^* | b^*_{aft} |
|---------|---------------------|------------|-----------|--|--|--------------|-------------|
| | pH_{bef} | pH_{aft} | | | | | |
| P2 Ctrl | 11.2 ± 1.4 | 6.3 ± 0.3 | 9.7 ± 0.1 | 0.28 ± 0.02 | - | 0.79 ± 0.05 | -1.44 |
| P2 ox1 | 7.0 ± 1.7 | 7.1 ± 0.1 | 9.7 ± 0.3 | 1.0 ± 0.05 | 0.87 ± 0.06 | 1.08 ± 0.14 | 3.56 |
| P2 ox2 | 6.9 ± 0.7 | 6.8 ± 0.2 | 9.7 ± 0.2 | 4.30 ± 0.16 | 3.48 ± 0.17 | 2.05 ± 0.46 | 6.37 |
| P2 ox3 | 6.5 ± 1.8 | 6.4 ± 0.3 | 9.7 ± 0.2 | 5.31 ± 0.03 | 3.45 ± 0.18 | 2.86 ± 0.18 | 7.51 |

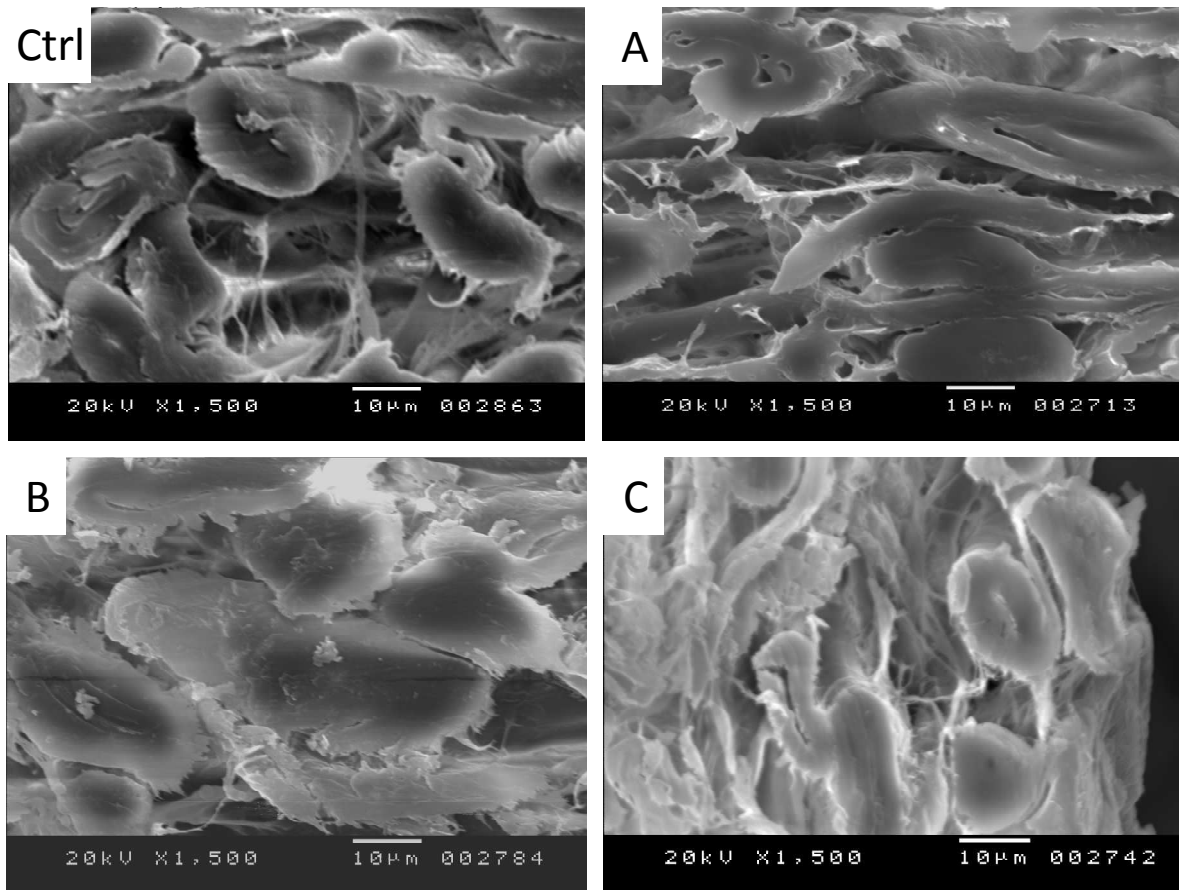


Figure 2B. SEM micrographs of cross sections of P2 Ctrl and P2 treated with (A) AMDES, (B) APTES and (C) DMAPDES.