

Eco-friendly electroless template synthesis of Cu-based composite track-etched membranes for sorption removal of lead(II) ions

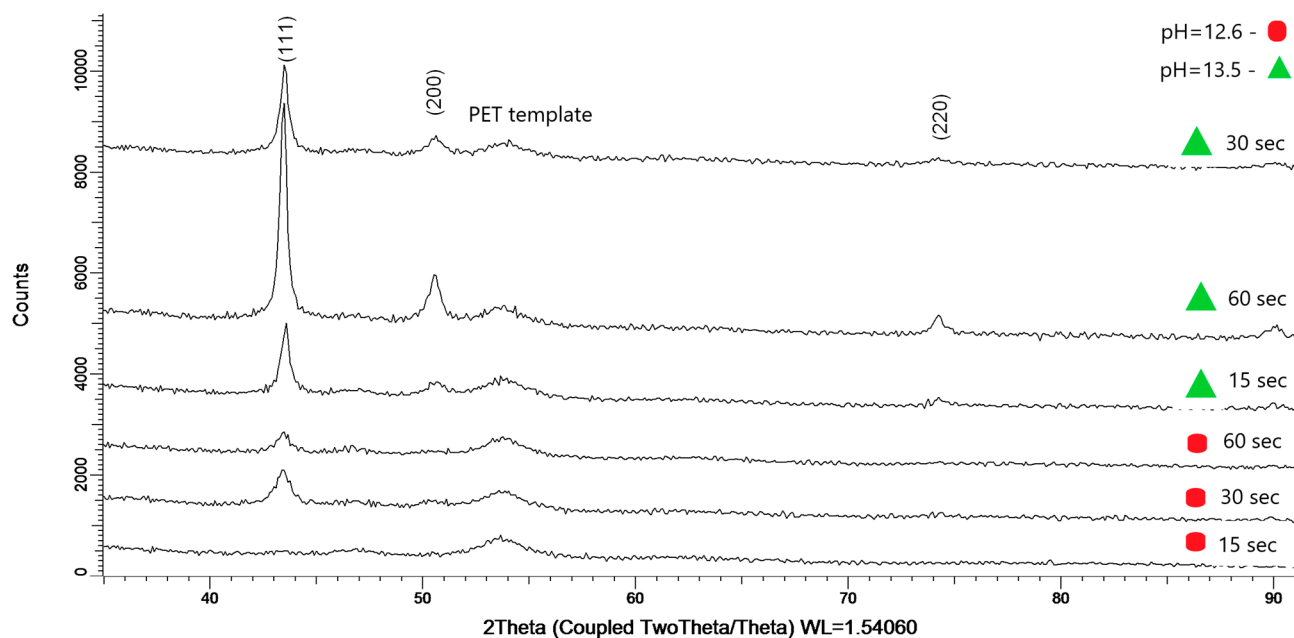
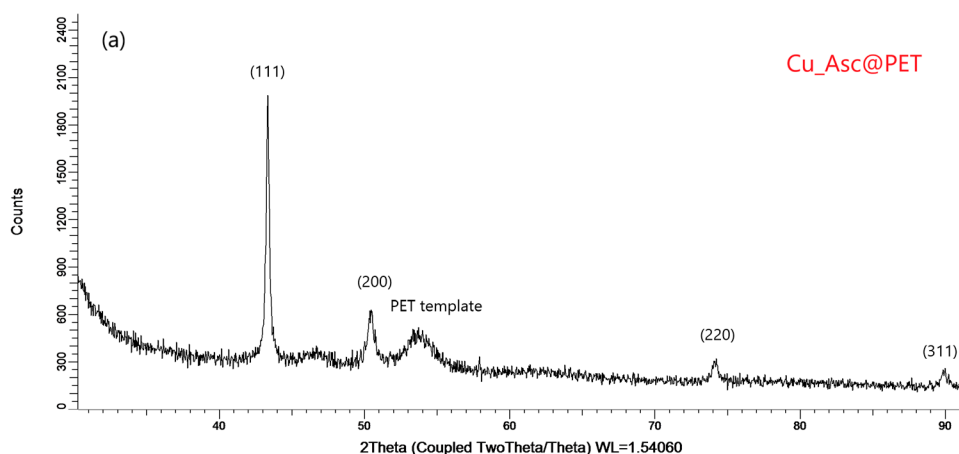


Figure S1 X-Ray diffraction (XRD) patterns of the Cu_Gly@PET composite TeMs deposited at the various deposition time



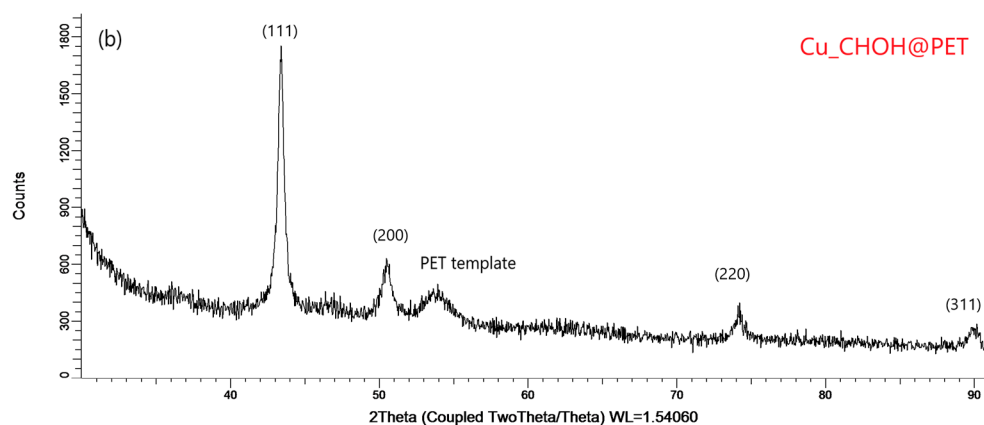


Figure S2 X-Ray diffraction (XRD) patterns of the Cu_Asc@PET (a) and Cu_CHO@PET (b) composite TeMs

Table S1 - XRD data of composite membranes prepared with ascorbic acid and formaldehyde as a reducing agent

| Composite | Phase/ content, % | (hkl) ^a | 2 θ ° | d, Å ^b | L, nm ^c | Cell parameter, Å ^e | FWHM ^d | Volume, Å ³ |
|------------|-------------------------|--------------------|--------------|-------------------|--------------------|--------------------------------------|-------------------|---------------------------|
| Cu_Asc@PET | Cu/100 | 111 | 43.384 | 2.08403 | 38.89 | a=3.608 | 0.244 | 46.97 |
| | | 200 | 50.384 | 1.80968 | 19.92 | | 0.490 | |
| | | 220 | 73.999 | 1.27997 | 27.59 | | 0.401 | |
| | | 311 | 89.845 | 1.09158 | 27.66 | | 0.451 | |
| Cu_CHO@PET | Cu/100 | 111 | 43.410 | 2.08284 | 20.36 | | 0.466 | 46.88 |
| | | 200 | 50.537 | 1.80457 | 17.37 | | 0.562 | |
| | | 220 | 74.139 | 1.27790 | 41.94 | | 0.294 | |

^a Miller indices for corresponding planes; ^b spacing between planes; ^c average crystallite size; ^d full-width at half-maximum; ^e crystal lattice parameter.

Table S2. Structural properties of the composite track-etched membranes (TeMs).

| Composite | Structural Parameters of Embedded MTs, nm | | Deposition Rate, R, mg/(cm ² h) | Amount of Cu Loaded, mg/cm ² |
|------------|---|-------------------|---|--|
| | Wall Thickness | Inner Diameter | | |
| Cu_CHO@PET | 73.7 ± 8.5 | 269.0 ± 10.5 | 5.52 | 0.77 ± 0.03 |
| Cu_Asc@PET | 15.2 ± 3.7 | 352.6 ± 12.0 | 0.56 | 0.67 ± 0.06 |