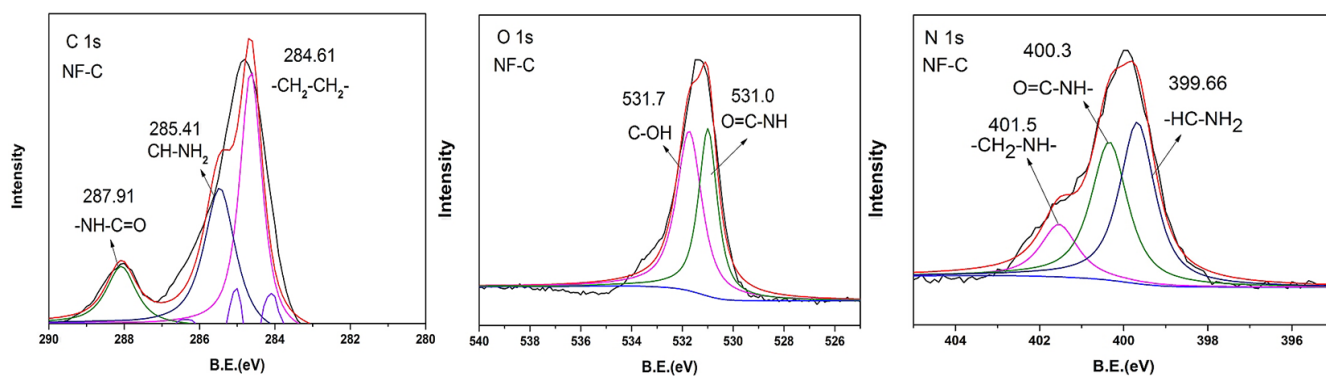
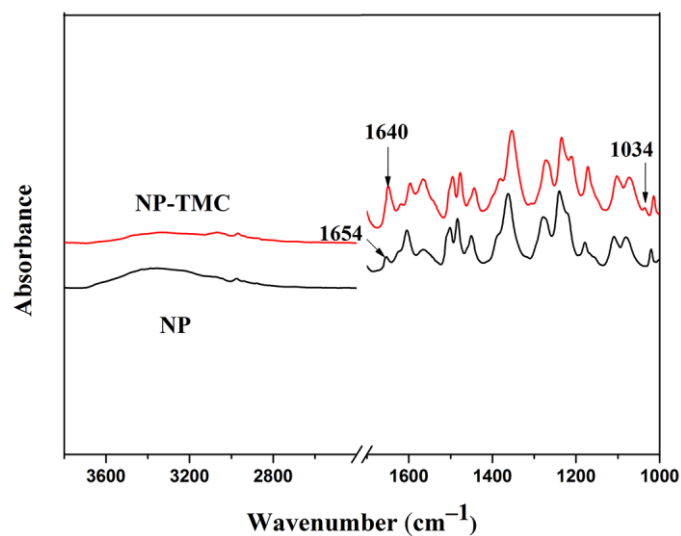


**Figure S1.** SEM images of surface and cross section including NF-J.



**Figure S2.** C1s, N1s, O1s and S1s XPS spectra of NF-C membranes



**Figure S3.** ATR-FTIR spectra of the NP-TMC and NP membranes.