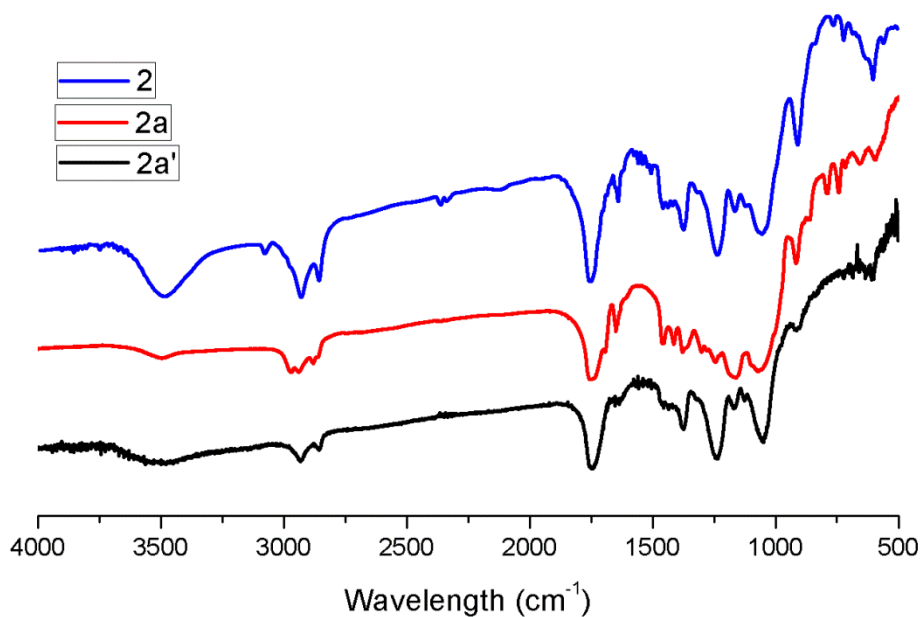


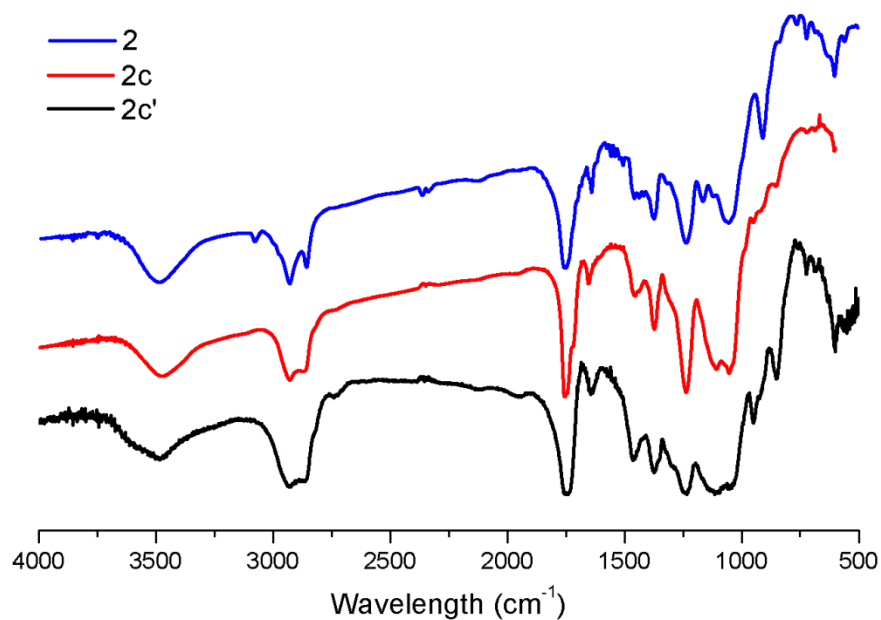
Supporting Information

We include here FTIR and ^1H NMR spectra, and DSC data of new compounds prepared that we did not include in the body of the manuscript. All the results, unless otherwise stated below, were acquired using instruments and methods as described in the Experimental Section of the paper.

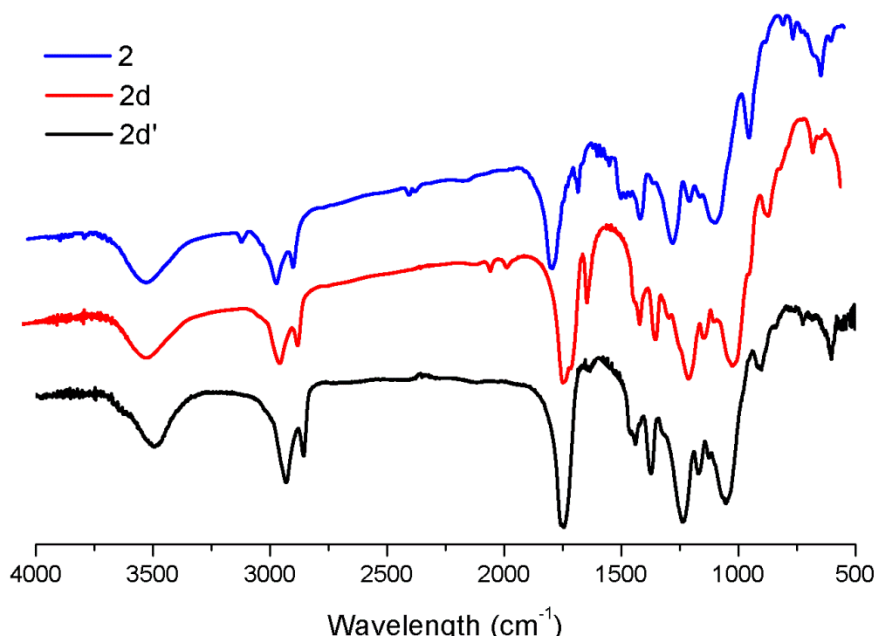
FTIR Spectra



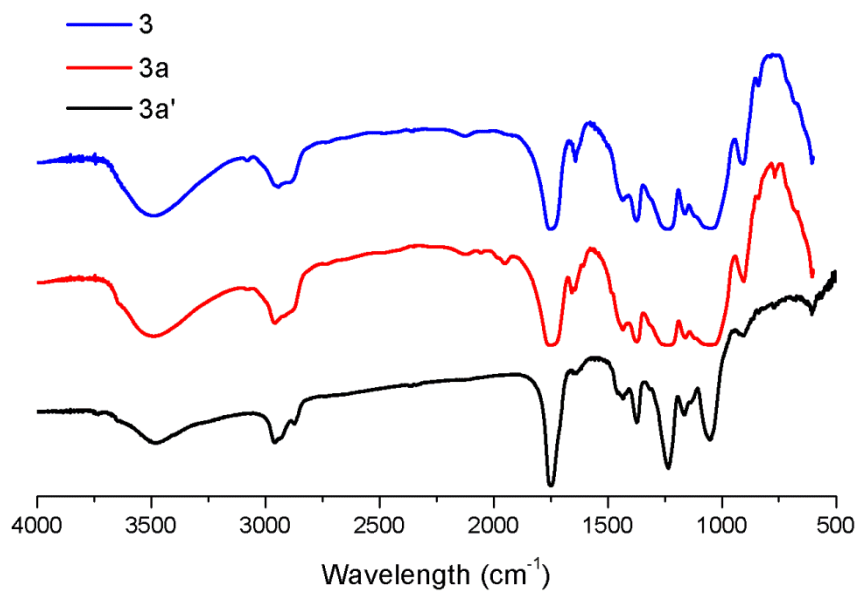
S1. FTIR spectra of terminally olefinic cellulose acetate undec-10-enoate **2**, the CM product (with AA) **2a**, and the hydrogenated product **2a'**.



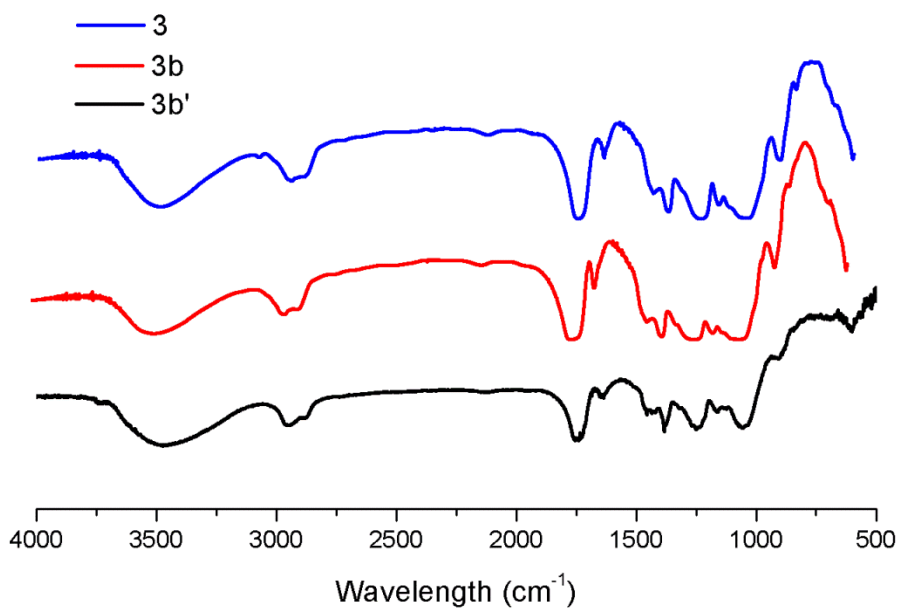
S2. FTIR spectra of terminally olefinic cellulose acetate undec-10-enoate **2**, the CM product (with PEGMEA) **2c**, and the hydrogenated product **2c'**.



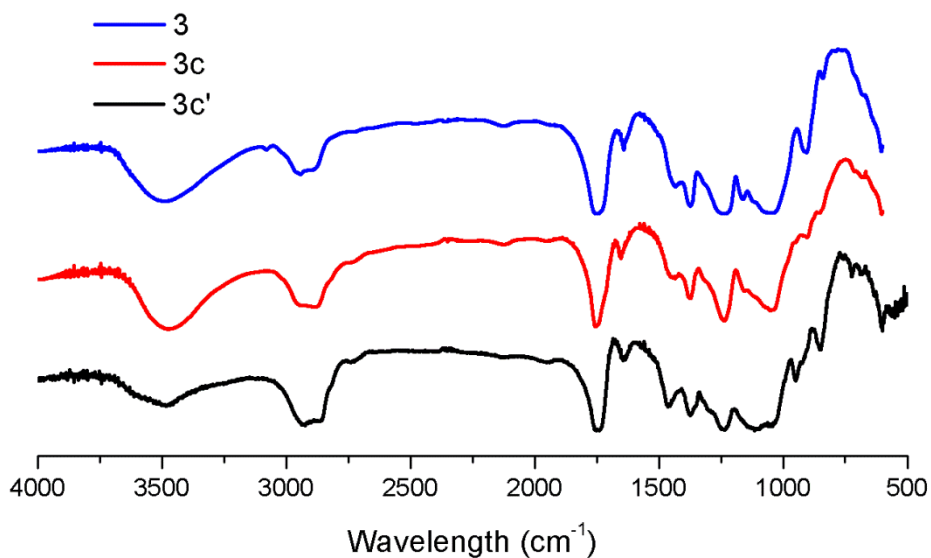
S3. FTIR spectra of terminally olefinic cellulose acetate undec-10-enoate **2**, the CM product (with MA) **2d**, and the hydrogenated product **2d'**.



S4. FTIR spectra of terminally olefinic cellulose acetate pen-4-tenoate **3**, the CM product (with AA) **3a**, and the hydrogenated product **3a'**.

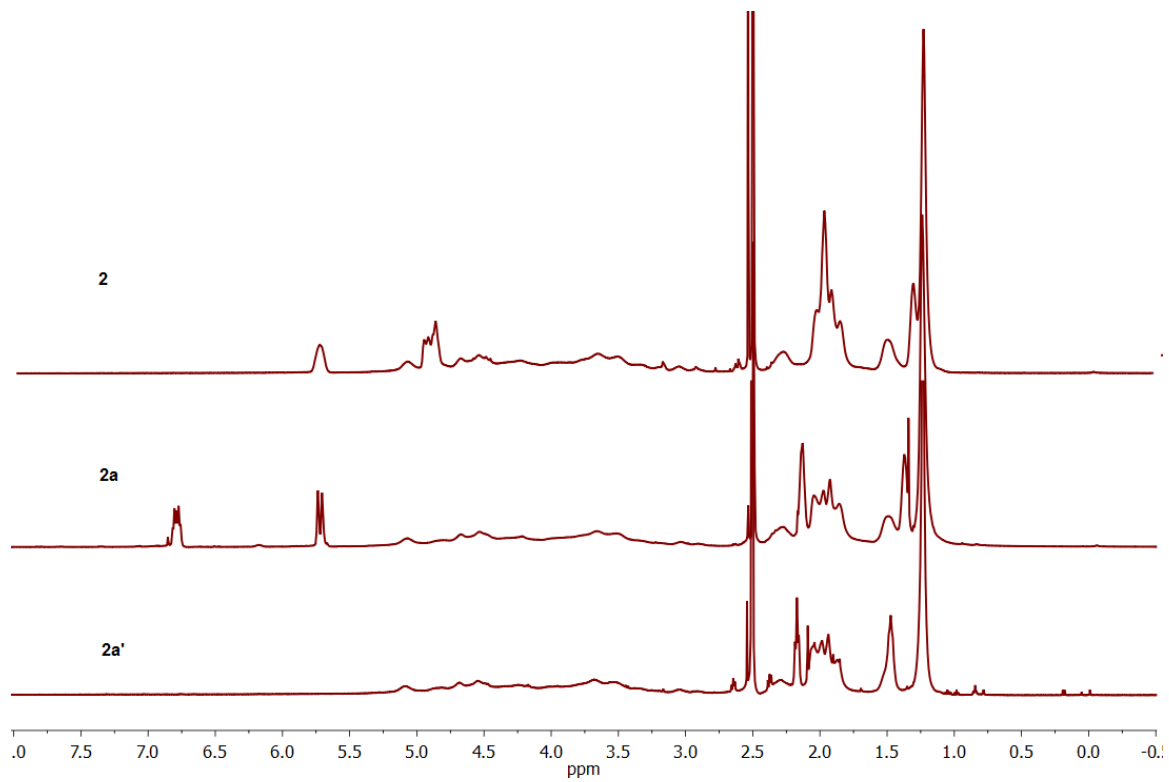


S5. FTIR spectra of terminally olefinic cellulose acetate pen-4-tenoate **3**, the CM product (with HEA) **3b**, and the hydrogenated product **3b'**.

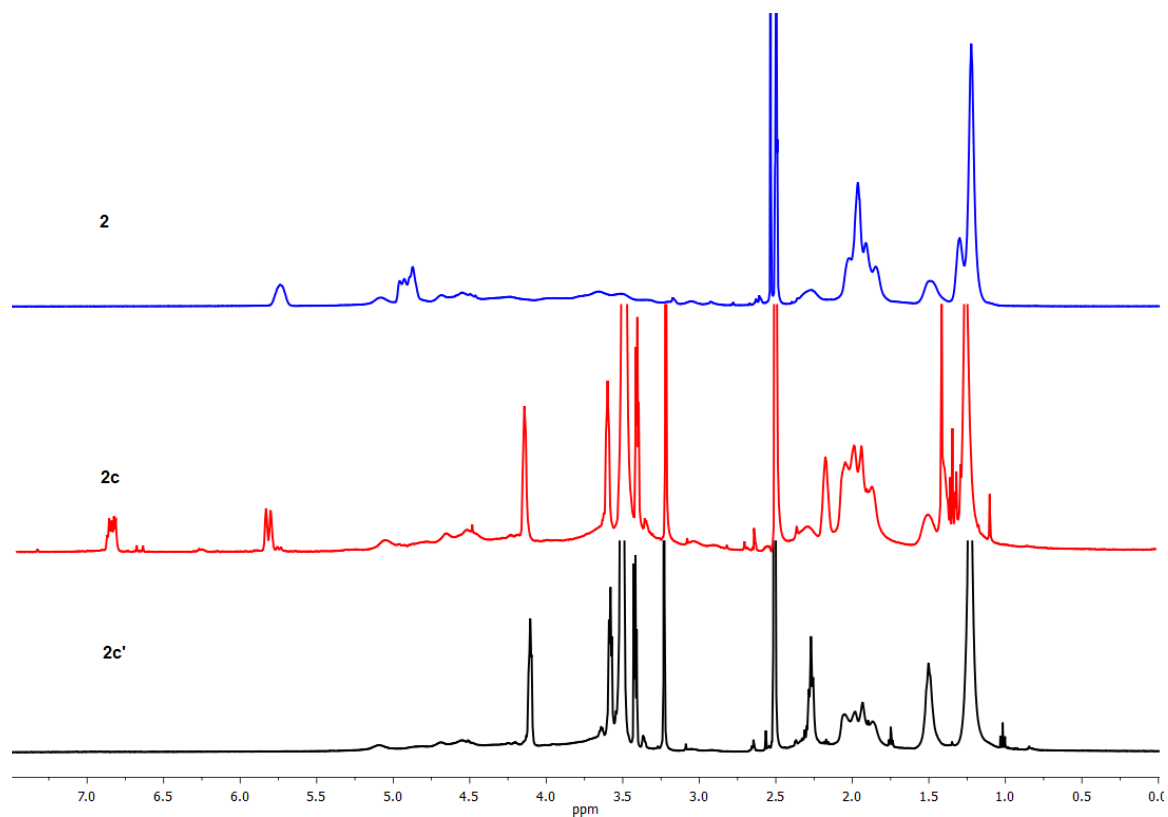


S6. FTIR spectra of terminally olefinic cellulose acetate pen-4-tenoate **3**, the CM product (with PEGMEA) **3c**, and the hydrogenated product **3c'**.

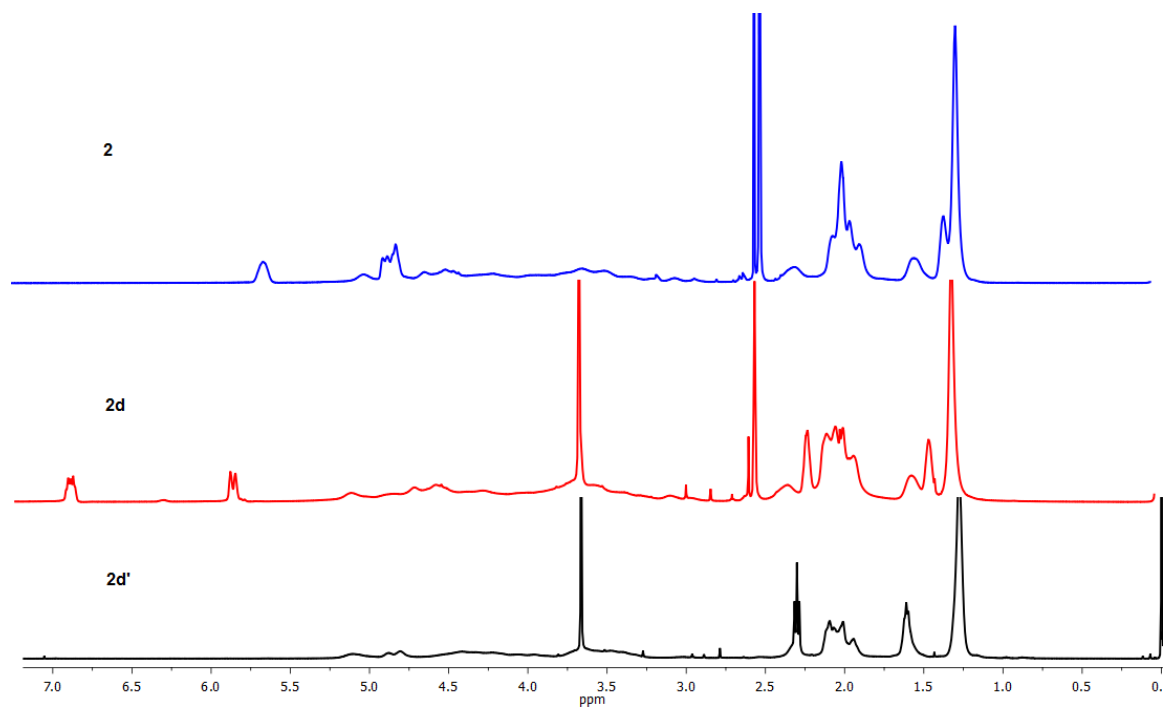
NMR spectra



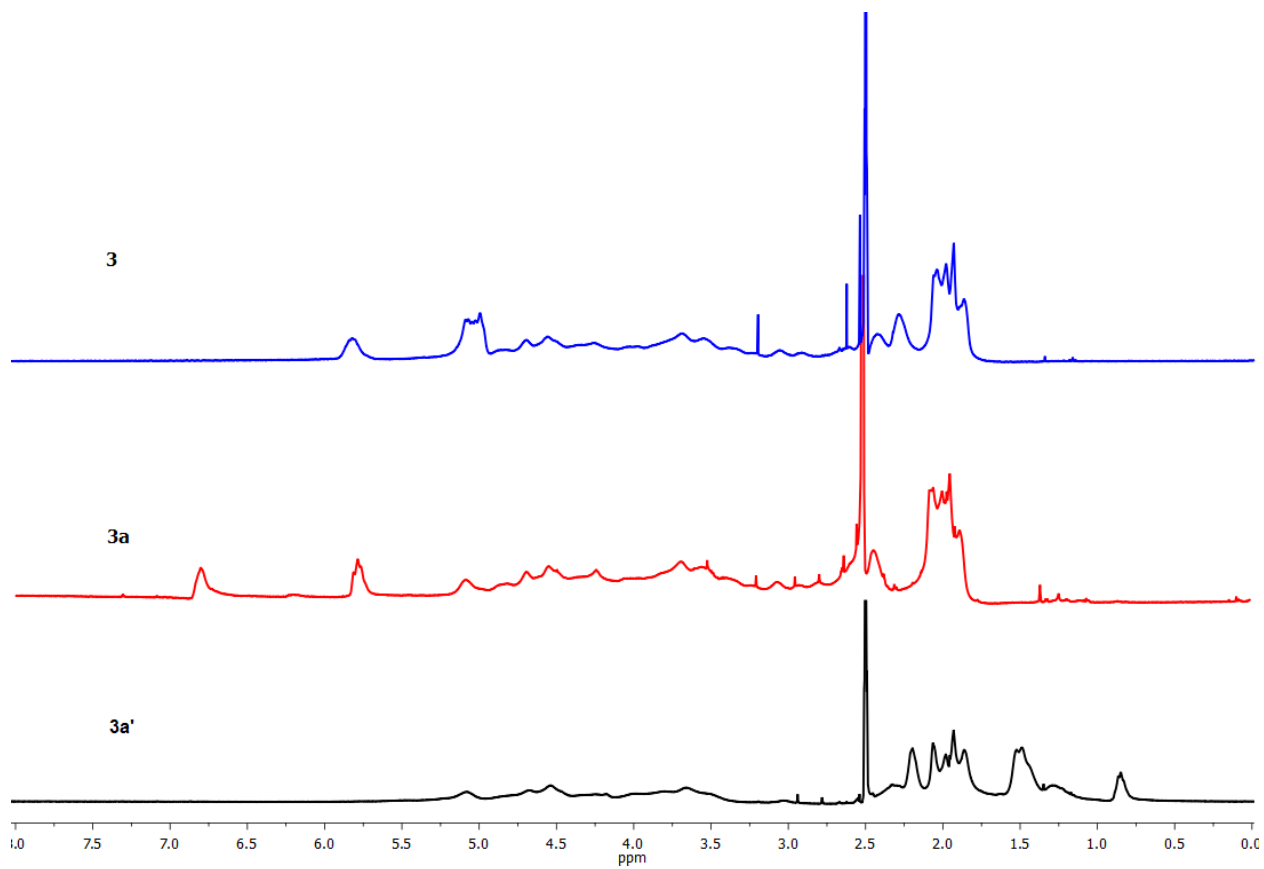
S7. ^1H NMR spectra of terminally olefinic cellulose acetate undec-10-enoate **2**, CM product (with AA) **2a**, and hydrogenated product **2a'**.



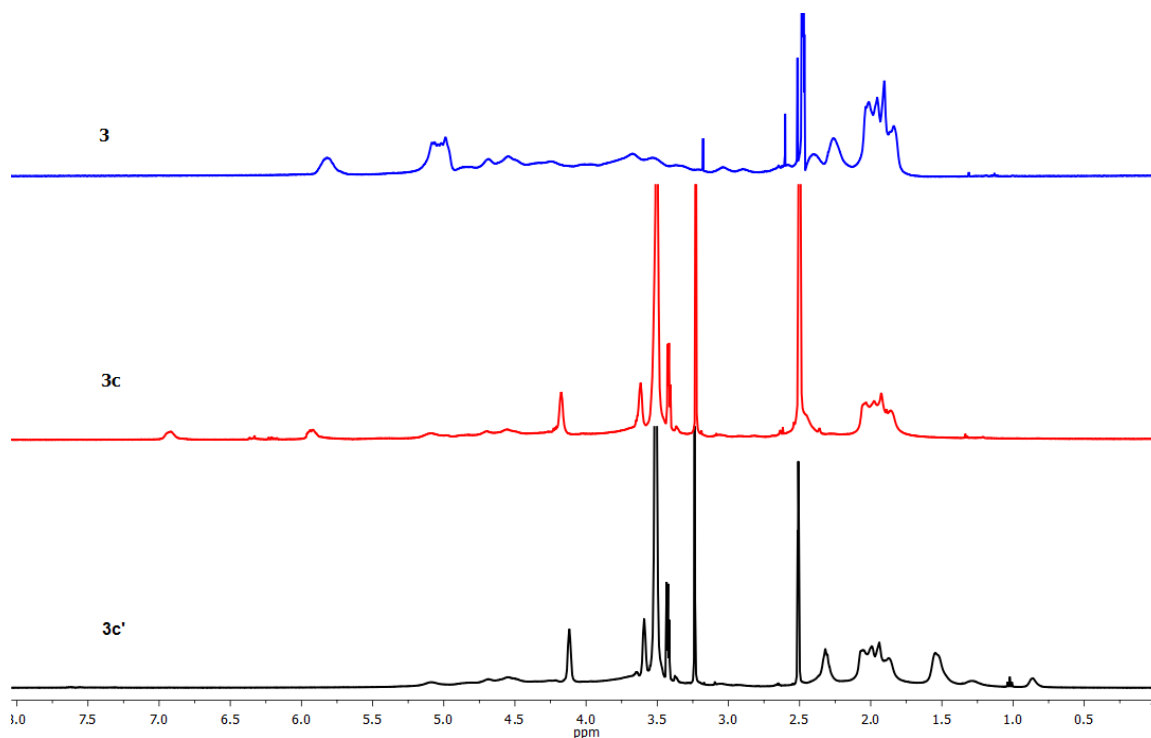
S8. ^1H NMR spectra of terminally olefinic cellulose acetate undec-10-enoate **2**, CM product (with PEGMEA) **2c**, and hydrogenated product **2c'**.



S9. ¹H NMR spectra of terminally olefinic cellulose acetate undec-10-enoate **2**, CM product (with MA) **2d**, and hydrogenated product **2d'**.



S10. ^1H NMR spectra of terminally olefinic cellulose acetate pent-4-enoate **3**, CM product (with AA) **3a**, and hydrogenated product **3a'**.



S11. ^1H NMR spectra of terminally olefinic cellulose acetate pent-4-enoate **3**, CM product (with AA) **3c**, and hydrogenated product **3c'**.

DSC data

S12. T_g of the CM products (2a-2d, 3a-3c) measured by DSC.

Compound	2a	2b	2c	2d	3a	3b	3c
T_g ($^{\circ}\text{C}$)	115	109	NA	100	151	137	78