Electronic Supplementary Material (ESI) for Green Chemistry

Tosylcellulose synthesis in aqueous medium

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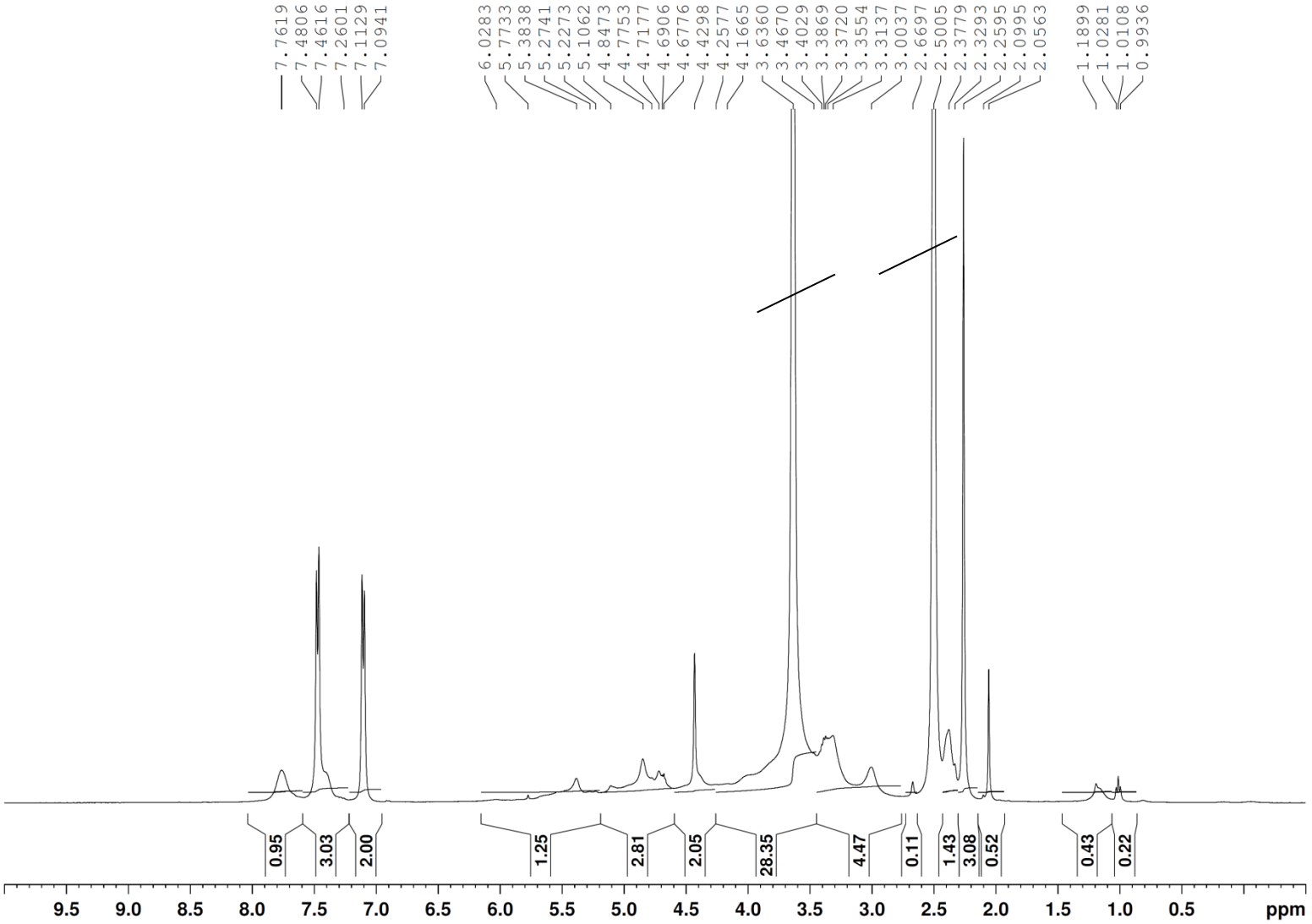
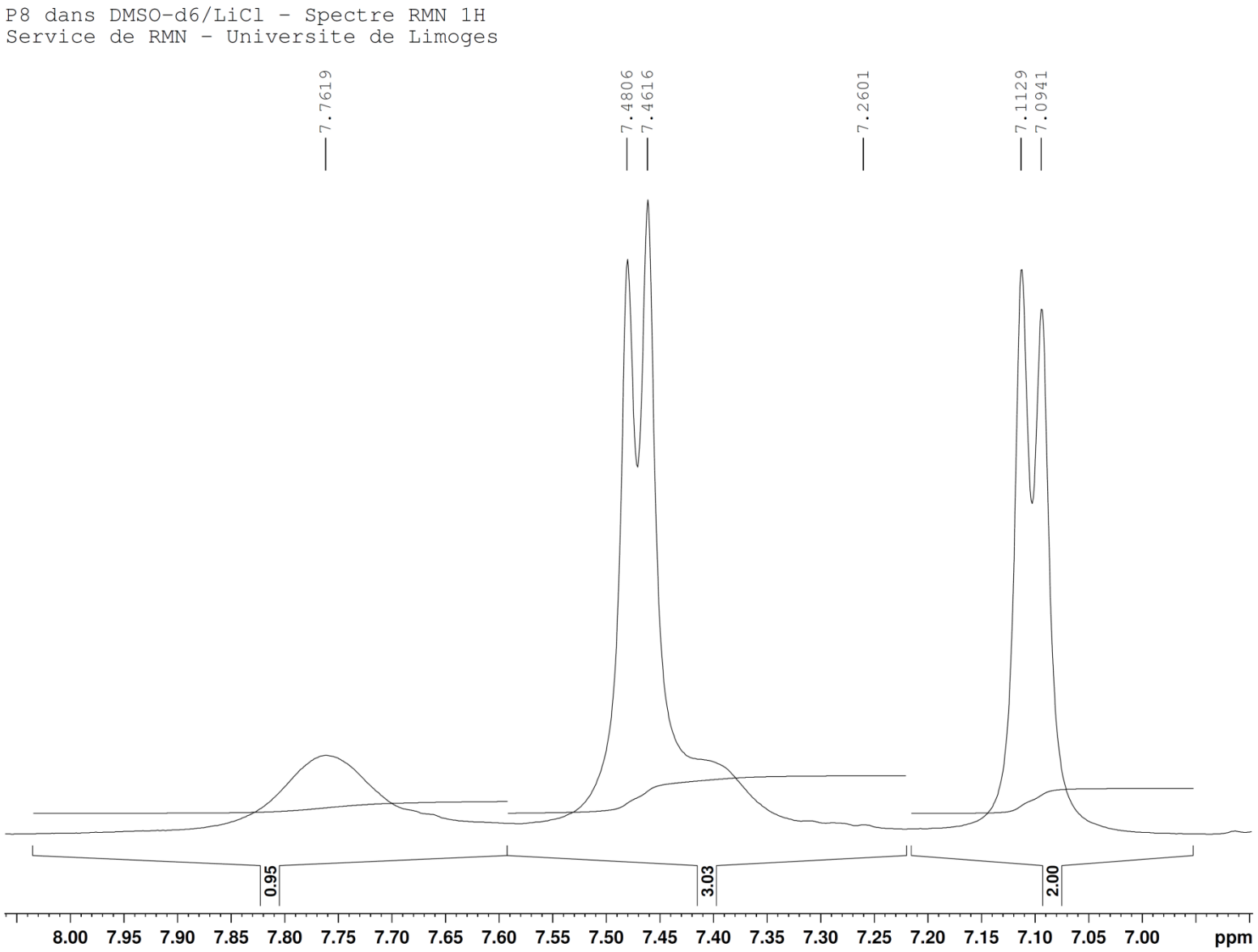
Complementary Data:

NMR Data of compound with DS: 0.97 (entry 7 table 1).

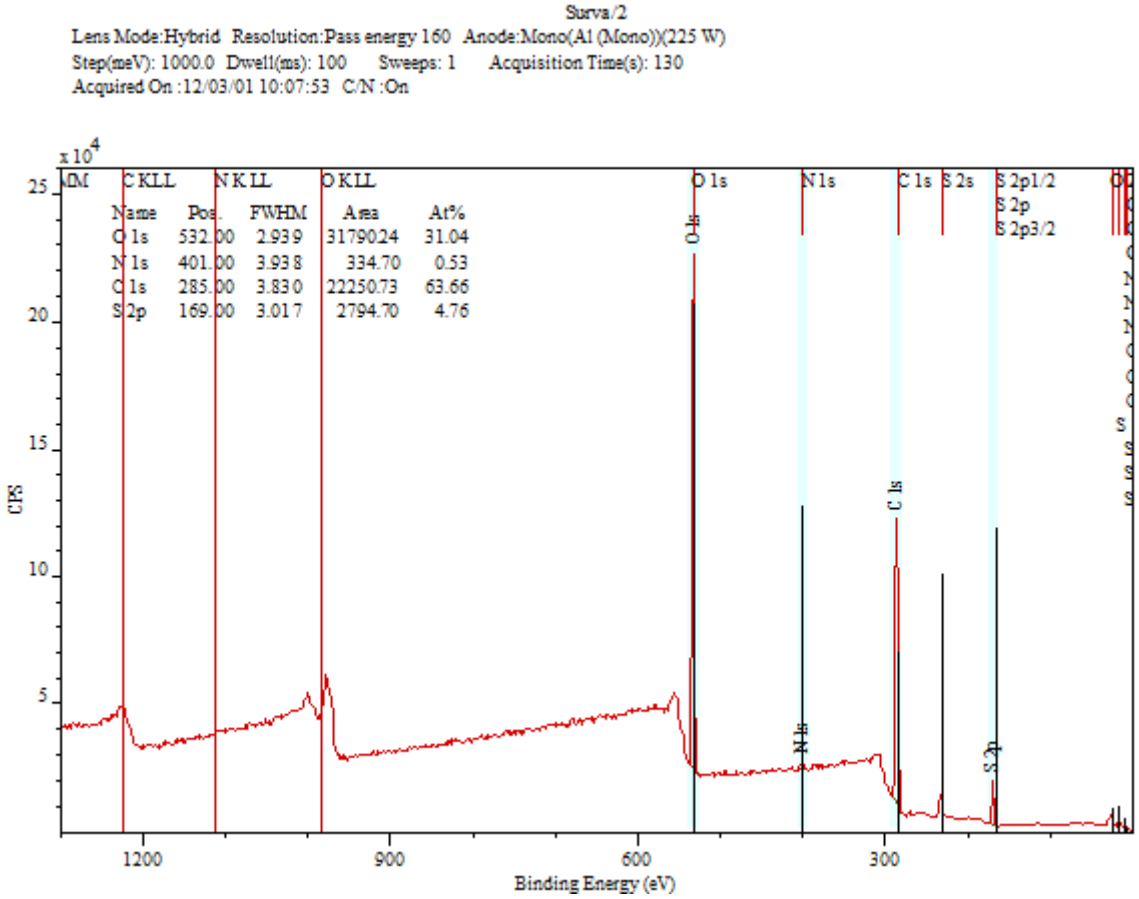
P8 dans DMSO-d6/LiCl - Spectre RMN 1H
Service de RMN - Universite de Limoges



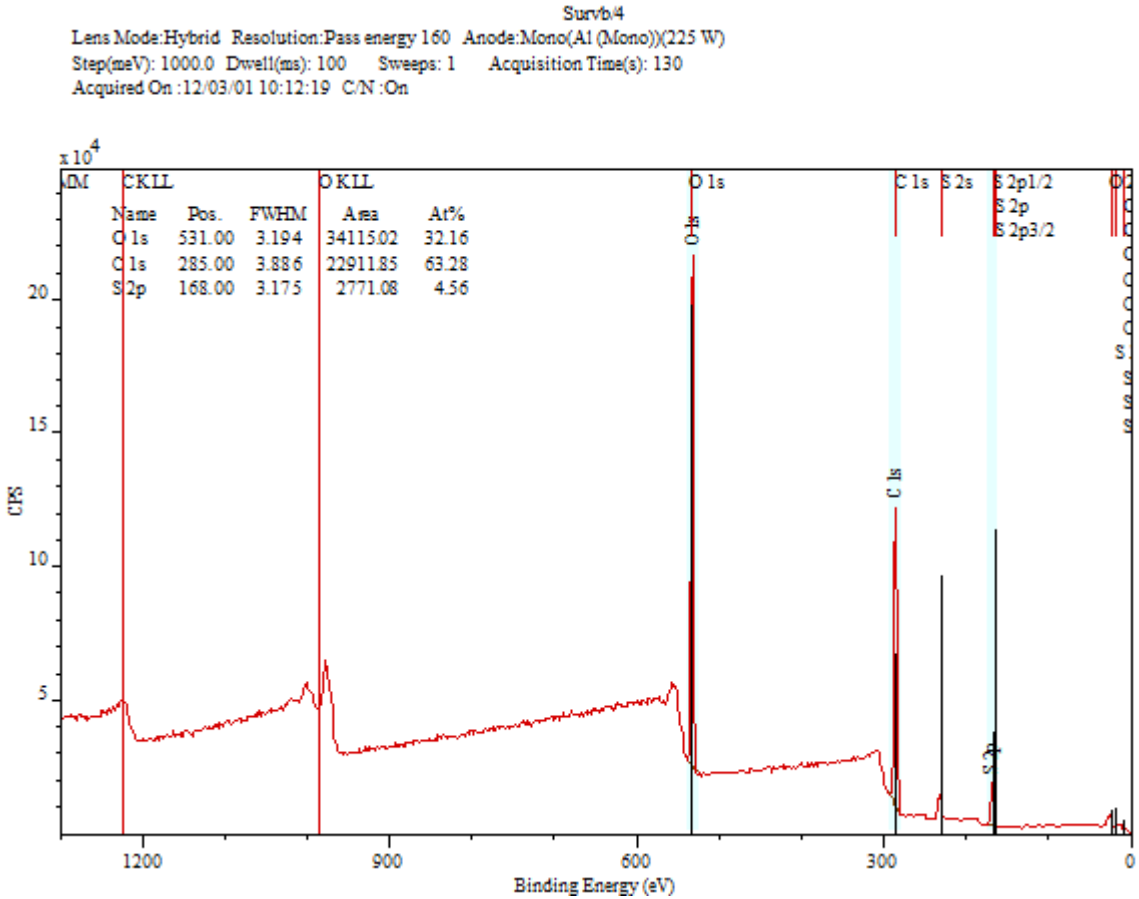


XPS Data of the same compound with a DS of: 0.96 (entry 7 table 1).

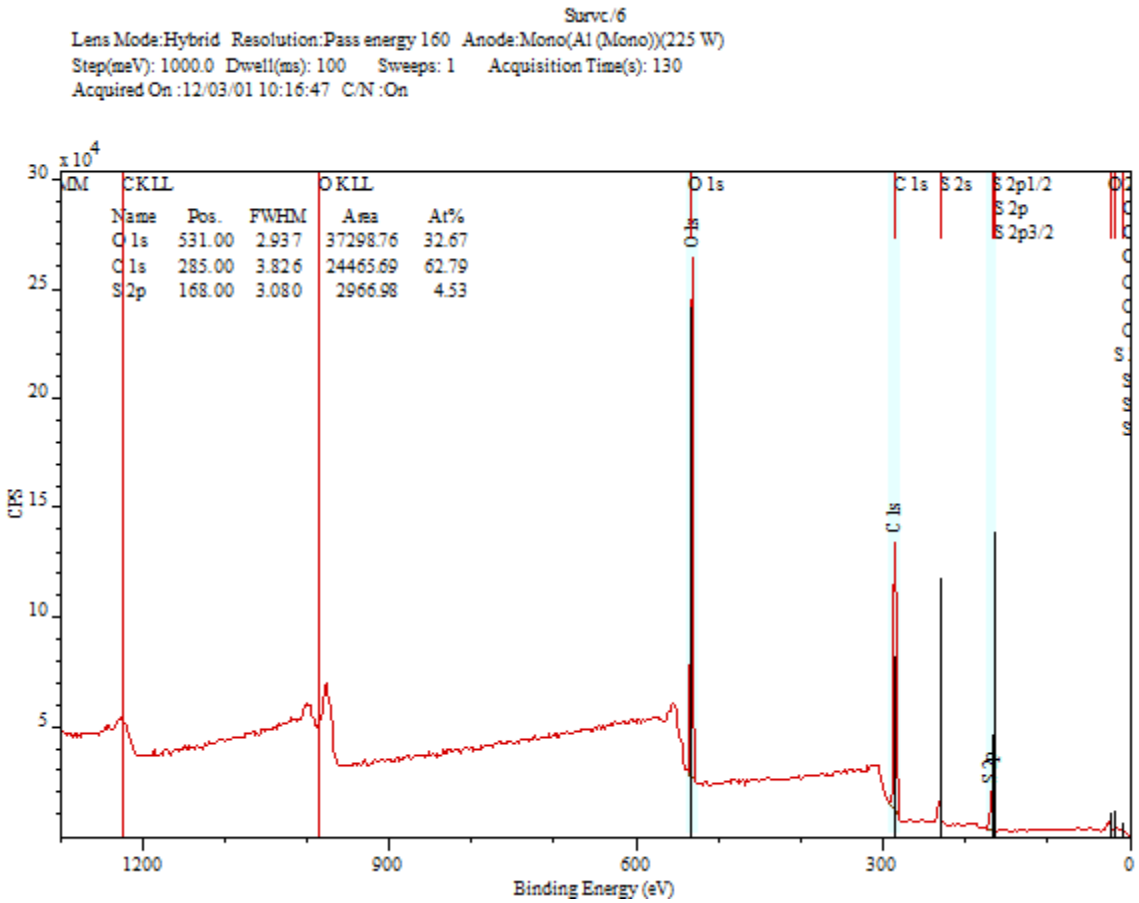
First measure point:



Second measure point:

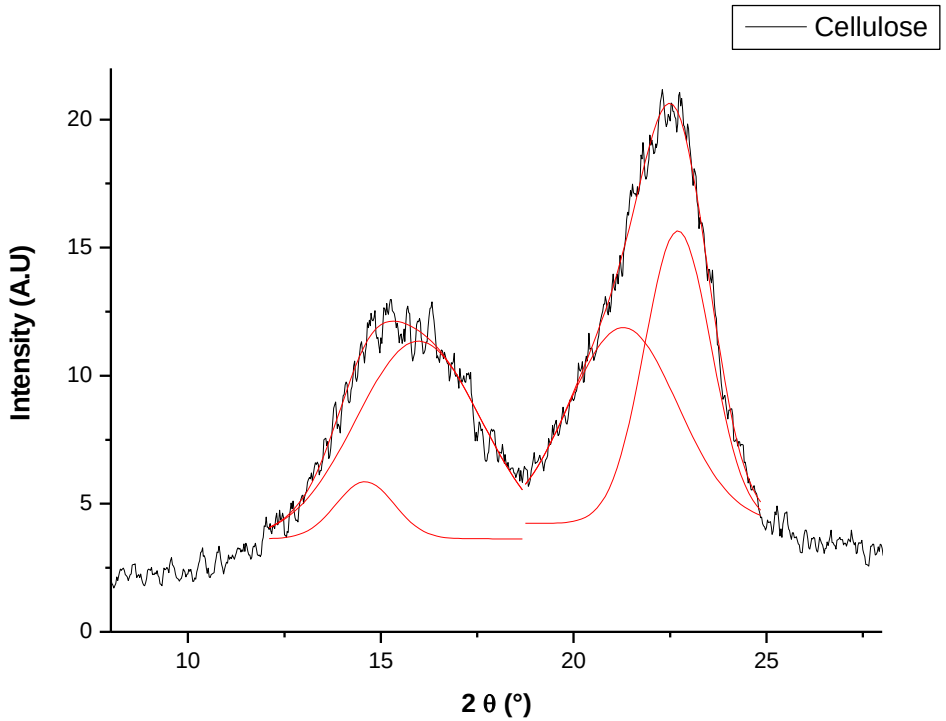


Third measure point:



DRX measurements Information:

Example of DRX spectra deconvolution:



Data: Data1_A
Model: Gauss

Chi^2/DoF = 0.23634
R^2 = 0.99084

y0	4.23257	±1.08907
xc1	22.70216	±0.02527
w1	1.72661	±0.25165
A1	24.71418	±18.8747
xc2	21.28608	±1.06636
w2	2.82333	±1.29396
A2	27.06676	±27.24676

Debye-Scherrer equation : $$L_{hkl} = \frac{K \times \lambda}{\Delta\theta \times \cos(\theta)}$$

L_{hkl} is the crystallite size in the direction perpendicular to plane with hkl as Miller index. λ is the X-ray wavelength. $\Delta\theta$ is the half-width of the diffraction peak.

Estimation of degree of crystallinity:

$$CI = \frac{I_{002} - I_{am}}{I_{002}} \times 100 \quad \text{Or} \quad CI = \frac{A_{002}}{A_{002} + A_{am}} \times 100$$ (*I and A are the intensity and the area of the diffraction peak).*