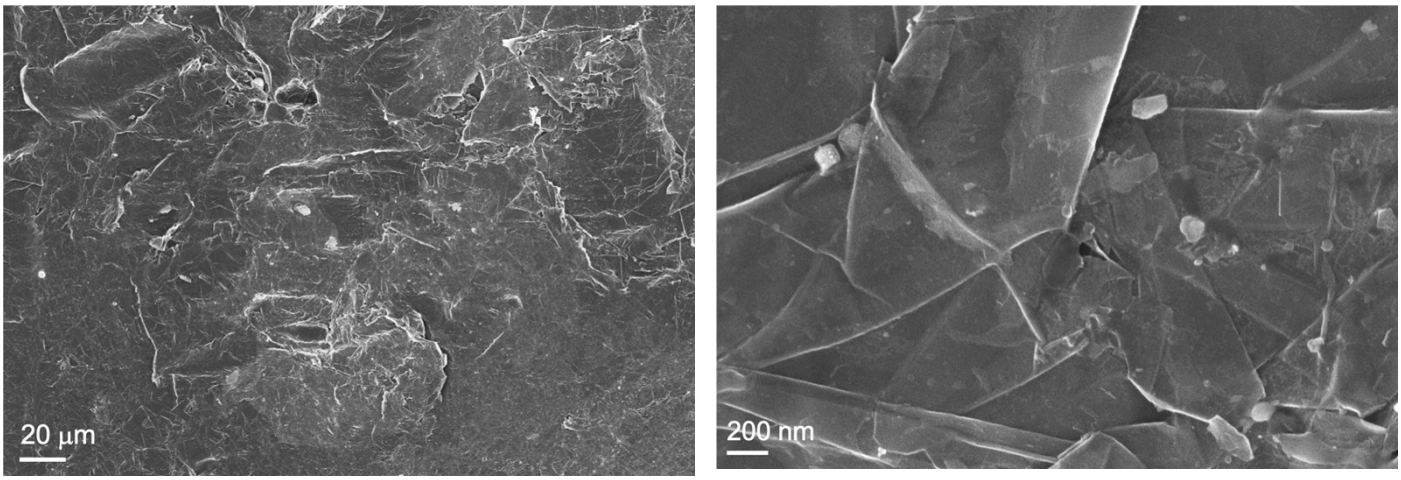
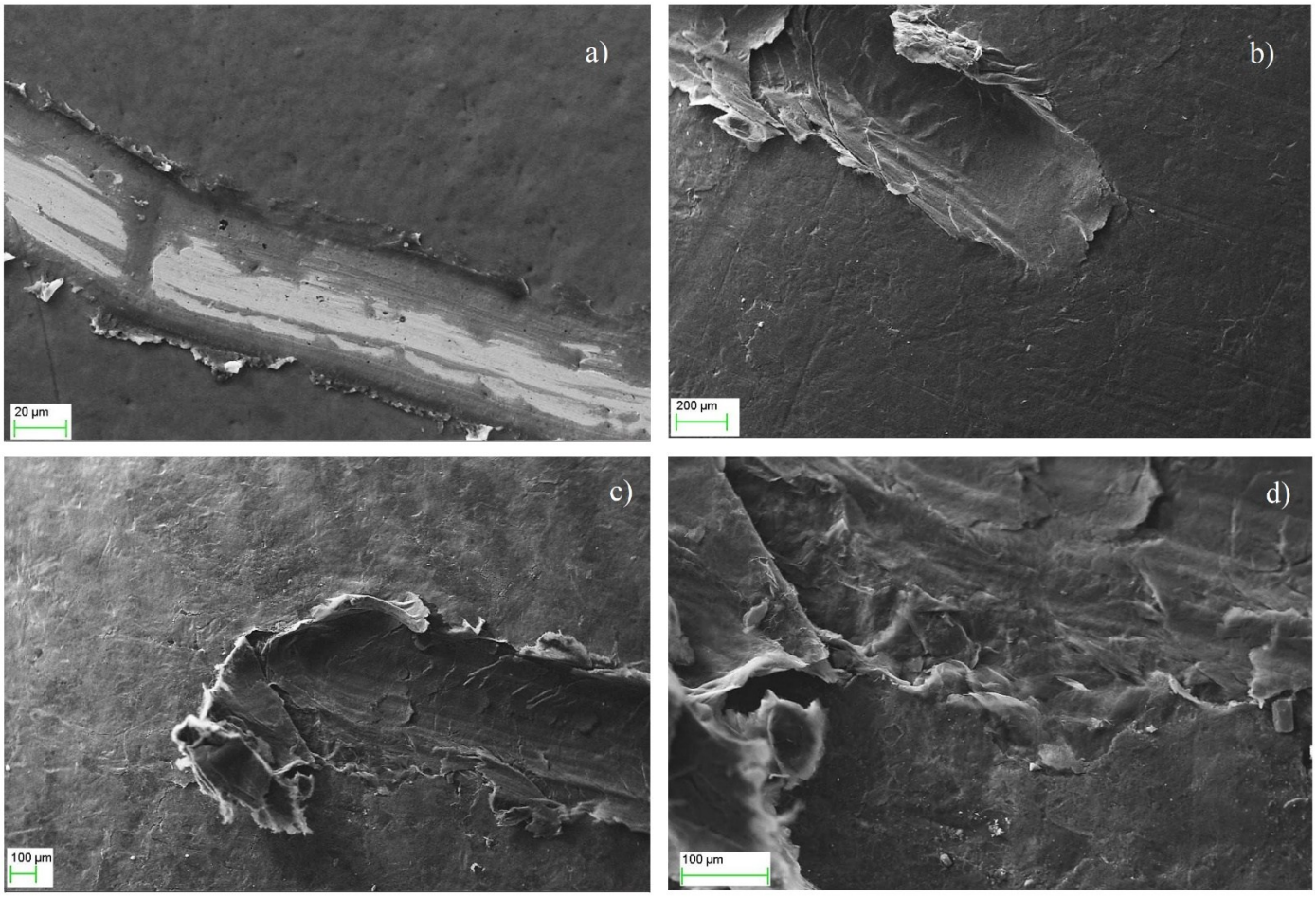
Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

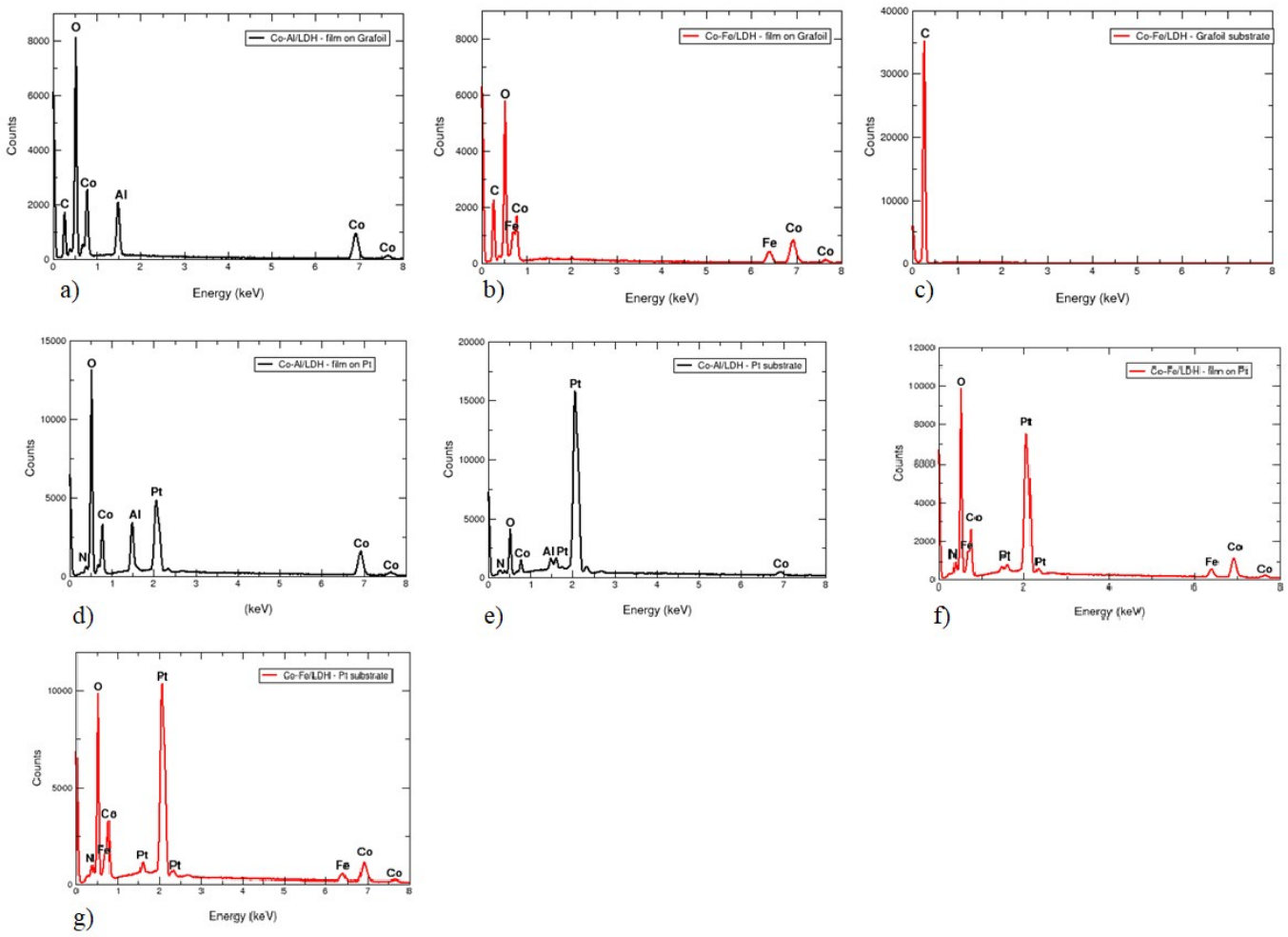
Supplementary information



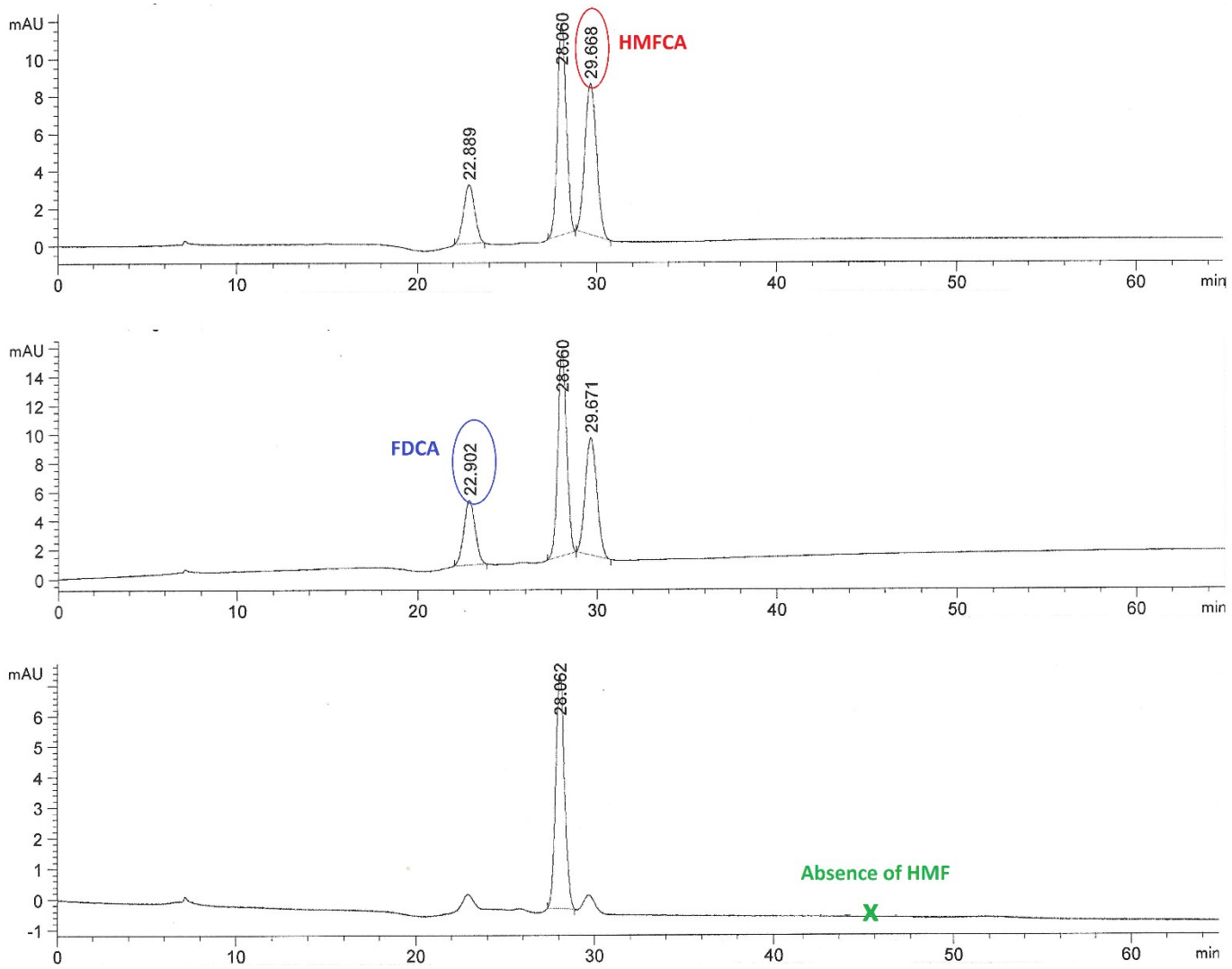
SI 1: Grafoil images at different maginifications



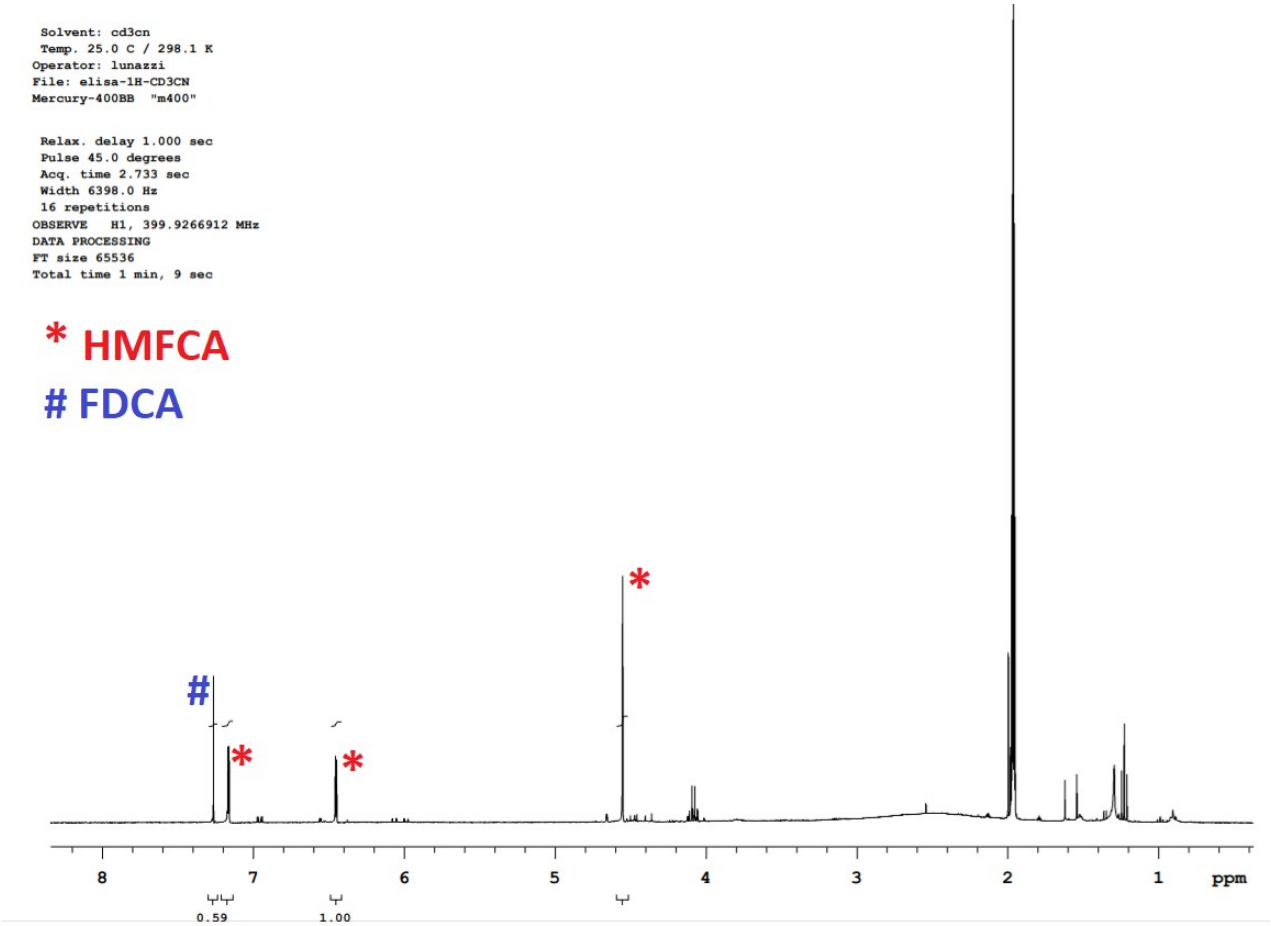
SI 2: SEM images of scratch tracks of a) Pt coated surface, b) Grafoil surface c-d) Grafoil coated electrodes at different magnifications.



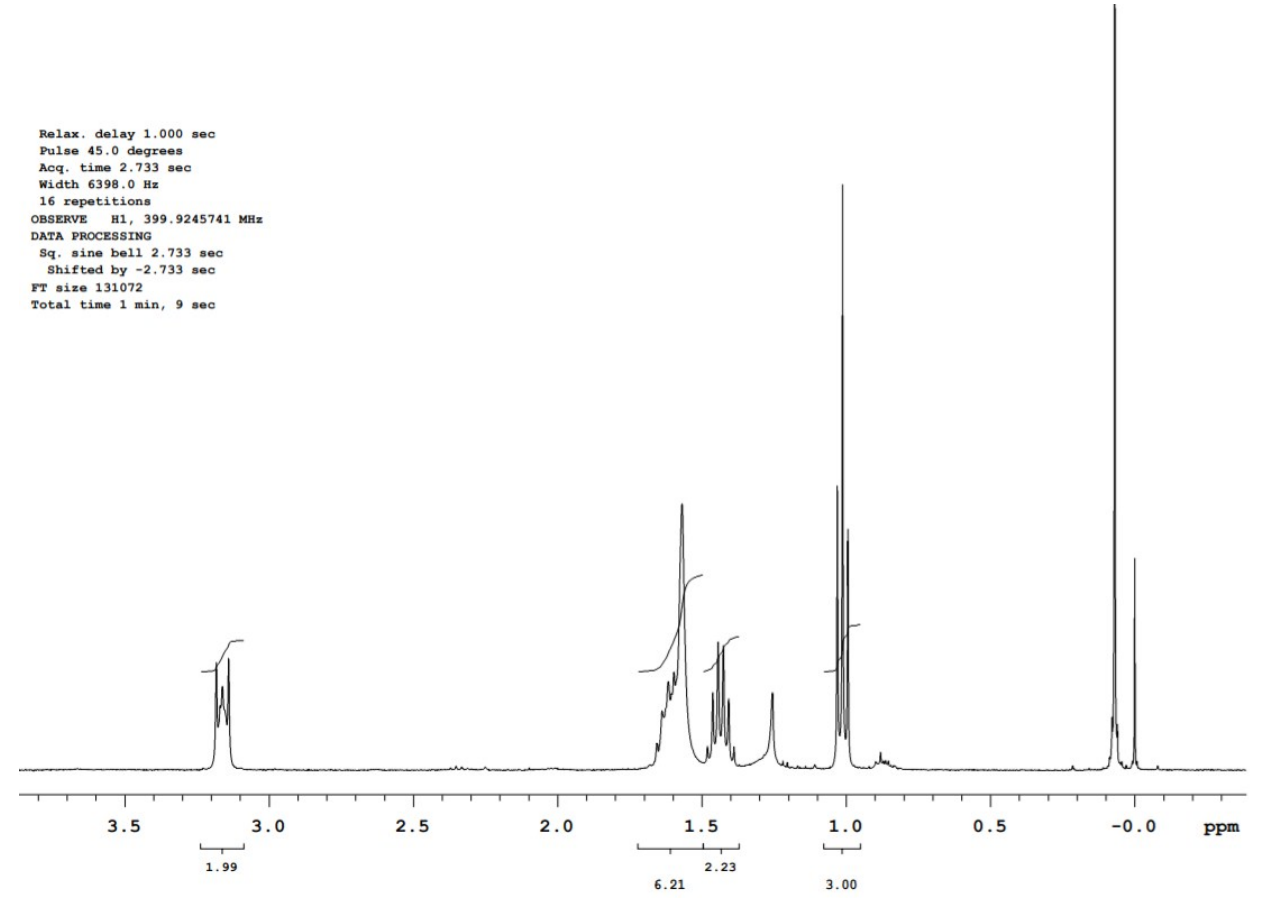
SI 3: EDX analysis. Concerning the possibility to distinguish the products and supports, EDX spectroscopy has been carried out, but instead of a detailed mapping, single areas of different thickness have been analysed. From a general point of view, the EDX measurements confirm the composition of the film, made by Co and Al, and Co and Fe, respectively, both on Pt and Grafoil substrates. For Grafoil substrates (a-c), when the film exposes part of the substrate, as in the right part of Fig. 3h, the EDX indicates the presence of C only. For the Co-Al/LDH samples on the Pt substrates (d-g), as the films cover uniformly the substrates, and because of the high scattering power of Pt, it is not possible to obtain spectra of the substrate only. When the film shows thinner regions, the contribution of the substrate becomes predominant. Finally, for the Co-Fe/LDH samples on Pt substrates, the comparison between the spectra acquired on the nanostructures shown in Figs. 3e and 3f and on the exposed substrates, that are showing again a higher concentration of Pt, confirms the composition of the products.



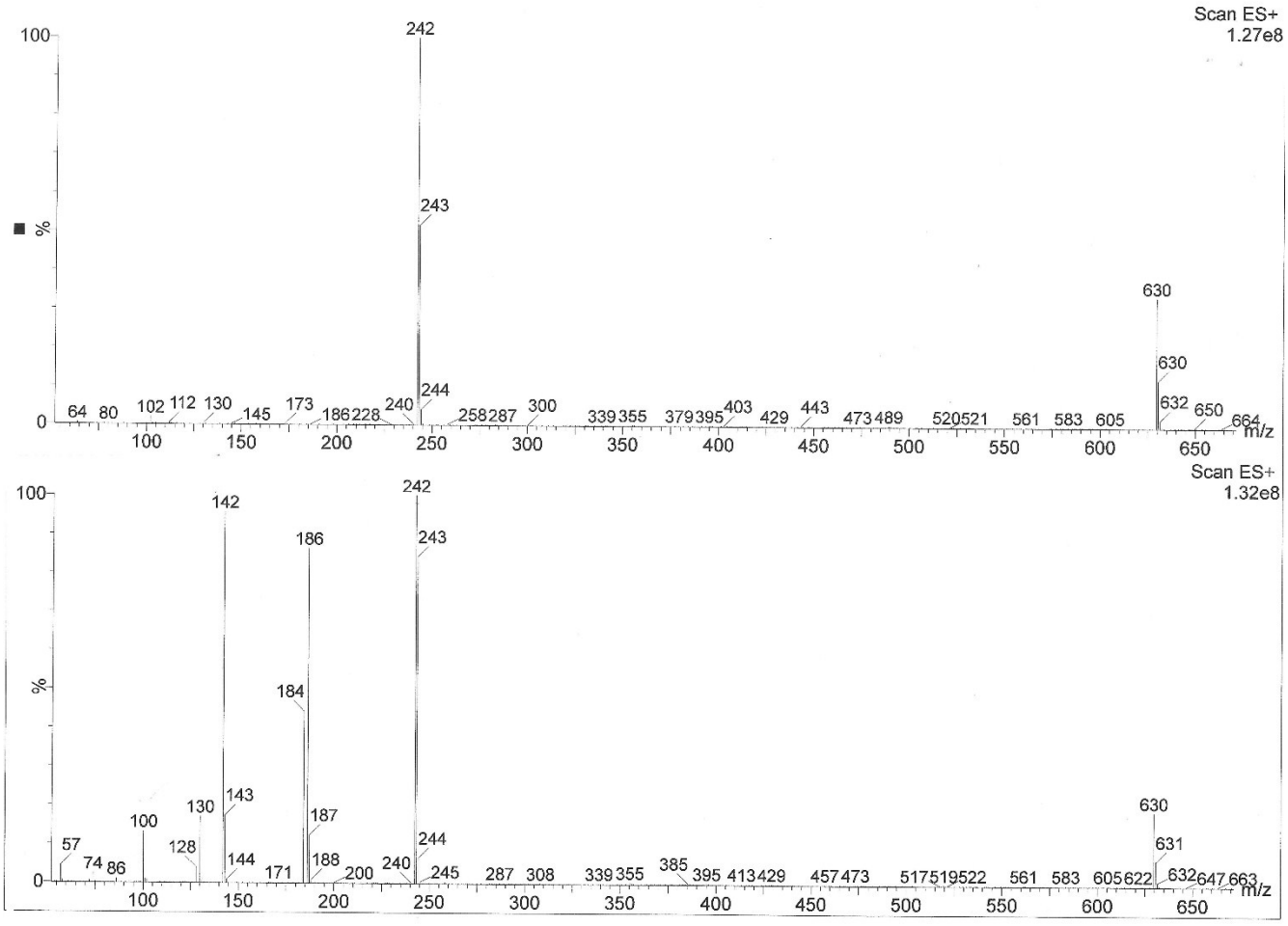
SI 4: HPLC analysis of electro-oxidation of HMF



SI 5: 1HNMR of mixture of HMFCA and FDCA



SI 6: HNMR of unidentified aliphatic product.



SI 7: ESI-MS of unidentified aliphatic product