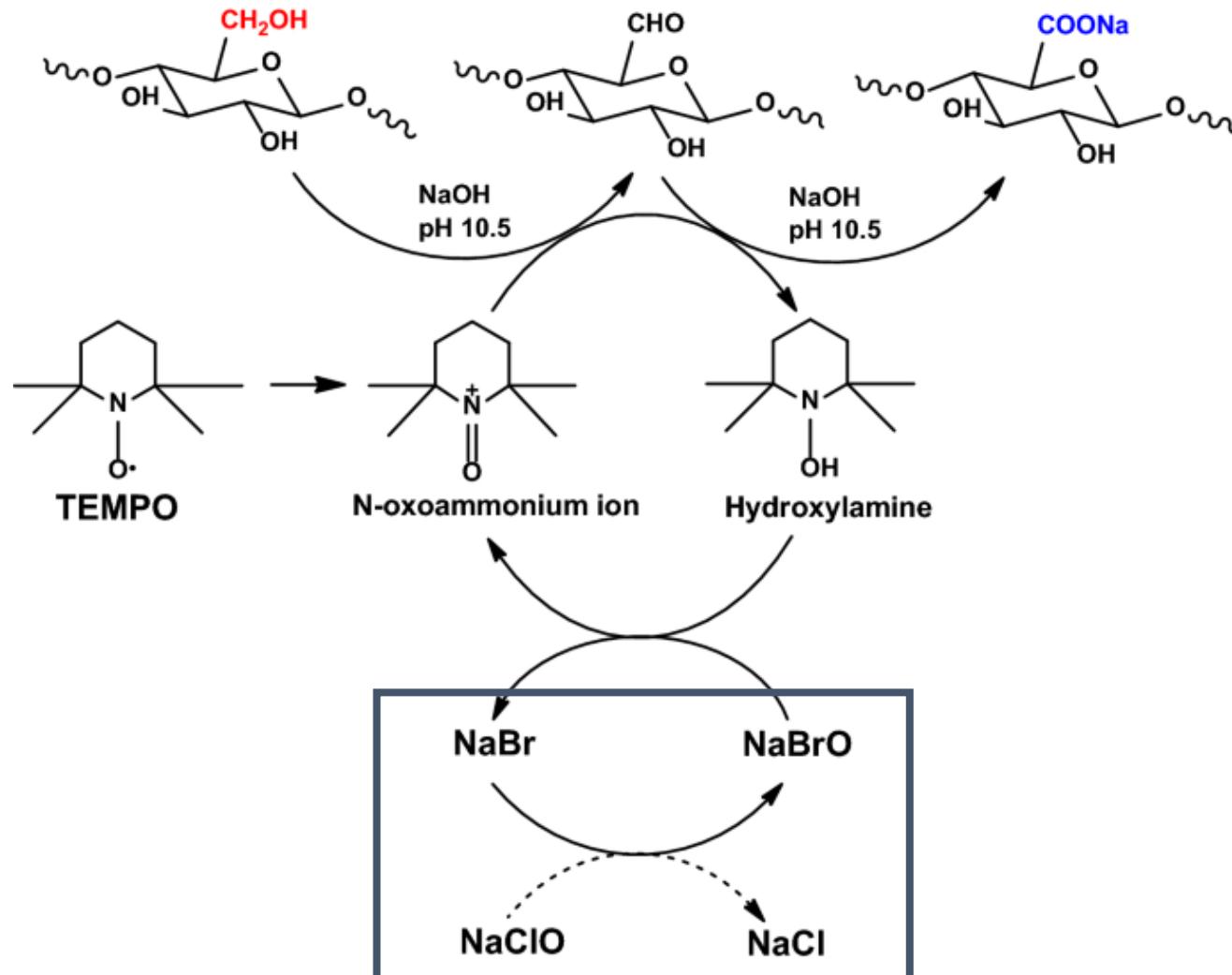


Survey on electro-mediated TEMPO-oxidation of cellulose

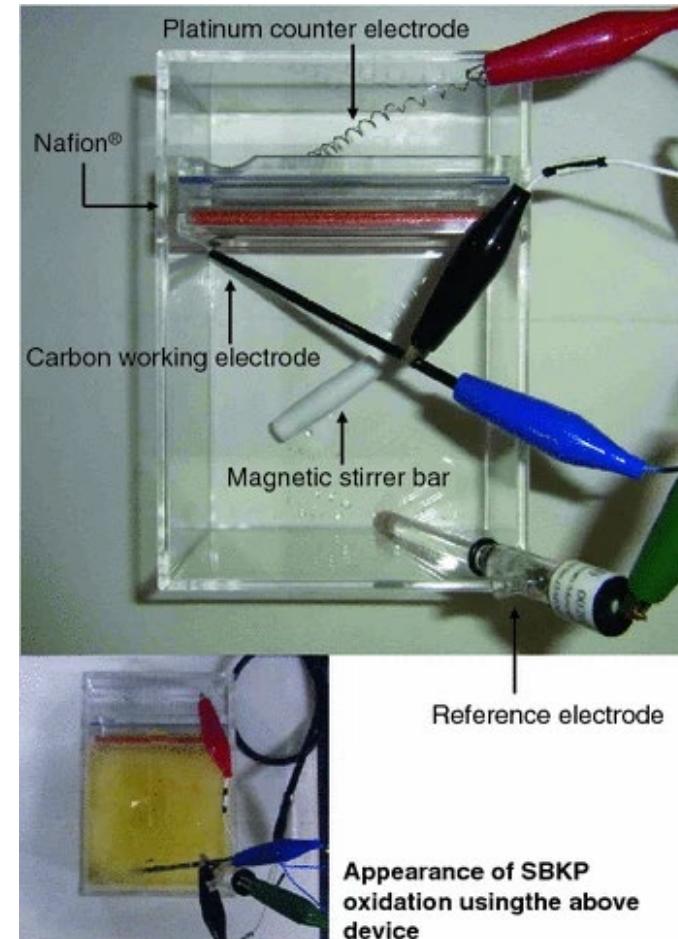
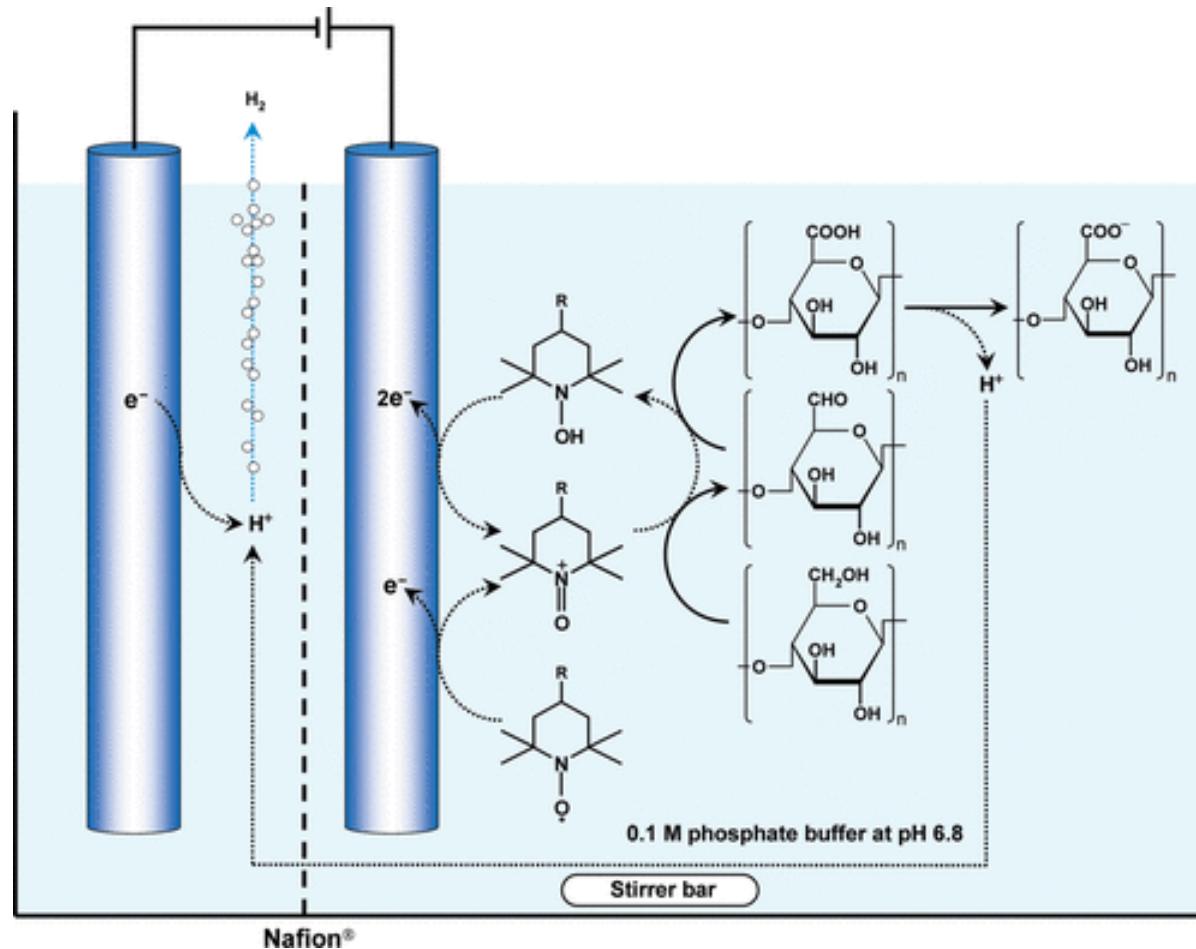
Neptun Yousefi, Eero Kontturi



“Classic” TEMPO Oxidation



Electro-mediated Oxidation



Appearance of SBKP
oxidation using the above
device

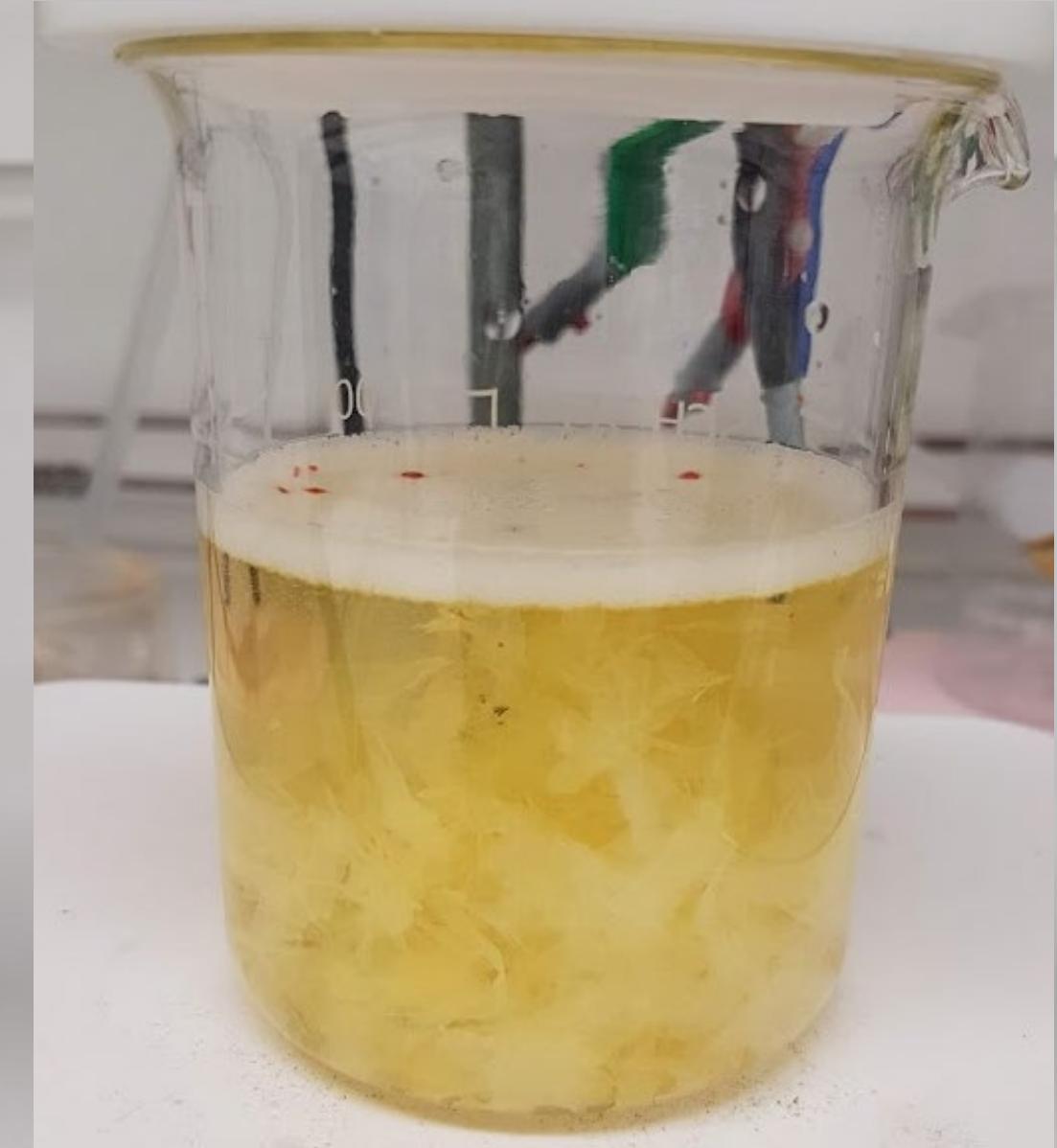
A?

Aalto University
School of Chemical
Engineering

Biomacromolecules **11**, 1593–1599 (2010)

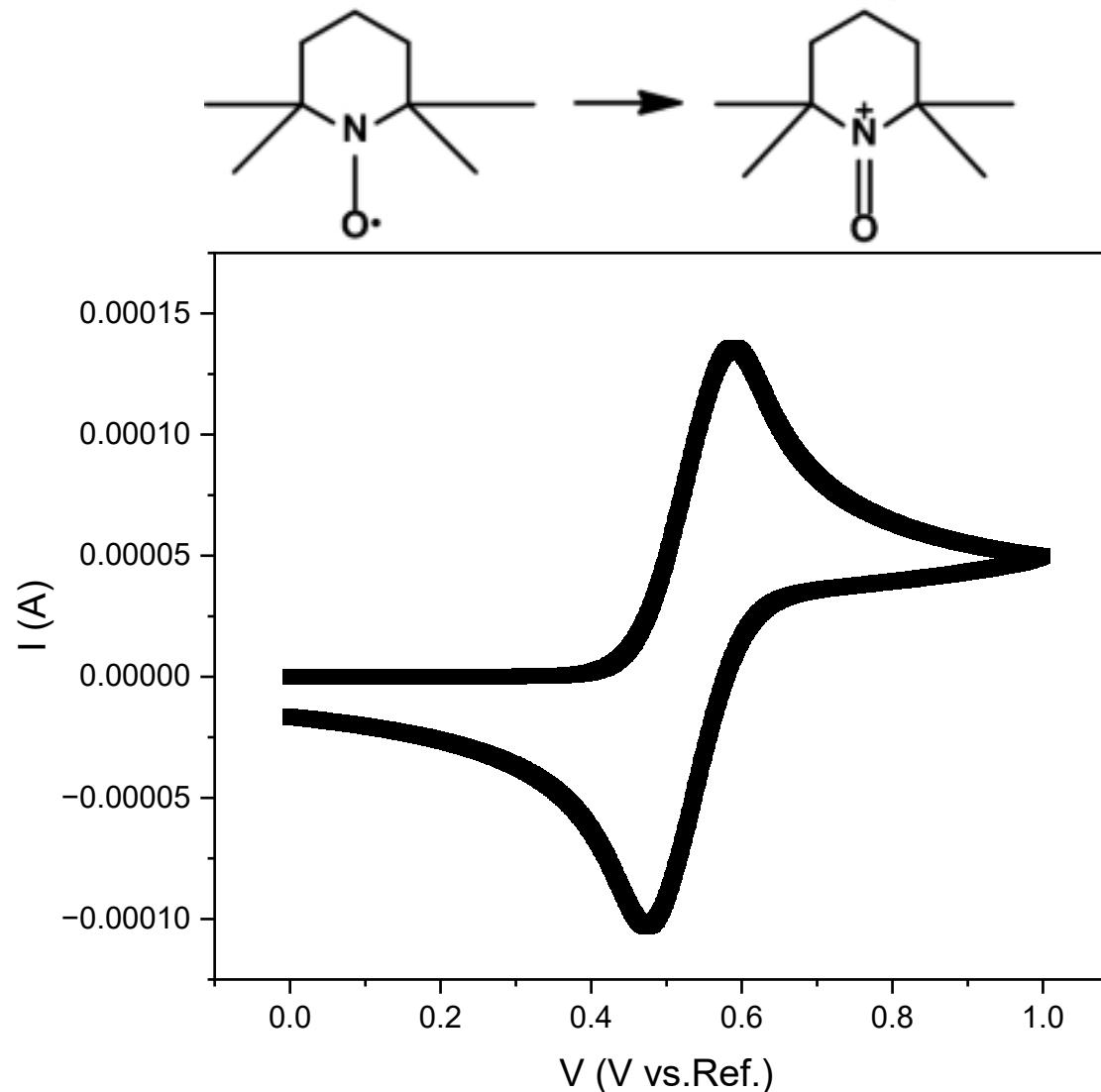
Cellulose **18**, 421–431 (2011)

- Bacterial cellulose (BC)
- Carbonate buffer at pH 10
- TEMPO radical



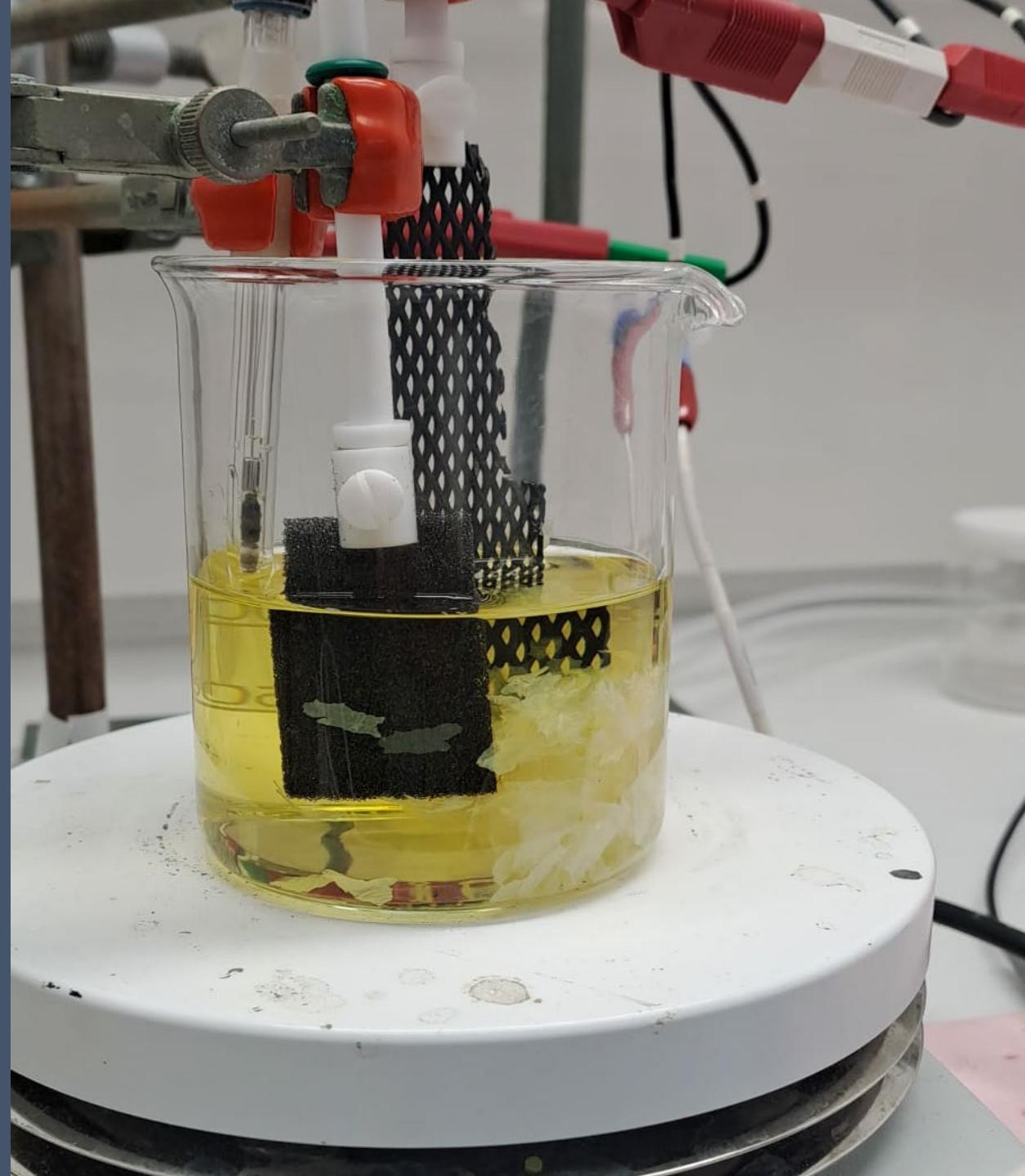
Cyclic voltammetry (CV) of TEMPO

@pH 10

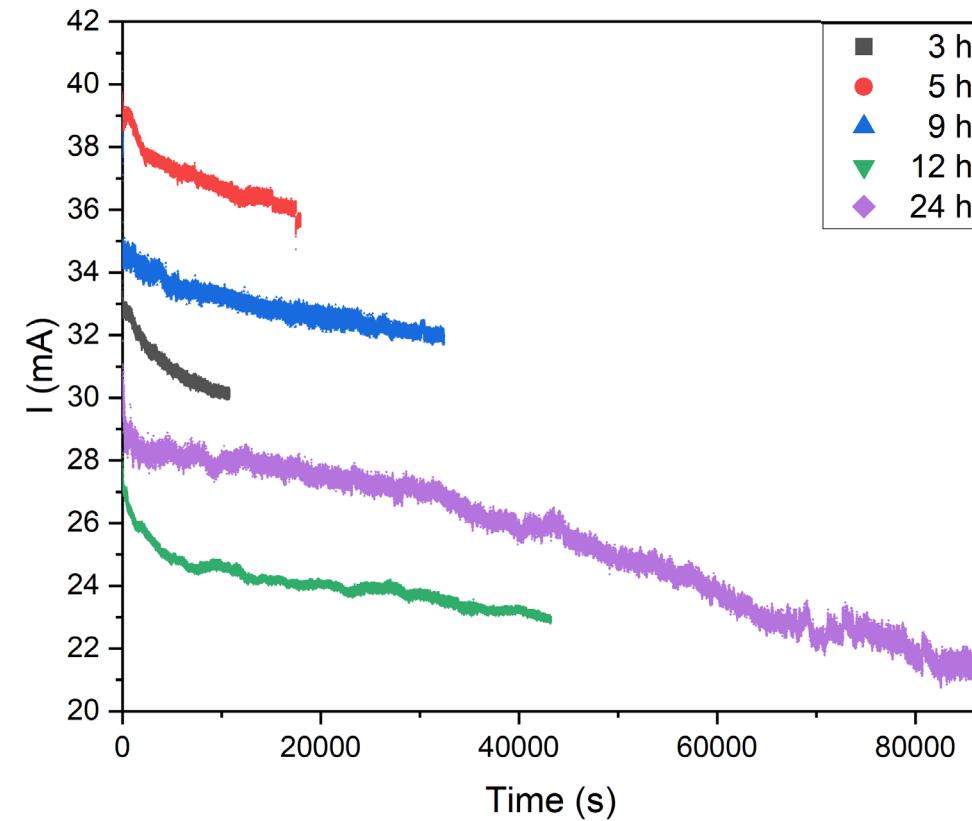
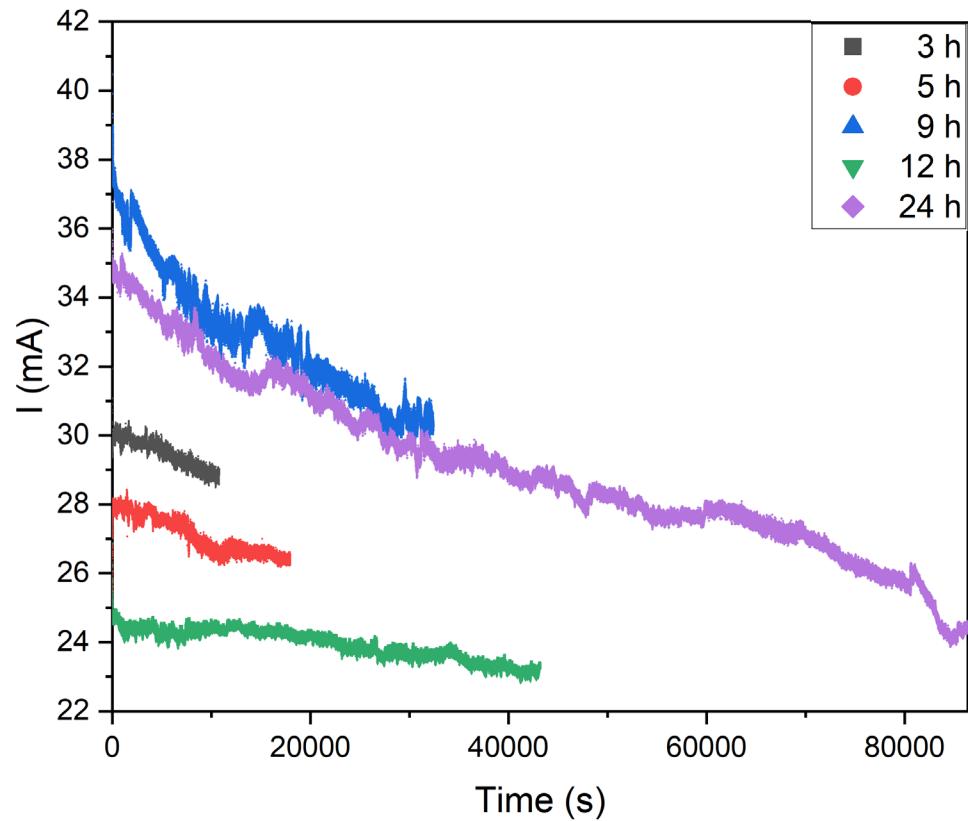


Electrochemical cell

- Carbon foam - WE
- Alloy mesh - CE

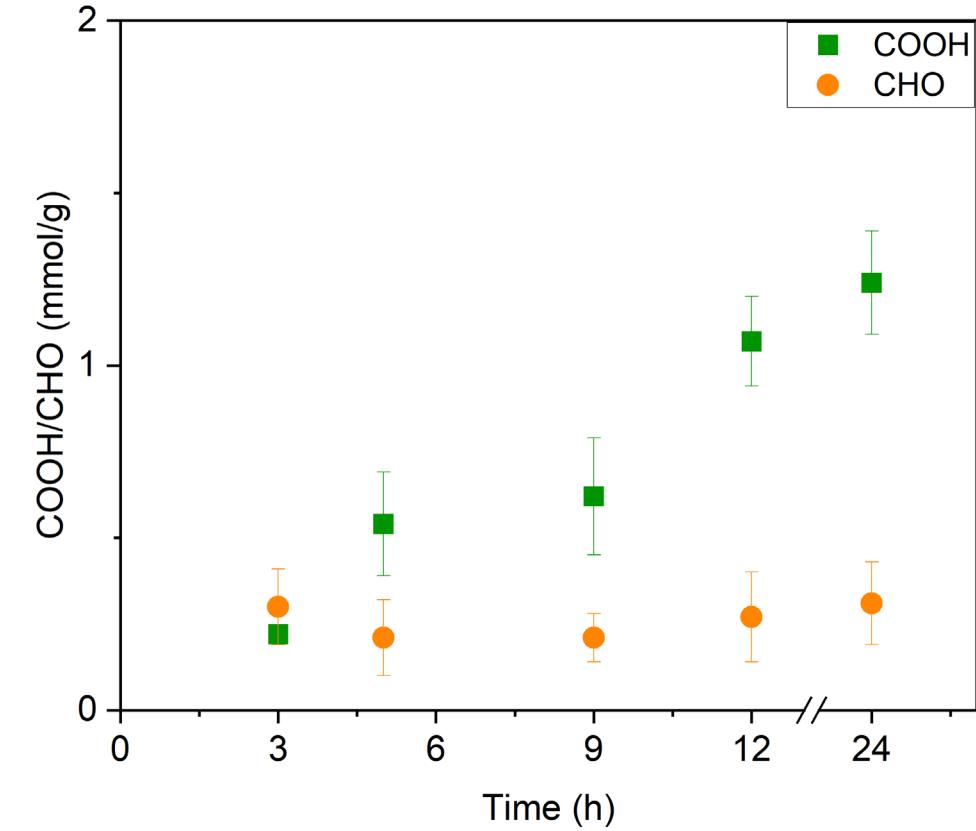
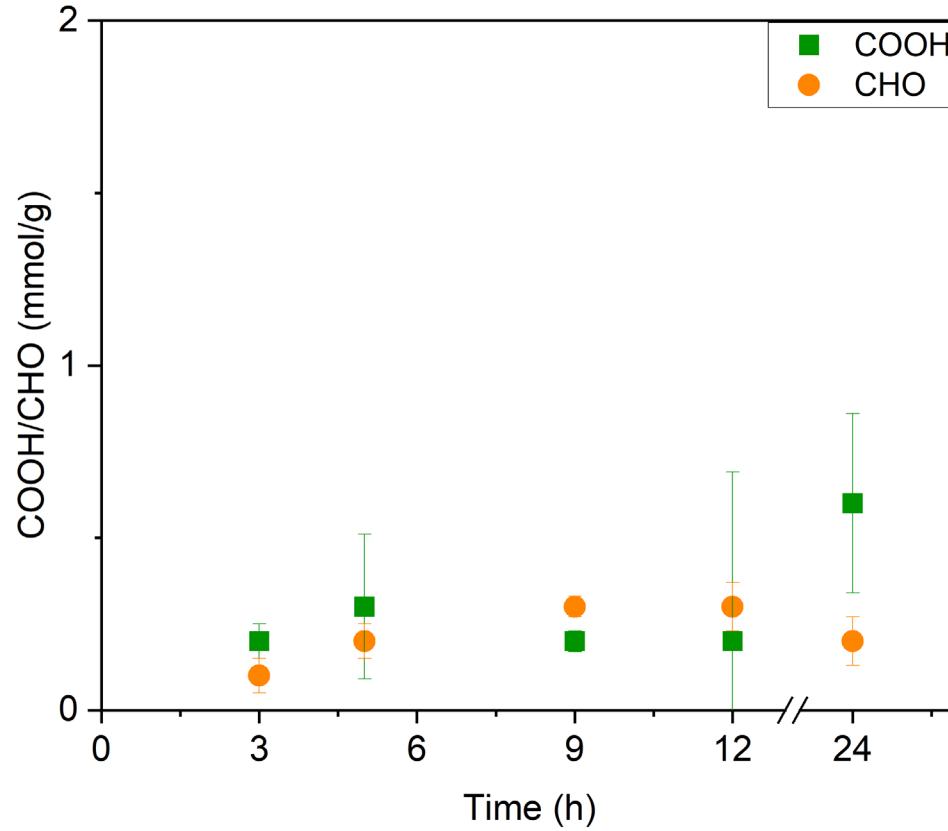


Electrochemical Oxidation of BC and hydrolyzed BC

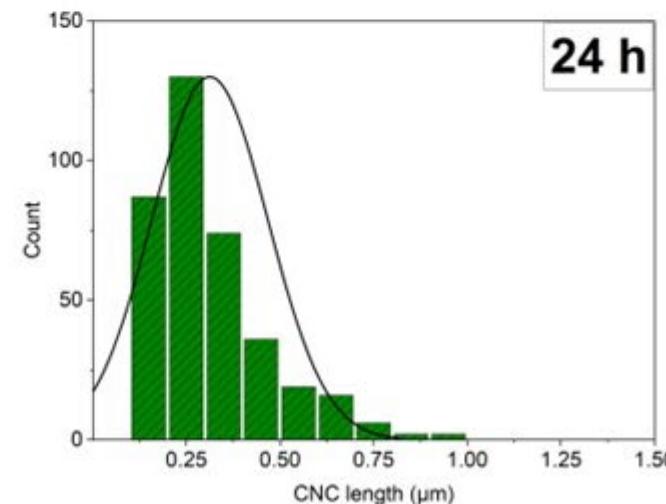
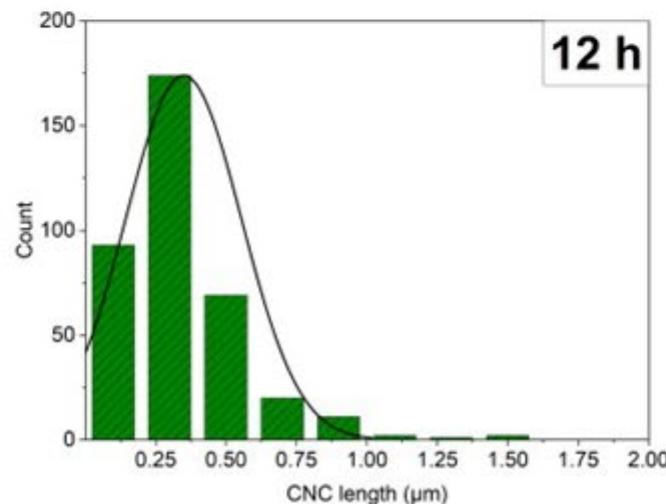
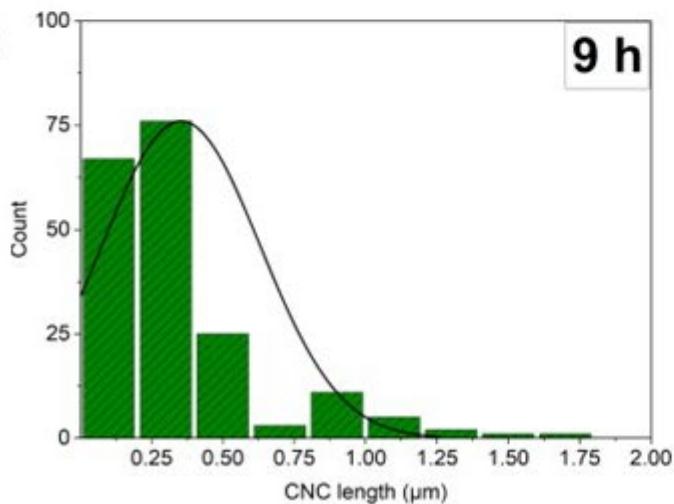
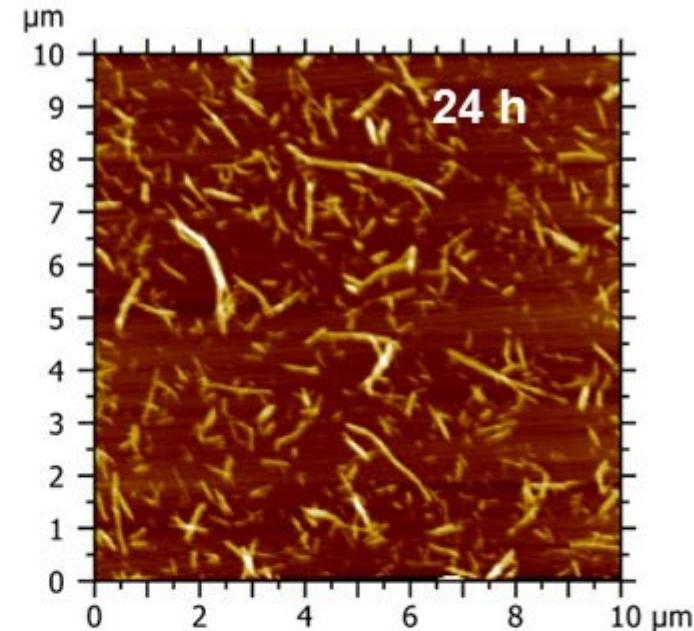
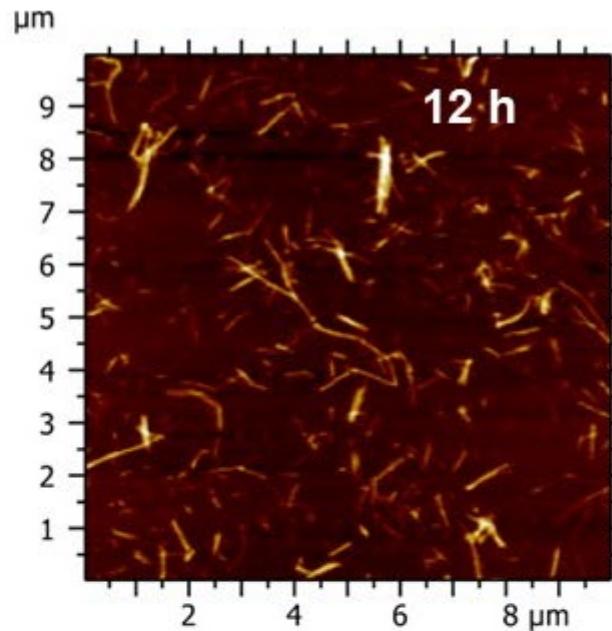
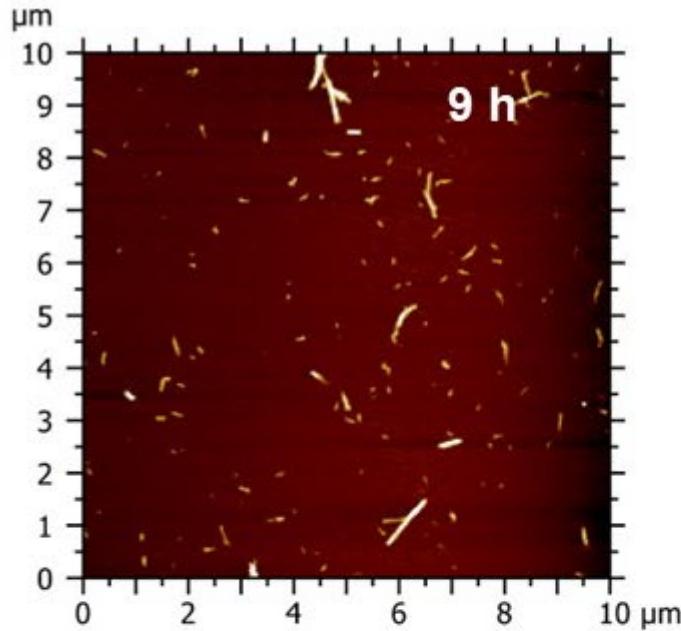


Determining surface charge after electro-mediated oxidation

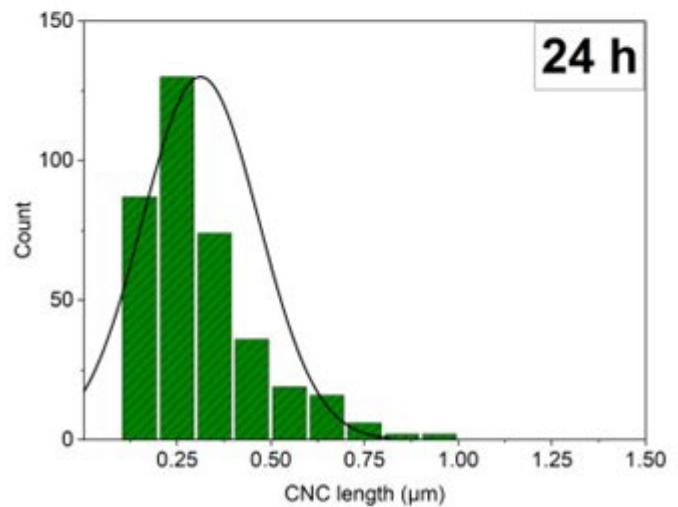
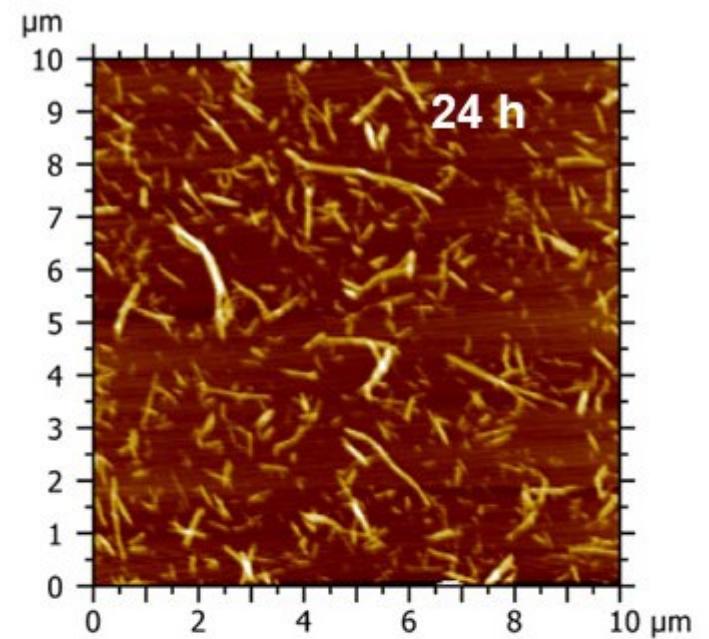
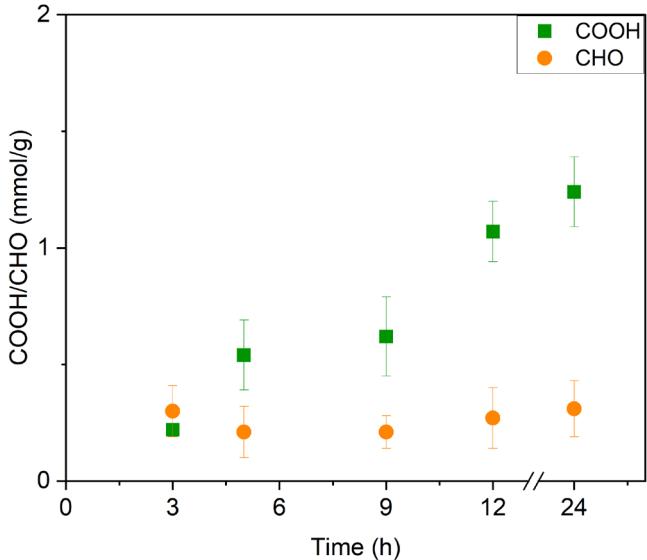
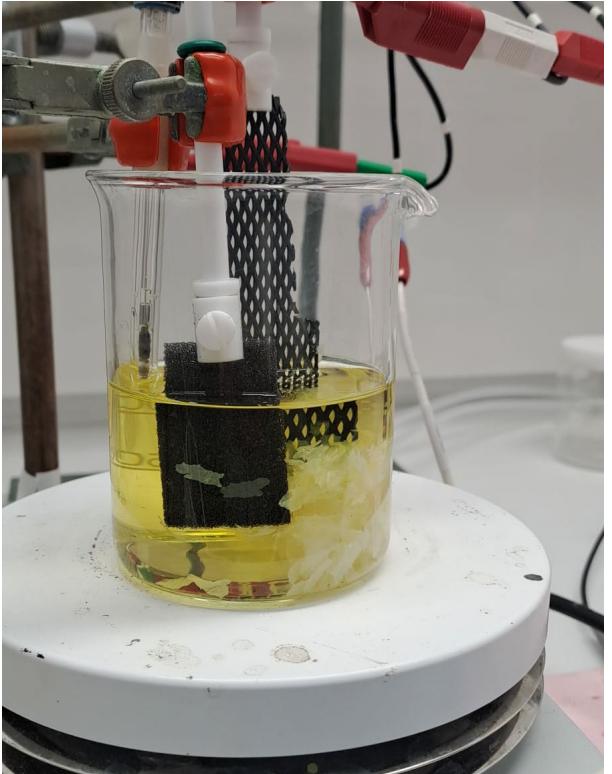
Carboxylic acid and Aldehyde content



Length Distributions



Conclusions



Thank you for listening!