

# Allyl oxidized nanocellulose. Synthesis and perspectives.

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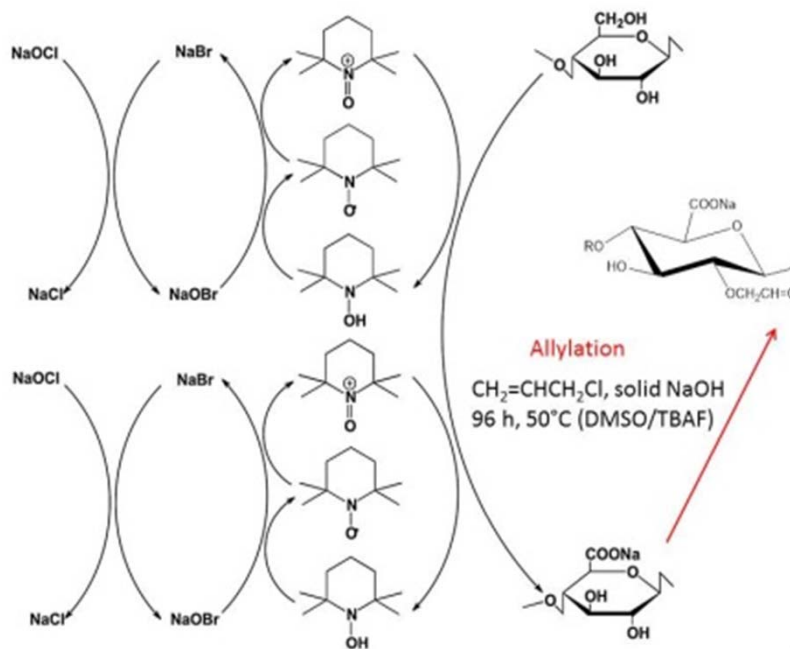
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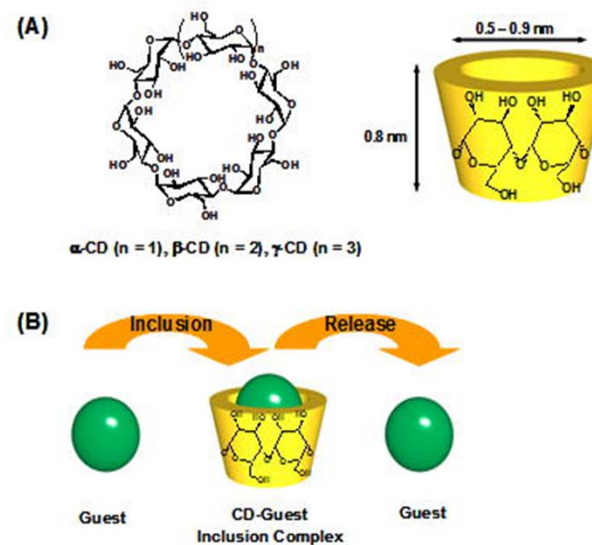
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The aim of this study is to prepare allyl oxidized nanocellulose (Scheme 1). Oxidized nanocellulose was prepared by TEMPO mediated oxidation. Oxidized nanocellulose allylation took inspiration from an efficient method of preparing allyl cellulose. The availability of allyl oxidized nanocellulose enlarges the number of nanocellulose chemical modifications and broadens the horizon of nanocellulose applications. For example, allyl oxidized nanocellulose was further functionalized with cyclodextrin by free-radical thiol-ene coupling according to click chemistry methodology, maintaining the carboxylic group surface charge. Cyclodextrin can form inclusion complexes that have several industrial applications (Figure 1).

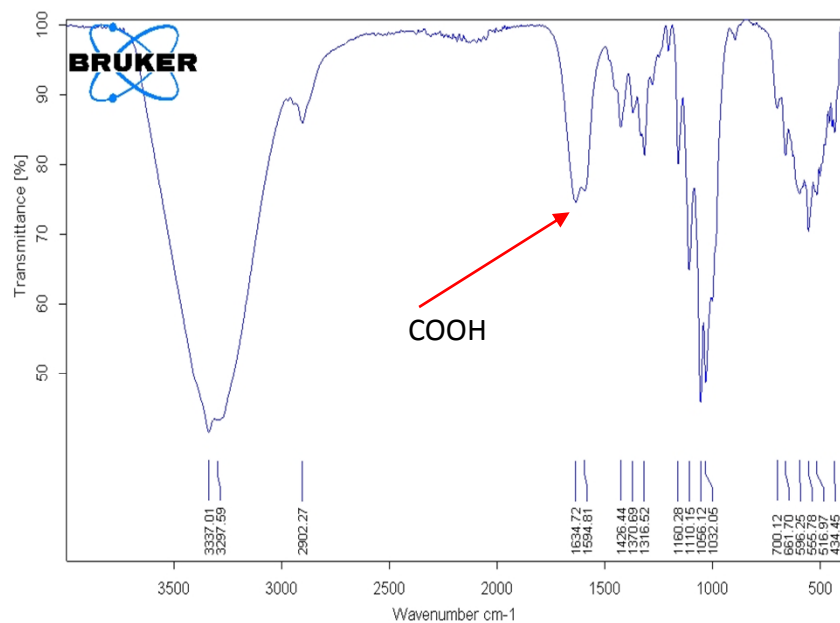


**Scheme 1**



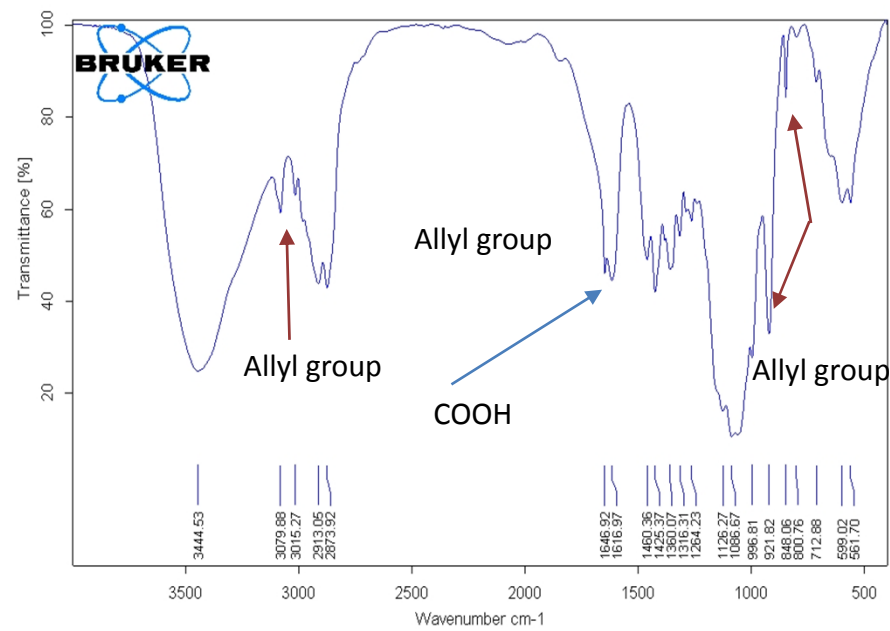
**Figure 1.** (A) Chemical structures and schematic illustration of cyclodextrins (CDs). (B) Schematic illustration of the inclusion and release of guest molecules into and from the CD cavity.

## Oxidized Nanocellulose Infrared Spectrum

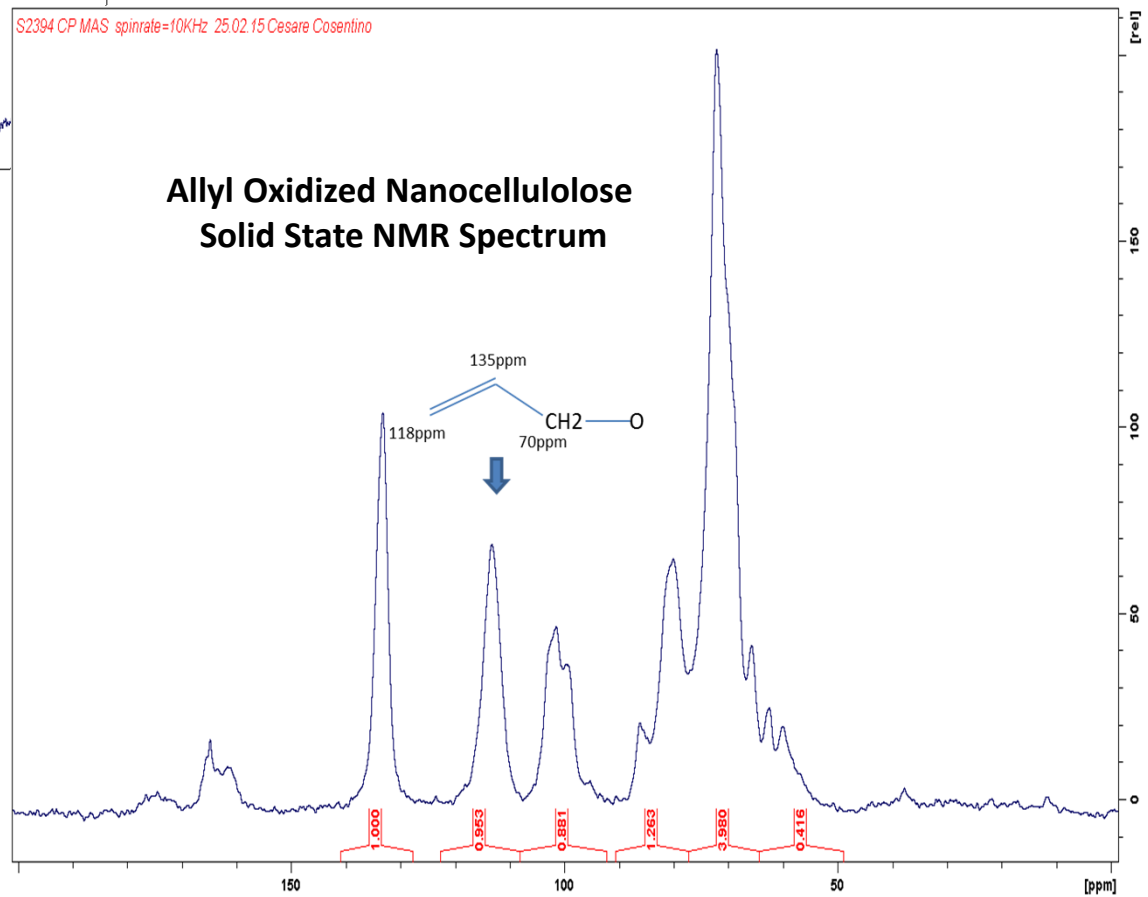
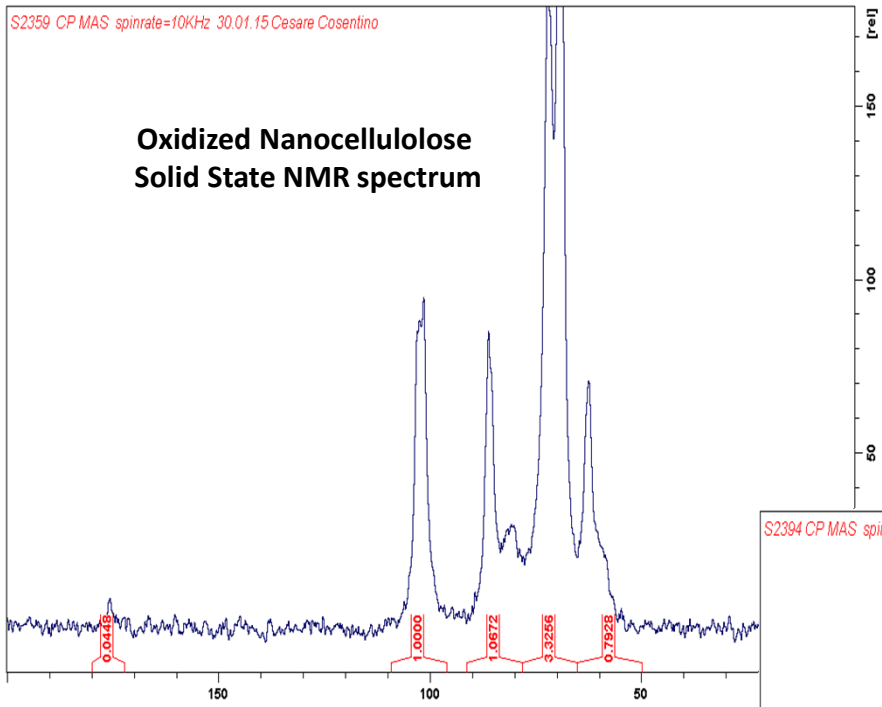


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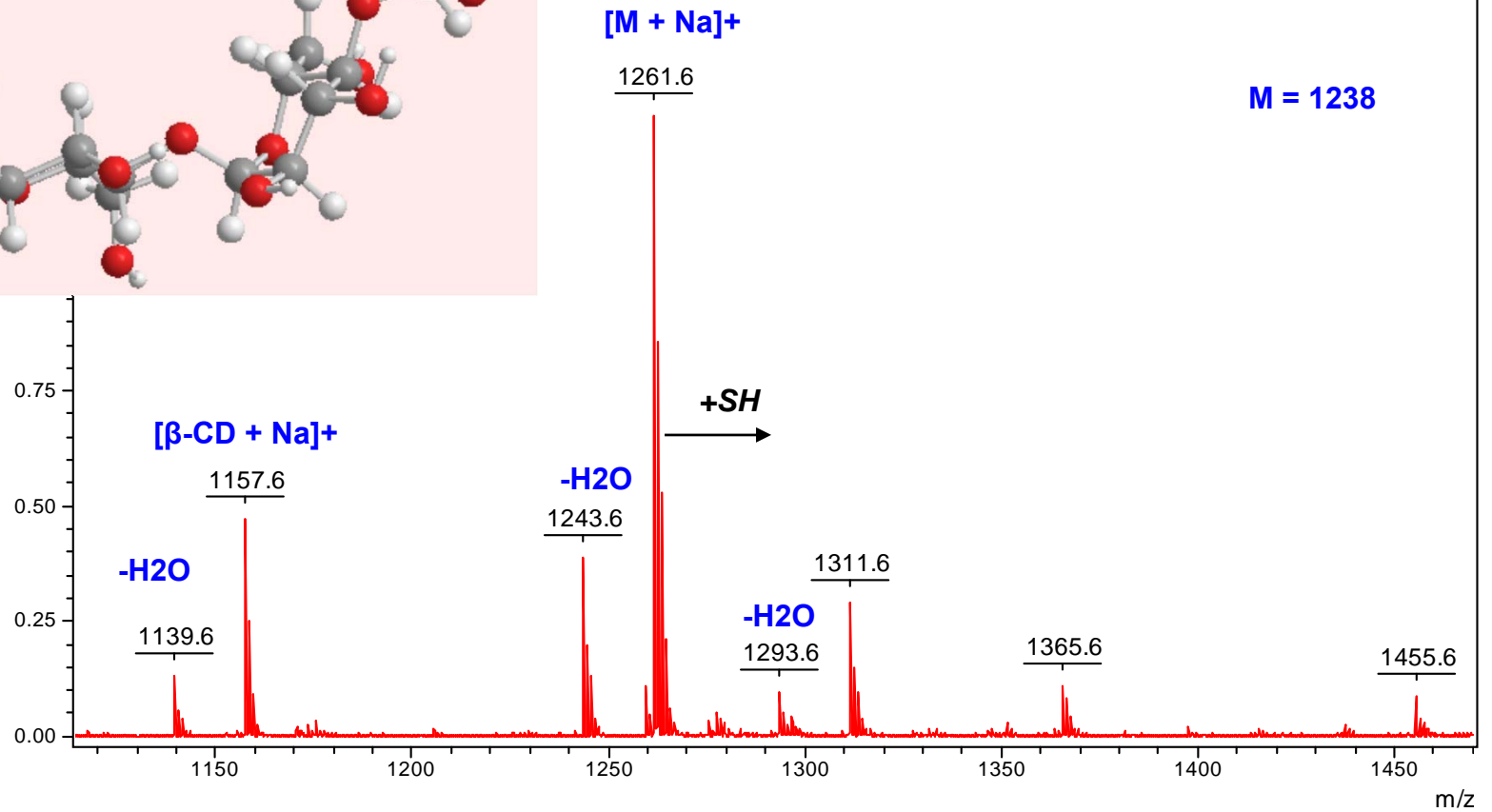
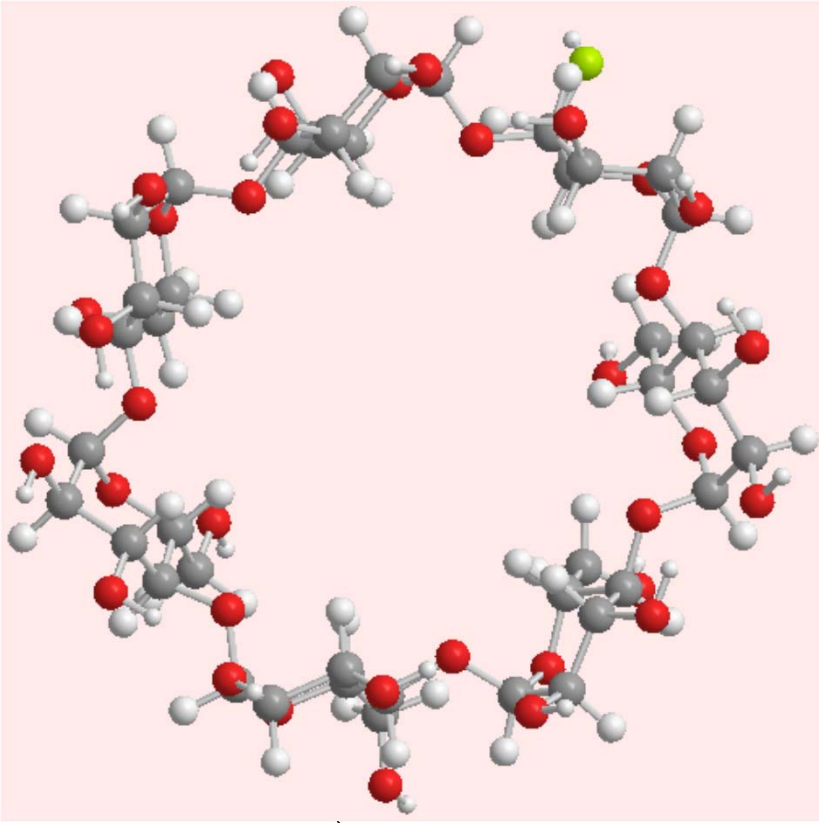
## Allyl Oxidized Nanocellulose Infrared Spectrum



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# 6-thio-beta-cyclodextrin (CD-SH)



## Free-radical thiol–ene coupling according to click chemistry methodology

