

DETECTION AND SIZE CHARACTERIZATION OF NANOCELLULOSE IN FOOD AND COSMETICS

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Due to the environmental known human risk of nanoparticles and the incorporation of nanocellulose (NC) as a thickener in many different consumer products¹, we proposed a novel procedure for its extraction and detection.

The proposed method is based on a combination of liquid-liquid extraction with ionic liquid (IL) and a detection protocol using asymmetric flow field-flow fractionation (AF4) coupled to sophisticated multi-angle light scattering (MALS) and refractive index (RI) detectors. AF4 and dynamic light scattering (DLS) are effective tools for the NC size characterization (Figure 1).²

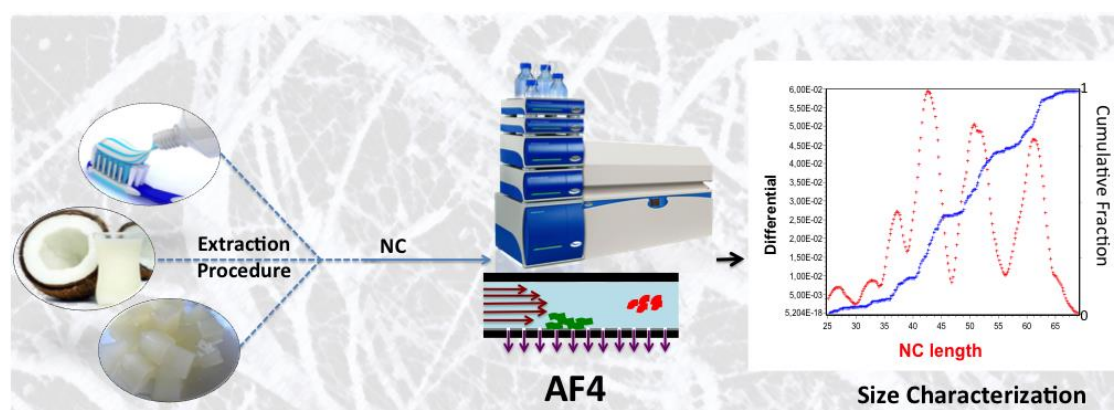


Figure 1. Scheme of the experimental procedure for the extraction and detection

The extraction efficiency of the method resulted to be 80.9%, being applied for cosmetics and food analysis to verify its practicability. The easy sample preparation of the proposed methodology for the isolation and characterization of NC from a variety of consumer products gave excellent expectations about their usefulness for future applications in nanoparticle detection.

¹ Fortunati, E.; Peltzer, M.; Armentano, I.; Jimenez, A.; Kenny, J. M. *Journal of Food Engineering*, **2013**, 118(1), 117-124.

² Guan, X.; Cueto, R.; Russo, P.; Qi, Y.; Wu, Q. *Biomacromolecules*, **2012**, 13(9), 2671-2679.