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BOOK OF ABSTRACTS

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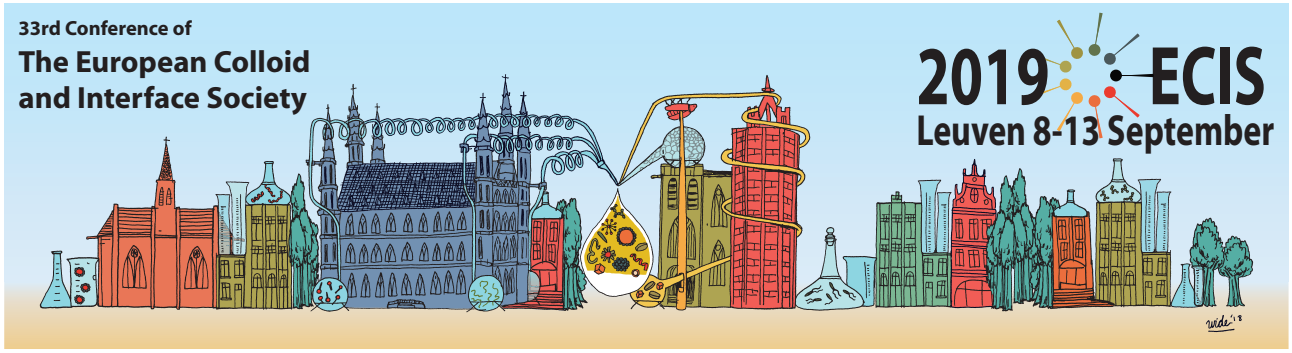

Comparative analysis of different routes to prepare cutin nanoparticles

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Nanoparticle production in the food industry has gained a lot of attention due to their ability to tune the release characteristics, bioavailability, stability and delivery of active compounds. The techniques used to fabricate nanoparticles can be categorized as top–down or bottom–up depending on the physico–chemical approach involved[1]. One of the bottom–up techniques, i.e. pH decrease induced precipitation, was employed in this work to obtain a natural nanoparticles made of cutin.

Comparative analysis of different routes to prepare cutin nanoparticles was carried out. Namely, cutin is a biopolyester found in the extracellular membrane of higher plants[2]. Its isolation from plant material involves alkaline extraction and subsequent precipitation via pH decrease during which cutin nanoparticles (NP I) are formed. In the liking manner, cutin can be precipitated from the cutin solution forming nanoparticles (NP S, NP D and NP W). Nanoparticle properties, regardless of the preparation route, depend on the final pH of the solution and on the cutin isolation procedure. Influence of pH on cutin nanoparticle recovery, zeta potential and mean diameter is presented alongside with the influence of cutin solution concentration on cutin nanoparticle mean particle diameter.

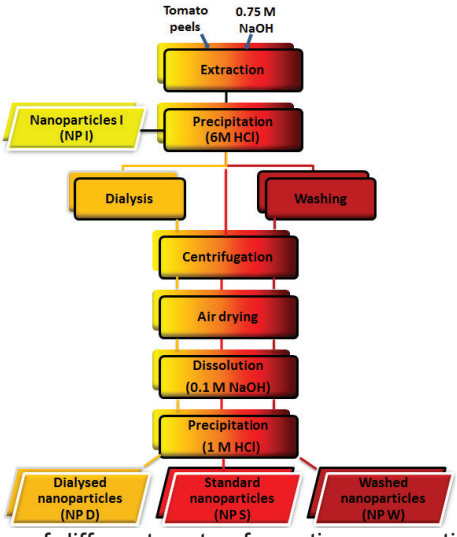

Figure 1: Scheme of different routes for cutin nanoparticle preparation.

References

[1] I.J. Joye and D.J. McClements, *Current Opinion in Colloid & Interface Science*, 19 **2014**, 417-427.
[2] A. Manricha *et al.*, *Carbohydrate Polymers*, 164 **2017**, 83-91.