

Agnès ROLLAND-SABATE

Date of birth: 26 June 1973

Marital life, 2 children.

Professional address - Office:

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Macromolecular and structural characterization of polysaccharides and nanoparticles

Current Academic Situation:

- Engineer (1st class), PhD – INRA, Mixed Research Unit “Security and Quality of Plant Products” (UMR SQPOV, INRA –University of Avignon), Avignon, France. Quality and Process team.
- Member of an IUPAC (International Union of Pure and Applied Chemistry) "working party" for the characterization of starch polysaccharides.
- Member (Executive committee, Treasurer) of a theme group on field flow fractionation in Afsep (Francophone association for separative techniques).
- Member elected of the Boards of Directors of Afsep.

Education:

- 2011: PhD in Biotechnology, Agribusiness and Food Science, University of Nantes (France), Intituled: « Macromolecular characterization of branched alpha-glucans». Supervisor: P. Colonna (INRA, Nantes).
- 2000: Master in Bioproducts physico-chemistry, University of Nantes.
- 1996: Engineer AGROSUP (ex-E.N.S.B.A.N.A.) Applied Biology for Nutrition and food, Dijon, France. Specialized in Process Engineering, Food Processing and Biotechnology.
- 1993: DEUG B (Diploma of General University Studies mention Life Sciences) specialization chemistry and biochemistry, University of Montpellier, France.
- 1991: Baccalauréat (Mathematics and Sciences), Briançon, France.

Professional Background:

- Since 2016: Engineer at UMR SQPOV, INRA, Avignon. Macromolecular and structural characterization of polysaccharides and nanoparticles.
- 1999-2016: Engineer at INRA, Research Unit Biopolymers, Interactions, Assemblies (INRA - URBIA), Nantes, France. Materials, Creation, Behavior (MC2) team. Manager of the macromolecular and the structural characterization of starches and related polysaccharides.
- 2011: PhD at INRA - URBIA, Nantes.
- 1996-1999: Quality Auditor (Ecocert, L'Isle-Jourdain, France).

Area of expertise:

Agnès Rolland-Sabaté studied physical chemistry and food-processing in Montpellier, Dijon and Nantes, France. She has worked at INRA (National Institute of Agronomic Research) in Nantes since 1999 in the field of starch, where She is now in the UMR SQPOV in Avignon. Her current activities are in elucidation of structure-property-function relationships, method development and enzymatic catalysis in heterogeneous phase. She has worked in Nantes on alpha-glucans and by-products characterization, especially on starch polysaccharides, for applications in food, biomedical and biomaterials. She is working now on polysaccharides from fruits and related nanocomplexes. She develops methods using mostly dynamic fractionation techniques (such as chromatographic techniques) and scattering techniques for the structural and the macromolecular characterization of alpha-glucans.

Publications:

34 original publications in peer-reviewed journals, 1 patent, 4 book chapters, 91 communications in congress.

610 Times Cited without self-citations

Most Significant Publications:

K. Kansou, A. Buléon, C. Gérard, A. Rolland-Sabaté. Multivariate model to characterise relations between maize mutant starches and hydrolysis kinetics. *Carbohydrate polymers*, 133, 497–506 (2015).

L. S. Sciarini, A. Rolland-Sabaté, S. Guilois, P. Decaen, E. Leroy, P. Le Bail. Understanding the destructuration of starch in water/ionic liquid mixtures. *Green Chemistry*, 17, (1):291-299 (2015).

A. Rolland-Sabaté, S. Guilois, F. Grimaud, C. Lancelon-Pin, X. Roussel, S. Laguerre, A. Viksø-Nielsen, J.-L. Putaux, C. D'Hulst, G. Potocki-Véronèse, A. Buléon. Characterization of hyperbranched glycopolymers produced in vitro using enzymes. *Analytical and Bioanalytical Chemistry*, 406, 1607-1618 (2014).

R. Irague, A. Rolland-Sabaté, L. Roncalli-Tarquis, J.-L. Doublier, C. Moulis, P. Monsan, M. Remaud-Siméon, G. Potocki-Véronèse, A. Buléon. Structure and property engineering of α -D-glucans synthesized by dextransucrase mutants. *Biomacromolecules*, 13(1), 187-195 (2012).

A. Rolland-Sabaté, S. Guilois, B. Jaillais, P. Colonna. Molecular size and mass distributions of native starches using complementary separation methods: Asymmetrical Flow Field Flow Fractionation (A4F) and Hydrodynamic and High Performance Size Exclusion Chromatography (HDC-HPSEC). *Analytical and Bioanalytical Chemistry*, 399, 1493-1505 (2011).

M. Gidley, I. Hanashiro, N. Mohd Hani, S. Hill, A. Huber, J.-L. Jane, Q. Liu, G. Morris, A. Rolland-Sabaté, A. Striegel, R. Gilbert. Reliable measurements of the size distributions of starch molecules in solution: Current dilemmas and recommendations. *Carbohydrate Polymers*, 79, 255-261 (2010).

A. Rolland-Sabaté, P. Colonna, M. G. Mendez-Montealvo, V. Planchot. On-line Determination of Structural Properties and Observation of Deviations from Power Law Behavior. *Biomacromolecules*, 9, 1719-1730 (2008).

A. Rolland-Sabaté, P. Colonna, M. G. Mendez-Montealvo, V. Planchot. Branching features of amylopectins and glycogen determined by asymmetrical flow field flow fractionation coupled with multi-angle laser light scattering (AFFFF-MALLS). *Biomacromolecules*, 8, 2520-2532 (2007).

Main projets:

Participant: ANR Glycoballs “*In vitro* synthesis of hyperbranched biopolymers and innovative nanoparticles using a bio-inspired enzymatic toolbox” 2010-2014; ANR NOMAC « Nouvelles ressources pour maîtriser le devenir digestif des nutriments des produits céréaliers » 2008-2011 ; Région Pays de la Loire LIMPoNaN « Liquides Ioniques et Matériaux Polymères Naturels Novateurs » 2011-2014.

WP coordinator: ANR Aspire “Assessing Structure-Property Relationships of Biosourced Copolymers” 2014-2017.

Coordinator: ANR Project “Characterization of chemically modified starches” in IFMAS (French Institute of Agrosourced Materials), “Investissements d’Avenir” Program, 2014-2017.

Langages:

Native French speaker, English and Italian.