

# Amandine Flourat

*Engineer in Organic Chemistry*  
*Head of Chemistry Department*

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DOB: February, 18<sup>th</sup> 1988 (France)

## Research Topics

- Chemistry of phenolic compounds
- Syntheses of natural products
- Enzyme-catalyzed reactions
- Innovative structures for renewable materials

## Present & previous positions

Dec 2012 - Present **Chemical engineer**, *Chaire Agro-Biotechnologies Industrielles (ABI) - AgroParisTech*, Reims, France.

Development of bio catalyzed reaction

Organic multi-step syntheses

Polymers syntheses

Laboratory management

Oct 2011 - Jun 2012 **Chemical engineer**, *INRA*, Versailles, France.

*Design and synthesis of proteins bearing dimers of ferulic acid*

Sept 2010 - Oct 2011 **Apprentice**, *INRA*, Versailles, France.

*Synthesis of hybrid materials polysaccharides / polystyrene for DHPs supported training and study of interactions polysaccharides/lignins in the cell wall of plants*

Apr 2010 - July 2010 **Trainee**, *INRA*, Versailles, France.

*Biocatalyst of lignin*

## Education

2009-2011 **Master of Sciences in molecular chemistry (with Honors)**, U. Paris VI, Paris, France.

2007-2009 **Bachelor of Sciences in Physic and Chemistry (with Honors)**, U. Paris VI, Paris, France.

2006-2007 **1<sup>st</sup> year of medicine**, U. Paris VI, Paris, France.

## Supervision Experience

- 2 Technicians
- 1 Ph.D. thesis
- 2 M.Sc. students

## Scientific production

### Summary:

- 2 patents
- 5 publications in peer-reviewed journals
- 1 book chapter
- 3 oral communications & 9 posters

### Patents

1. Chemo-enzymatic transformation of levoglucosenone into valuable chemical intermediates, *F. Allais, F. Brunissen, A. L. Flourat, A. A. M. Peru, A. R. S. Teixeira*, submitted in 2<sup>nd</sup> May 2014.
2. Procédé de synthèse d'un précurseur d'un unique isomère de dairy-lactone, *F. Allais, T. Duncan, A.L. Flourat, B. Greatrex, A.A.M. Péru, W. Raverty*, submitted in 10<sup>nd</sup> April 2015.

### Publications in peer-reviewed journals

- [1] G. Burgé, C. Saulou-Bérion, M. Moussa, B. Pollet, A. Flourat, F. Allais, V. Athès, and H.E. Spinnler. Diversity of lactobacillus reuteri strains in converting glycerol into 3-hydroxypropionic acid. *Applied Biochemistry and Biotechnology*, 177(4):923–939, 2015.
- [2] G. Burgé, A. L. Flourat, B. Pollet, H. E. Spinnler, and F. Allais. 3-hydroxypropionaldehyde (3-hpa) quantification by hplc using a synthetic acrolein-free 3-hydroxypropionaldehyde system as analytical standard. *RSC Adv.*, 5:92619–92627, 2015.
- [3] Imane Barbara, Amandine L. Flourat, and Florent Allais. Renewable polymers derived from ferulic acid and biobased diols via admet. *European Polymer Journal*, 62(0):236 – 243, 2015.
- [4] A. L. Flourat, A. A. M. Peru, A. R. S. Teixeira, F. Brunissen, and F. Allais. Chemo-enzymatic synthesis of key intermediates (s)- $\gamma$ -hydroxymethyl- $\alpha,\beta$ -butenolide and (s)- $\gamma$ -hydroxymethyl- $\gamma$ -butyrolactone via lipase-mediated baeyer-villiger oxidation of levoglucosenone. *Green Chem.*, 17:404–412, 2015.
- [5] Louis M. M. Mouterde, Amandine L. Flourat, Molly M. M. Cannet, Paul-Henri Ducrot, and Florent Allais. Chemoenzymatic total synthesis of a naturally occurring (5-5')/(8'-o-4'') dehydrotrimer of ferulic acid. *European Journal of Organic Chemistry*, 2013(1):173–179, 2013.

### Oral communications

- 2012 **Design and synthesis of proteins bearing dimers.trimer of ferulic acid: creation of antibodies and immunohistochemistry in plant cells**, 244<sup>th</sup> ACS National Meeting, 18<sup>th</sup>- 23<sup>rd</sup> August, Philadelphia, PA (USA).  
Mouterde, Louis L. L.; Flourat, Amandine L.; Ducrot, Paul-Henri; Allais,\* Florent
- 2015 **Chaire ABI presentation**, GDR Symbiose, 8<sup>th</sup>- 10<sup>th</sup> April, Nantes (France).  
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### Book Chapters

- 2015 **Chemo-enzymatic Synthesis, Derivatizations, and Polymerizations of Renewable Phenolic Monomers Derived from Ferulic Acid and Biobased Polyols : An access to Sustainable Copolyesters, Poly(ester-urethane)s, and Poly(ester-alkenamer)s**, 244<sup>th</sup> ACS National Meeting, 18<sup>th</sup>- 23<sup>rd</sup> August, Philadelphia, PA (USA).  
Mouterde, Louis L. L.; Flourat, Amandine L.; Ducrot, Paul-Henri; Allais,\* Florent

### Posters

- 2012 **Synthèse de dimères d'acide férulique et leur couplage sur protéine, production d'anticorps correspondants pour l'immunohistochimie des parois végétales**, Mouterde, Louis; Flourat, Amandine; Ducrot, Paul-Henri; Allais,\* Florent , Journées jeunes chercheurs de la Société de Chimie Thérapeutiques, 2<sup>nd</sup>- 3<sup>rd</sup> February.  
Romainville (France)
- 2014 **Synthesis, characterization, biological properties and polymerizations of new biobased macrobisphenols derived from ferulic acid**, A. F. Reano, F. Pion, M. Z. Oulame, J. Chérubin, Q. Wang, T. Clement, M.-N. Maillard, S. Domenek, P.-H. Ducrot, F. Allais\*, ICP 2014 and 8th Tannin Conference, 2<sup>nd</sup>- 6<sup>th</sup> September.  
Nagoya (Japan)
- 2014 **Renewable polymers derived from ferulic acid and biobased diols via ADMET**, Imane Barbara, Amandine L. Flourat, Florent Allais\*, International Symposium on Green Chemistry, 4<sup>th</sup>- 7<sup>th</sup> May.  
La Rochelle (France)
- 2015 **Chemo-enzymatic synthesis of key intermediates (S)--hydroxymethyl-,butenolide and (S)--hydroxymethyl--butyrolactone via lipase-mediated Baeyer–Villiger oxidation of lévoglucosenone**, Amandine L. Flourat, Aurélien A. M. Péru, Andreia R. S. Teixeira, Fanny Brunissen, Florent Allais\*, RRB2015, 3<sup>rd</sup>- 5<sup>th</sup> June.  
York (UK)
- 2015 **Synthesis and polymerizations of new biobased macrobisphenols derived from ferulic acid**, A. F. Reano, F. Pion, M. Z. Oulame, I. Barbara, A. L. Flourat, S. Domenek, P.-H. Ducrot, F. Allais\*, RRB2015, 3<sup>rd</sup>- 5<sup>th</sup> June.  
York (UK)
- 2015 **Synthèses chemo-enzymatique de deux intermédiaires clés, (S)--hydroxymethyl-,butenolide et (S)--hydroxymethyl--butyrolactone, par oxydation de Baeyer-Villiger de la Levoglucosenone à l'aide d'une lipase**, Amandine L. Flourat, Aurélien A. M. Péru, Andreia R. S. Teixeira, Fanny Brunissen, Florent Allais\*, Journées Condorcet, 8<sup>th</sup>- 9<sup>th</sup> July.  
Compiègne (France)

- 2015 **Chemo-enzymatic synthesis of key intermediates (S)--hydroxymethyl-,butenolide and (S)--hydroxymethyl--butyrolactone via lipase-mediated Baeyer–Villiger oxidation of lévoglucosenone**, *Amandine L. Flourat, Aurélien A. M. Péru, Andreia R. S. Teixeira, Fanny Brunissen, Florent Allais\**, *Renewable chemicals from waste*, 20<sup>th</sup> November. London (UK)
- 2015 **Synthesis and polymerizations of new biobased macrobisphenols derived from ferulic acid**, *A. F. Reano, F. Pion, M. Z. Oulame, I. Barbara, A. L. Flourat, S. Domenek, P.-H. Ducrot, F. Allais\**, *Biopolymers 2015*, 14<sup>th</sup>- 16<sup>th</sup> December. Nantes (France)

## Languages

- French **Native Language**
- English **Intermediate**
- Spanish **Beginner**