

# International Conference and Exhibition on Biopolymers & Bioplastics

August 10-12, 2015 San Francisco, USA

## Novel phenolic derivatives of pectin: Enzymatic synthesis and properties

**Karaki Nadine, Aljawish Abdulhadi, Humeau Catherine, Muniglia Lionel and Jasniewski Jordane**  
Université de Lorraine, France

Pectin is a natural biopolymer extracted mostly from citrus peel, sugar beet and apple pomace. In order to improve its functional properties and then to enlarge the field of its potential applications, pectin was functionalized according to two approaches. The first one consists in an oxidative reaction between pectin and ferulic acid (FA) catalysed by *Myceliophthora thermophyla* laccase leading to pectin-F. The second one was based on the physical adsorption of FA-oxidation products (POX) on pectin leading to pectin-POX. The POX was previously obtained through oxidative reaction of FA catalysed by laccase. A comparative study was performed aiming to determine the impact of each functionalization pathway on the structure and the properties of pectin. The modification of the structure of pectin was proved by FTIR and RMN-H methods. The study of the properties showed that the functionalized pectin powders were less hygroscopic and viscous than the native pectin and presented different gelation properties in the presence of calcium ions. A significant improvement of the antioxidant properties of pectin after functionalization was also observed. This trend was even more pronounced in the case of pectin-F. Finally the thermal properties and the structural characteristics of the different pectin samples were shown to be also affected by the functionalization performed. As a conclusion, both approaches led to derivatives with improved properties that could widen the field of applications of pectin.

### Biography

Karaki Nadine is a Doctorate student in the University of Lorraine, France. Her thesis inside the laboratory of biomolecules engineering is about the covalent and non-covalent functionalization of a biopolymer: The pectin with poly-phenols, towards mixed supra-molecular architectures.

[nadine\\_karaki@hotmail.com](mailto:nadine_karaki@hotmail.com)

### Notes: