

Accepted Manuscript

Title: Pectin impacts cellulose fibre architecture and hydrogel mechanics in the absence of calcium

Author: Patricia Lopez-Sanchez Marta Martinez-Sanz
Mauricio R. Bonilla Dongjie Wang Cherie T. Walsh Elliot P.
Gilbert Jason R. Stokes Michael J. Gidley



PII: S0144-8617(16)30911-0
DOI: <http://dx.doi.org/doi:10.1016/j.carbpol.2016.07.113>
Reference: CARP 11412

To appear in:

Received date: 19-6-2016
Revised date: 26-7-2016
Accepted date: 27-7-2016

Please cite this article as: Lopez-Sanchez, Patricia., Martinez-Sanz, Marta., Bonilla, Mauricio R., Wang, Dongjie., Walsh, Cherie T., Gilbert, Elliot P., Stokes, Jason R., & Gidley, Michael J., Pectin impacts cellulose fibre architecture and hydrogel mechanics in the absence of calcium. *Carbohydrate Polymers* <http://dx.doi.org/10.1016/j.carbpol.2016.07.113>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Pectin impacts cellulose fibre architecture and hydrogel mechanics in the absence of calcium.

Patricia Lopez-Sanchez^{a1*}, Marta Martinez-Sanz^{a,b}, Mauricio R. Bonilla^c, Dongjie Wang^a,
Cherie T. Walsh^d, Elliot P. Gilbert^b, Jason R. Stokes^c, Michael J. Gidley^a

^a ARC Centre of Excellence in Plant Cell Walls, Centre for Nutrition and Food Sciences,
Queensland Alliance for Agriculture and Food Innovation, The University of Queensland,
Brisbane, Queensland, 4072, Australia.

^b Bragg Institute, Australian Nuclear Science and Technology Organisation, Locked Bag
2001, Kirrawee DC, New South Wales, 2232, Australia.

^c School of Chemical Engineering, The University of Queensland, Brisbane, 4072, Australia.

^d ARC Centre of Excellence in Plant Cell Walls, School of Botany and Bio21 Molecular
Science and Biotechnology Institute, The University of Melbourne, Melbourne, Victoria,
3010, Australia.

¹ Present address: Department of Food Science, Swedish University of Agricultural
Sciences, Box 7051, SE-750 07 Uppsala, Sweden.

*Corresponding author

Highlights:

- Cellulose hydrogels were synthesised in pectin solutions, as a cell wall model.
- A major pectin fraction did not interact at the molecular level with cellulose.
- Despite the lack of strong interaction, this pectin fraction impacted the mechanics.
- A minor pectin fraction was able to interact intimately with cellulose fibrils.
- These results support a role of pectin in cell wall architecture and mechanics.

Download English Version:

<https://daneshyari.com/en/article/7785119>

Download Persian Version:

<https://daneshyari.com/article/7785119>

[Daneshyari.com](https://daneshyari.com)