



Productions scientifiques de BIBS en 2022

INRAE
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Liste des productions scientifiques de la plate-forme BIBS en 2022

1- Articles dans des journaux à comité de lecture

1. [Ropartz, D.](#); [Marion, L.](#); [Fanuel, M.](#); [Nikolic, J.](#); [Jam, M.](#); [Larocque, R.](#); [Ficko-Blean, E.](#); [Michel, G.](#); [Rogniaux, H.](#) In-Depth Structural Characterization of Oligosaccharides Released by GH107 Endofucanase MffcnA Reveals Enzyme Subsite Specificity and Sulfated Fucan Substructural Features. *Glycobiology* 2022, 32 (4), 276–288. <https://doi.org/10.1093/glycob/cwab125>
2. [Ropartz, D.](#); [Fanuel, M.](#); [Ollivier, S.](#); [Lissarrague, A.](#); [Benkoulouche, M.](#); [Mulard, L. A.](#); [André, I.](#); [Guiyesse, D.](#); [Rogniaux, H.](#) Combination of High-Resolution Multistage Ion Mobility and Tandem MS with High Energy of Activation to Resolve the Structure of Complex Chemoenzymatically Synthesized Glycans. *Anal. Chem.* 2022, 94 (4), 2279–2287. <https://doi.org/10.1021/acs.analchem.1c04982>.
3. [Ollivier, S.](#); [Fanuel, M.](#); [Rogniaux, H.](#); [Ropartz, D.](#) Using a Cyclic Ion Mobility Spectrometer for Tandem Ion Mobility Experiments. *J. Vis. Exp.* 2022, No. 179, e63451. <https://doi.org/10.3791/63451>.
4. [Bonnin, E.](#), [Joseph-Aimé, M.](#), [Fillaudeau, L.](#), [Durand, S.](#), [Falourd, X.](#), [Le Gall, S.](#), & [Saulnier, L.](#) Structure of heteroxylans from vitreous and flouy endosperms of maize grain and impact on the enzymatic degradation. *Carbohydrate Polymers* 2022, 278, 118942. <https://doi.org/10.1016/j.carbpol.2021.118942>
5. [Delvart, A.](#), [Moreau, C.](#), [D'orlando, A.](#), [Falourd, X.](#), & [Cathala, B.](#) Dextran-based polyelectrolyte multilayers: Effect of charge density on film build-up and morphology. *Colloids and Surfaces B: Biointerfaces* 2022, 210, 112258. <https://doi.org/10.1016/j.colsurfb.2021.112258>
6. [Haouache, S.](#), [Jimenez-Saelices, C.](#), [Cousin, F.](#), [Falourd, X.](#), [Pontoire, B.](#), [Cahier, K.](#), [Jérôme, F.](#) & [Capron, I.](#) Cellulose nanocrystals from native and mercerized cotton. *Cellulose* 2022, 1-15. <https://doi.org/10.1007/s10570-021-04313-8>.
7. [Legland, D.](#), [Alvarado, C.](#), [Badel, E.](#), [Guillon, F.](#), [King, A.](#), [Le, T.D.Q.](#), [Rivard, C.](#), [Paré, L.](#), [Chateigner-Boutin, A.-L.](#), [Girousse, C.](#) Synchrotron based X-ray microtomography reveals cellular morphology features of developing wheat grain. *Applied Sciences* 2022, 12(7) 3454. <https://doi.org/10.3390/app12073454>
8. [Gautreau M.](#), [Durand S.](#), [Paturel A.](#), [Le Gall S.](#), [Foucat L.](#), [Falourd X.](#), [Novales B.](#), [Ralet M-C.](#), [Chevalier S.](#), [Kervoelen A.](#), [Bourmaud A.](#), [Guillon F.](#) and [Beaugrand J.](#) Impact of cell wall non-cellulosic and cellulosic polymers on the mechanical properties of flax fibre bundles 2022, *Carbohydrate Polymers*, 291, 119599. <https://doi.org/10.1016/j.carbpol.2022.119599>
9. [Chourrout, M.](#), [Roux, M.](#), [Boisvert, C.](#), [Gislard, C.](#), [Legland, D.](#), [Arganda-Carreras, I.](#), [Olivier, C.](#), [Peyrin, F.](#), [Boutin, H.](#), [Rama, N.](#), [Baron, T.](#), [Meyronet, D.](#), [Brun, E.](#), [Rositi, H.](#), [Wiert, M.](#), [Chauveau, F.](#) Brain virtual histology with X-ray phase contrast tomography Part II: 3D morphologies of amyloid-beta plaques in Alzheimer disease models. *Biomedical Optics Express* 2022, 13(3) 1640. <https://doi.org/10.1364/BOE.438890>
10. [Fanuel, M.](#); [Grélard, F.](#); [Foucat, L.](#); [Alvarado, C.](#); [Arnaud, B.](#); [Chateigner-Boutin, A.-L.](#); [Saulnier, L.](#); [Legland, D.](#); [Rogniaux, H.](#) Spatial Correlation of Water Distribution and Fine Structure of Arabinoxylans in the Developing Wheat Grain. *Carbohydrate Polymers* 2022, 294, 119738. <https://doi.org/10.1016/j.carbpol.2022.119738>
11. [Reyre, J.L.](#), [Grisel, S.](#), [Haon, M.](#), [Navarro, D.](#), [Ropartz, D.](#), [Le Gall, S.](#), [Record, E.](#), [Sciara, G.](#), [Tranquet, O.](#), [Berrin, J.G.](#), [Bissaro, B.](#) (2022) The maize pathogen *Ustilago maydis* secretes glycoside hydrolases and carbohydrate oxidases directed towards components of the fungal cell wall. *EAM*,
12. [Melelli, A.](#), [Durand, S.](#), [Alvarado, C.](#), [Kervoëlen, A.](#), [Foucat, L.](#), [Grégoire, M.](#), [Arnould, O.](#), [Falourd, X.](#),; & [Beaugrand, J.](#) Anticipating global warming effects: A comprehensive study of drought impact of both flax plants and fibres. *Industrial Crops and Products*, 2022,184, 115011. <https://doi.org/10.1016/j.indcrop.2022.115011>

13. Moreau, C., [Falourd, X.](#), Talantikite, M., Cathala, B., & Villares, A. Bifunctionalization of Cellulose Fibers by One-Step Williamson's Etherification to Obtain Modified Microfibrillated Cellulose. ACS Sustainable Chemistry & Engineering 2022. <https://doi.org/10.1021/acssuschemeng.2c03754>
14. [Falourd, X.](#), Lahaye, M., & Rondeau-Mouro, C. Optimization of acquisition and processing times for the measurement of ¹H to ¹³C polarization transfer kinetics. MethodsX 2022, 101914. <https://doi.org/10.1016/j.mex.2022.101914>
15. [Falourd, X.](#), Lahaye, M., & Rondeau-Mouro, C. Assessment of cellulose interactions with water by ssNMR: ¹H-> ¹³C transfer kinetics revisited. Carbohydrate Polymers 2022, 298, 120104. <https://doi.org/10.1016/j.carbpol.2022.120104>
16. Deslignière, E.; [Ollivier, S.](#); Ehkirch, A.; Martelet, A.; [Ropartz, D.](#); Lechat, N.; Hernandez-Alba, O.; Menet, J.-M.; Clavier, S.; [Rogniaux, H.](#); Genet, B.; Cianféroni, S. Combination of IM-Based Approaches to Unravel the Coexistence of Two Conformers on a Therapeutic Multispecific MAb. Analytical Chemistry 2022, 94 (22), 7981–7989. <https://doi.org/10.1021/acs.analchem.2c00928>.
17. Haase, R., Fazeli, E., [Legland, D.](#), Doube, M., Culley, S., Belevich, I., Jokitalo, E., Schorb, M., Klemm, A., Tischer, C. A Hitchhiker's guide through the bio-image analysis software universe. FEBS Letters, 2022, 596, 2472-2485. <https://doi.org/10.1002/1873-3468.14451>
18. Reynoud, N.; Geneix, N.; Petit, J.; [D'Orlando, A.](#); [Fanel, M.](#); Marion, D.; Rothan, C.; Lahaye, M.; Bakan, B. The Cutin Polymer Matrix Undergoes a Fine Architectural Tuning from Early Tomato Fruit Development to Ripening. PLANT PHYSIOLOGY 2022, 190 (3), 1821–1840. <https://doi.org/10.1093/plphys/kiac392>
19. Mendis, P. M.; Sasiene, Z. J.; [Ropartz, D.](#); [Rogniaux, H.](#); Jackson, G. P. Ultra-High-Performance Liquid Chromatography Charge Transfer Dissociation Mass Spectrometry (UHPLC-CTD-MS) as a Tool for Analyzing the Structural Heterogeneity in Carrageenan Oligosaccharides. Anal. Bioanal. Chem. 2022, 414 (1), 303–318. <https://doi.org/10.1007/s00216-021-03396-3>
20. Leroy, A.; Devaux, M.; [Fanel, M.](#); Chauvet, H.; Durand, S.; Alvarado, C.; Habrant, A.; Sandt, C.; [Rogniaux, H.](#); Paes, G.; Guillon, F. Real-Time Imaging of Enzymatic Degradation of Pretreated Maize Internodes Reveals Different Cell Types Have Different Profiles. BIORESOURCE TECHNOLOGY 2022, 353. <https://doi.org/10.1016/j.biortech.2022.127140>
21. [Cherkaoui, M.](#); [Tessier, D.](#); [Lollier, V.](#); Larre, C.; Brossard, C.; Dijk, W.; [Rogniaux, H.](#) High-Resolution Mass Spectrometry Unveils the Molecular Changes of Ovalbumin Induced by Heating and Their Influence on IgE Binding Capacity. Food Chem. 2022, 395, 133624. <https://doi.org/10.1016/j.foodchem.2022.133624>
22. Chenais, J.; Marion, L.; Larocque, R.; Jam, M.; Jouanneau, D.; Cladiere, L.; [Le Gall, S.](#); [Fanel, M.](#); Desban, N.; [Rogniaux, H.](#); [Ropartz, D.](#); Ficko-Blean, E.; Michel, G. Systematic Comparison of Eight Methods for Preparation of High Purity Sulfated Fucans Extracted from the Brown Alga Pelvetia Canaliculata. INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES 2022, 201, 143–157. <https://doi.org/10.1016/j.ijbiomac.2021.12.122>
23. Manat, G.; [Fanel, M.](#); Jouanneau, D.; Jam, M.; [Mac-Béar, J.](#); [Rogniaux, H.](#); Mora, T.; Larocque, R.; Lipinska, A.; Czjzek, M.; [Ropartz, D.](#); Ficko-Blean, E. Specificity of a β -porphyranase produced by the carrageenophyte red alga Chondrus crispus and implications of this unexpected activity on red algal biology. JOURNAL OF BIOLOGICAL CHEMISTRY 2022, 298 (12), 102707. <https://doi.org/10.1016/j.jbc.2022.102707>
24. Chen, M.; [Mac-Béar, J.](#); [Ropartz, D.](#); Lahaye, M. Biorefinery of Apple Pomace: New Insights into Xyloglucan Building Blocks. Carbohydrate Polymers 2022, 290, 119526. <https://doi.org/10.1016/j.carbpol.2022.119526>
25. Villéger, R.; Pinault, E.; Vuillier-Devillers, K.; Grenier, K.; Landolt, C.; [Ropartz, D.](#); Sol, V.; Urdaci, M. C.; Bressollier, P.; Ouk, T.-S. Prebiotic Isomaltooligosaccharide Provides an Advantageous Fitness to the Probiotic Bacillus Subtilis CU1. Applied Sciences 2022, 12 (13), 6404. <https://doi.org/10.3390/app12136404>
26. Chen, M.; [Ropartz, D.](#); [Mac-Béar, J.](#); Bonnin, E.; Lahaye, M. New Insight into the Mode of Action of a GH74 Xyloglucanase on Tamarind Seed Xyloglucan: Action Pattern and Cleavage Site. Carbohydrate Research 2022, 521, 108661. <https://doi.org/10.1016/j.carres.2022.108661>

2- Ouvrages et chapitres d'ouvrages

1. Belcram, K., Legland, D., Pastuglia, M. Caillaud, M.-C. (2022). Quantification of cell division angles in the arabidopsis root. In: Plant Cell Division: Methods and Protocols, Springer US, ISBN: 978-1-0716-1744-1, 209-221. https://doi.org/10.1007/978-1-0716-1744-1_12

3- Communications dans des colloques nationaux ou internationaux

3.1 Communications orales invitées

1. Falourd, X. (2022) NMR to characterize oligo/polysaccharides of plant origin. 1ère Journée scientifique de la plateforme RMN du CEISAM, Nantes(FR), 18/10/2022
2. Legland, D. (2022) Géométrie discrète et morphologie mathématique pour l'histologie du végétal. 17ème journée du Groupe de Travail de Géométrie Discrète et Morphologie Mathématique, Talence (France), 22/11/2022.
3. Ropartz, D.; Ollivier, S.; Rogniaux, H. (2022). Application of cyclic traveling wave IMS coupled with liquid chromatography for isomeric level characterization of oligosaccharides. World's Leading Trade Fair for Laboratory Technology, Analysis, Biotechnology and analytica conference (Analytica 2022), Munich (ALL), 21-24/06/2022
4. Fanuel, M. ; Rogniaux, H.; Arnaud, B. ; Ollivier, S. ; Lissarrague, A. ; Ropartz, D. (2022). New dimensions in the characterization of carbohydrates by emerging technologies in mass spectrometry. Groupe Français des Glycosciences (GFG), Branville (FR): 31/05/2022-03/06/2022

3.2 Communications orales dans des congrès nationaux ou internationaux

1. Prunier, G. ; Lysiak, A. ; Rogniaux, H. ; Fertin, G. ; Jean, G. ; Cherkaoui, M. ; Tessier, D. (2022) SpecGlobTool, a software to position mass modifications in peptides identified by OMS methods. Journées Club Jeunes FPS, Bordeaux(FR), 25-27/04/2022
2. Falourd, X. ; Lahaye, M. ; Rondeau-Mouro, C. (2022) Assessment of glucan structure diversity and interactions with water by solid-state NMR. 15th MRFood congress, Aarhus (DK), 07-10/06/2022
3. Falourd, X. ; Rutin, L. ; Aguié-Beghin, V. ; Rondeau-Mouro, C. ; Lahaye, M. (2022) Revisiting 1H->13C polarization transfer kinetics to investigate interactions in polysaccharide assemblies. GERM-GIDRM congress, Milan (DK), 26-30/09/2022
4. Cherkaoui, M. ; Larre, C. ; Brossard, C. ; Lollier, V. ; Tessier, D. ; Rogniaux, H. ; Dijk, W. (2022). 70th ASMS Conference on Mass Spectrometry and Allied topics, Minneapolis (USA, MN): 05-09/06/2022
5. Ollivier, S.; Fanuel, M.; Ropartz, D. ; Rogniaux, H. (2022). An overview of novel analytical methods relying on Cyclic Ion Mobility-Mass Spectrometry: new prospects for the structural characterization of oligosaccharides. Journées scientifiques du réseau GlycoOuest, Nantes (FR): 07/04/2022
6. M. Lahaye, M. Delaire, M. Orsel, X. Falourd, L. Foucat, S. Le Gall, R. Bauduin (2022) Apple firmness relies on cell wall architecture. ISHS Acta Horticulturae 1353: XXXI International Horticultural Congress (IHC2022), Angers (FR), 14-20/08/2022

3.3 Communications par affiche

1. Ollivier, S. ; Fanuel, M. ; Guitteny, C. ; Le Dévéhat, F. ; Rogniaux, H. ; Ropartz, D. (2022) From tandem ion mobility on a Cyclic IMS platform to ion mobility-molecular networking of glycans. 70th ASMS Conference on Mass Spectrometry and Allied topics, Minneapolis (USA, MN): 05-09/06/2022
2. Grélard, F.; Legland, D.; Foucat, L.; Fanuel, M.; Rogniaux, H. (2022). Fusion de données IRM et MALDI pour étudier le développement du grain de blé. Réunion du GDR MSI, 20-21/06/2022, Bordeaux.
3. Lysiak, A., Fertin, G., Jean, G., Tessier D. (2022) Detection of multiple modifications in mass spectra without any a priori. Journées Ouvertes en Biologie, Informatique et Mathématique. JOBIM, 5-8/07/2022, Rennes.
4. Ollivier, S. ; Legentil, L. ; Fanuel, M. ; David, L.-P. ; Yeni, O. ; Compagnon, I. ; Ferrières, V. ; Ropartz, D. ; Rogniaux, H. (2022) On the behavior of GalF-containing oligosaccharides upon fragmentation – a multistage high-resolution Ion Mobility study. Analytics2022, Nantes (FR), 5-8/09/2022
5. Cherkaoui, M. ; Larre, C. ; Brossard, C. ; Lollier, V. ; Tessier, D. ; Rogniaux, H. ; Dijk, W. (2022). A structural analysis of heated ovalbumin by crosslink peptidomics assisted by Open Mass Search algorithm. Analytics2022, Nantes (FR), 5-8/09/2022
6. Prunier, G. ; Lysiak, A. ; Rogniaux, H. ; Fertin, G. ; Jean, G. ; Cherkaoui, M. ; Tessier, D. (2022) SpecGlobTool, a software to position mass modifications in peptides by spectra comparison. Analytics2022, Nantes(FR), 5-8/09/2022

7. Legland, D., Le, T., Chateigner-Boutin, A.-L., Girousse, C. (2022) Morphometry and growth of wheat grain by registration of 3D tomography images. Plant Growth and Form, Heidelberg, 12-15/09/2022.
8. Ghanem, O., Le Gall, S., Chaunier, L., Maigret, J.-E., Papineau, P., Della Valle, G. (2022) Modifications de texture de la lentille au cours de traitement hydrothermique. 56e congrès du GFR, Rennes (FR), 26-28-10/2022
9. Legland, D., Chateigner-Boutin, A.-L., Girousse, C. (2022) Run Length based mathematical morphology for processing of large 3D images of wheat grains. DGMM, Strasbourg, 24-26/10/2022.
10. Rondeau-Mouro, C. ; Falourd, X. ; Rutin, L. ; Besserer, A. ; Guilet, C. ; Chabbert, B. ; Aguié-Beghin, V. (2022) NMR studies of the role of water in the structuring and hygroscopic behavior of cellulose-hemicellulose assemblies. GERM-GIDRM congress, Milan (DK), 26-30/09/2022
11. Ceccantini, M., Larat, V., Le Gall, S. and Preynat, A. (2022) Determination of arabinoxylan content in raw materials by NIRS for the prediction of the nutritional value of feed enzyme. International Poultry Scientific Forum, Georgia World Congress Center, Atlanta, Georgia (USA), January 24-25, 2022
12. Rezette, L., Le Gall, S., Marion, D., Lollier, V., Della Valle, G., Saulnier, L. (2022) Variability of grain albumen minor components and technological quality of wheat. 9th International Conference on Food Chemistry & Technology, Turin (IT), 12-14/10/2022
13. Keuleyan, E., Gélébart, P., Beaumal, V., Kermarrec, A., Ribourg Birault, L., Le Gall, S., Meynier, A., Riaublanc, A., Berton Carabin, C. (2022) Pea and lupin protein ingredients: New insights into endogenous lipids and the key effect of homogenization on their aqueous suspensions. 2nd Edible Soft Matter conference, Wageningen (NL), 11-13/07/2022

4- Thèses ou HDR soutenues

1. OLLIVIER, Simon. Titre : Exploration of high-resolution ion mobility-mass spectrometry for structural glycosciences (Directrice de thèse : H Rogniaux, Encadrant : D Ropartz). Nantes Université, Ecole Doctorale EGAAL. Soutenue le 29 novembre 2022.
2. LYSIAK, Albane. Titre : Développement de méthodes informatiques pour l'évaluation et l'amélioration de l'identification par spectrométrie de masse des peptides modifiés (Directeur de thèse : Guillaume Fertin, Co-directrice : Dominique Tessier, Co-encadrante : Géraldine Jean). Nantes Université, Ecole doctorale MSTICS, spécialité informatique. Soutenue le 6 Décembre 2022.

5- Organisation ou co-organisation de colloques

1. Co-organisation du congrès Analytics 2022, La Cité des Congrès, Nantes (FR) : 5-8/9/2022 (congrès en sciences analytiques ayant réuni 670 participants et 35 exposants industriels) (co-organisation avec CEISAM (Nantes Univ.) et LABERCA (Oniris)).
2. Organisation des Journées Scientifiques du SEMPA, UFR STAPS, Nantes (FR) : 14-16/06/2023 (congrès sur la microscopie électronique à balayage), 60 participants.

6- Enseignements (cours, ateliers, etc.)

1. Atelier Analytics2022 (Nantes) : Mobilité ionique cyclique de haute résolution pour l'analyse de carbohydrates complexes et d'anticorps monoclonaux thérapeutiques. Durée : 2h. OLLIVIER, Simon et DESLIGNIERE, Evolène (LSMBO Strasbourg). 05/09/2022
2. Master 1 parcours A3M (Nantes Université). Cours et TP en imagerie par spectrométrie de masse. Durée 3h. Rogniaux, H., Fanuel, M. 2022/01/20
3. Master 2 CQPS (Nantes Université). Cours et TP en imagerie par spectrométrie de masse et en mobilité ionique. Durée 6h. Rogniaux, H., Ollivier, S. 2022/03/30

7- Mémoires de stage

1. Alice PETRAU, stage L3 (Univ. La Rochelle, 2 mois, 2022). Evaluation de la chromatographie d'exclusion stérique couplée à la spectrométrie de masse pour l'analyse de polysaccharides d'origine végétale.
2. Laurena Rutin, stage M1 (Univ. Nantes, parcours A3M). Caractérisation de systèmes polysaccharidiques binaires par RMN du solide.
3. REZK, Hussein. Rapport de stage M2 (Univ Angers, parcours Photonique, Signal et Imagerie). Imagerie 3D et analyse d'image des signaux harmoniques générés par la cuticule de tomate.

8- Documents à vocation de transfert

1. Lysiak, A. Développements algorithmiques pour l'identification de peptides modifiés. Le Mag. French Proteomics Society. 2022-01