



Productions scientifiques de BIBS en 2020

INRAE Unité BIA
Plate-forme BIBS
Centre Angers-Nantes
Rue de la Géraudière
44316 NANTES CEDEX 03

Liste des productions scientifiques annuelles de la plate-forme BIBS

1- Articles dans des journaux à comité de lecture

- 1- Legland, D., Guillon, F., Devaux, M.H. (2020) Parametric mapping of cellular morphology in plant tissues by gray level granulometry. *Plant Methods*, 16, 1-13.
- 2- Gager, V.; Legland, D., Bourmaud, A.; Le Duigou, A.; Pierre F. ; Behouli, K. ; Baley, C. (2020) Oriented granulometry to quantify fibre orientation distributions in synthetic and plant fibre composite preforms. *Industrial Crops and Products*, 152, 1-7.
- 3- Fertin, G., David, M., Rogniaux, H., and Tessier, D. (2020) Mass Spectra Interpretation and the Interest of SpecFit for Identifying Uncommon Modifications. In: Cazzaniga P., Besozzi D., Merelli I., Manzoni L. (eds) *Computational Intelligence Methods for Bioinformatics and Biostatistics. CIBB 2019. Lecture Notes in Computer Science*, vol 12313. Springer, Cham. https://doi.org/10.1007/978-3-030-63061-4_8
- 4- Lahaye M., Falourd, X., Laillet, B., Le Gall, S. (2020) Cellulose, pectin and water in cell walls determine apple flesh viscoelastic mechanical properties. *Carbohydrate Polymers*, 232, 115768.
- 5- Talantikite, M., Stimpson, T. C., Gourlay, A., Le Gall, S., Moreau, C., Cranston, E. D., Moran-Mirabal, J., Cathala, B. (2020) Bioinspired Thermo-Responsive Xyloglucan-Cellulose Nanocrystal Hydrogels. *ChemRxiv*. <https://doi.org/10.26434/chemrxiv.12759449.v1>
- 6- Sichert, A., Le Gall, S., Klau, L.-J., Laillet, B., Rogniaux, H., Achmann, F.-L., Hehemann, J.-H. (2020) Ion-exchange purification and structural characterization of five sulfated fucoidans from brown algae. *Glycobiology*, cwa064, <https://doi.org/10.1093/glycob/cwaa064>
- 7- Volant, C., Gilet, A., Beddiaf, F., Collinet-Fressancourt, M., Falourd, X., Descamps, N., Wiatz, V., Bricout, H., Tilloy, S., Monflier, E., Quettier, C., Mazzah, A., Rolland-Sabaté, A. (2020) Multiscale Structure of Starches Grafted with Hydrophobic Groups: A New Analytical Strategy. *Molecules*, 25 (12), 2827-2846.
- 8- Chaunier, L., Viau, L., Falourd, X., Lourdin, D., Leroy, E. (2020) A drug delivery system obtained by hot-melt processing of zein plasticized by a pharmaceutically active ionic liquid. *J. Mater. Chem. B*, 2020, 8, 4672-4679.
- 9- Melelli, A.; Jamme, F.; Legland, D.; Beaugrand, J.; Bourmaud, A. Microfibril angle of elementary flax fibres investigated with polarised second harmonic generation. *Ind. Crops Prod.*, 2020, 156
- 10- Arnaud, B.; Durand, S.; Fanuel, M.; Guillon, F.; Mechin, V.; Rogniaux, H. Imaging Study by Mass Spectrometry of the Spatial Variation of Cellulose and Hemicellulose Structures in Corn Stalks. *J. Agric. Food Chem.* 2020, 68 (13), 4042–4050. <https://doi.org/10.1021/acs.jafc.9b07579>.
- 11- Buck-Wiese, H.; Fanuel, M.; Liebecke, M.; Hoang, K. L. M.; Pardo-Vargas, A.; Seeberger, P. H.; Hehemann, J.-H.; Rogniaux, H.; Jackson, G. P.; Ropartz, D. Discrimination of Beta-1,4- and Beta-1,3-Linkages in Native Oligosaccharides via Charge Transfer Dissociation Mass Spectrometry. *J. Am. Soc. Mass Spectrom.* 2020, 31 (6), 1249–1259. <https://doi.org/10.1021/jasms.0c00087>.
- 12- Chardon, F.; Cueff, G.; Delannoy, E.; Aube, F.; Lornac, A.; Bedu, M.; Gilard, F.; Pateyron, S.; Rogniaux, H.; Gargaros, A.; Mireau, H.; Rajjou, L.; Martin-Magniette, M.-L.; Budar, F. The Consequences of a Disruption in Cyto-Nuclear Coadaptation on the Molecular Response to a Nitrate Starvation in Arabidopsis. *Plants-Basel* 2020, 9 (5), 573. <https://doi.org/10.3390/plants9050573>.
- 13- Cherkaoui, M.; Lollier, V.; Geairon, A.; Boudier, A.; Larre, C.; Rogniaux, H.; Jamet, E.; Guillon, F.; Francin-Allami, M. Cell Wall Proteome of Wheat Grain Endosperm and Outer Layers at Two Key Stages of Early Development (Vol 21, 239, 2020). *Int. J. Mol. Sci.* 2020, 21 (5), 1740. <https://doi.org/10.3390/ijms21051740>
- 14- Gadea, A.; Fanuel, M.; Le Lamer, A.-C.; Boustie, J.; Rogniaux, H.; Charrier, M.; Lohezic-Le Devehat, F. Mass Spectrometry Imaging of Specialized Metabolites for Predicting Lichen Fitness and Snail Foraging. *Plants-Basel* 2020, 9 (1), 70. <https://doi.org/10.3390/plants9010070>.
- 15- Hernandez-Mesa, M.; D'Atri, V.; Barknowitz, G.; Fanuel, M.; Pezzatti, J.; Dreolin, N.; Ropartz, D.; Monteau, F.; Vigneau, E.; Rudaz, S.; Stead, S.; Rogniaux, H.; Guillaume, D.; Dervilly, G.; Le Bizec, B. Interlaboratory and Interplatform Study of Steroids Collision Cross Section by Traveling Wave Ion

- Mobility Spectrometry. *Anal. Chem.* 2020, 92 (7), 5013–5022.
<https://doi.org/10.1021/acs.analchem.9b05247>.
- 16- Labourel, A.; Frandsen, K. E. H.; Zhang, F.; Brouilly, N.; Grisel, S.; Haon, M.; Ciano, L.; Ropartz, D.; Fanuel, M.; Martin, F.; Navarro, D.; Rosso, M.-N.; Tandrup, T.; Bissaro, B.; Johansen, K. S.; Zerva, A.; Walton, P. H.; Henrissat, B.; Lo Leggio, L.; Berrin, J.-G. A Fungal Family of Lytic Polysaccharide Monooxygenase-like Copper Proteins. *Nat. Chem. Biol.* 2020, 16 (3), 345-+. <https://doi.org/10.1038/s41589-019-0438-8>.
 - 17- Li, A.; Laville, E.; Tarquis, L.; Lombard, V.; Ropartz, D.; Terrapon, N.; Henrissat, B.; Guieysse, D.; Esque, J.; Durand, J.; Morgavi, D. P.; Potocki-Veronese, G. Analysis of the Diversity of the Glycoside Hydrolase Family 130 in Mammal Gut Microbiomes Reveals a Novel Mannoside-Phosphorylase Function. *Microb. Genomics* 2020, 6 (10), 000404. <https://doi.org/10.1099/mgen.0.000404>.
 - 18- Millet, M.; Poupard, P.; Guilois-Dubois, S.; Poiraud, A.; Fanuel, M.; Rogniaux, H.; Guyot, S. Heat-Unstable Apple Pathogenesis-Related Proteins Alone or Interacting with Polyphenols Contribute to Haze Formation in Clear Apple Juice. *Food Chem.* 2020, 309, 125636.
<https://doi.org/10.1016/j.foodchem.2019.125636>.
 - 19- Munzone, A.; El Kerdi, B.; Fanuel, M.; Rogniaux, H.; Ropartz, D.; Reglier, M.; Royant, A.; Simaan, A. J.; Decroos, C. Characterization of a Bacterial Copper-Dependent Lytic Polysaccharide Monooxygenase with an Unusual Second Coordination Sphere. *FEBS J.* 2020. <https://doi.org/10.1111/febs.15203>.
 - 20- Nastase, R.; Fourre, E.; Fanuel, M.; Falourd, X.; Capron, I. Non-Thermal Plasma in Liquid Media: Effect on Inulin Depolymerization and Functionalization. *Carbohydrate Polymers* 2020, 231, 115704.
<https://doi.org/10.1016/j.carbpol.2019.115704>.
 - 21- Sahli, L.; Boire, A.; Sole-Jamault, V.; Rogniaux, H.; Giuliani, A.; Roblin, P.; Renard, D. New Exploration of the Gamma-Gliadin Structure through Its Partial Hydrolysis. *Int. J. Biol. Macromol.* 2020, 165, 654–664.
<https://doi.org/10.1016/j.ijbiomac.2020.09.136>.
 - 22- Wallace, M. D.; Guee, L.; Ropartz, D.; Fanuel, M.; Lannuzel, G.; Correc, G.; Stubbs, K. A.; Ficko-Blean, E. Characterisation of an Exo-(Alpha-1,3)-3,6-Anhydro-D-Galactosidase Produced by the Marine Bacterium *Zobellia Galactanivorans* Dsij(T): Insight into Enzyme Preference for Natural Carrageenan Oligosaccharides and Kinetic Characterisation on a Novel Chromogenic Substrate. *Int. J. Biol. Macromol.* 2020, 163, 1471–1479. <https://doi.org/10.1016/j.ijbiomac.2020.07.298>.

2- Ouvrages et chapitres d'ouvrages

- 1- Méchin, V., Reymond, M., Legland, D., El Hage, F., Baldy, A., Griveau, Y., Jacquemot, M.-P., Coursol, S., Devaux, M.-F., Rogniaux, H., Guillon, F. Puissance de l'imagerie dans l'étude des tissus de la biomasse lignocellulosique. in: Stéphanie Baumberger. Chimie verte et industries agroalimentaires. Vers une bioéconomie durable. 2020, 361-391.
- 2- Ropartz, D., Ralet, M.-C. Chapter 2 Pectin Structure in: Vassilis Kontogiorgos. Pectin: Technological and Physiological Properties. Springer International Publishing. 2020, 17-36.

3- Communications orales

3.1 Conférences invitées

- 1- Legland, D. 2020. Advanced image processing with MorphoLibJ. Neubias Academy@Home, online 2020/04/30.
- 2- Ropartz, D. (2020) Cyclic IMS: experience & perspective on the BIBS platform. Ion mobility virtual Event, 2020/05/12

3.2 Communications orales dans des congrès nationaux ou internationaux

- 1- Ropartz, D.; Fanuel, M.; Ujma, J.; Palmer, M.; Giles, K.; Rogniaux, H. (2020) Some illustrations of the advances brought by high-resolution ion mobility coupled to multi-function MS capabilities in structural glycosciences. 68th ASMS Reboot Conference on Mass Spectrometry and Allied Topics. Houston (TX, USA), 2020/06/1-12
- 2- Ollivier, S., Fanuel, M., Ao Li, A., Laville, E., Guieysse, D., Tarquis, L., Potocki-Veronese, G., Rogniaux, H., Ropartz, D. Can high-resolution IMS/IMS solve the intra-chain anomerism of carbohydrates? Journée Scientifique club jeune SFSM, 2020/12/10
- 3- Fanuel, M. La mobilité ionique cyclique haute résolution et la fragmentation haute énergie : deux avancées puissantes en spectrométrie de masse pour les glycosciences. Journée d'animation scientifique Axe Analyse Structurale et Métabolomique, 2020/10/06
- 4- Lissarague, A. Détermination de la structure chimique fine des carraghénanes par des méthodes innovantes en spectrométrie de masse. Journée scientifique Cargill; 2020/12/15

- 5- Lysiak, A., Fertin, G., Jean, G., Tessier, D. Evaluation of open search methods based on theoretical mass spectra comparison, SeqBIM. Toulouse, 2020/11/23-24
- 6- Nesi N., Rolland, S., Solé V., Le Gall S., Jasinski, S., Guerche, P. (2020). SEEDQUAL: Caractérisation de la diversité génétique de la composition de la graine et du tourteau de colza pour des usages en alimentation animale. 26e Carrefour de la sélection du colza : 22 et 23/01/2020 (Orléans, France).

4- Communications par affiches

- 1- Grélard, F., Legland, D., Foucat, L., Fanuel, M., Rogniaux, H. 2020. Fusion of MRI and MALDI images for the study of the development of wheat grains, Network of European Bio-Image Analysts, Bordeaux (FR): 2020/03/03-06
- 2- Legland D., Devaux, M.F. 2020. ImageM: A graphical user-interface for multi-dimensional image processing with Matlab. The 4th NEUBIAS Conference & Symposium. Bordeaux (FR) - 2020/03/03-06.
- 3- Buck-Wiese H, Fanuel, M., Liebeke, M., Hehemann, JH., Rogniaux, H., Jackson, G., Ropartz, D. Glycosidic bond position of linear oligosaccharides using the cross-ring fragments produced by helium-charge transfer dissociation mass spectrometry. 68th ASMS Reboot Conference on Mass Spectrometry and Allied Topics. Houston (TX, USA): 2020/06/1-12

5- Thèses soutenues

LE Thang (2020/12/04) : «Modélisation statistique de la croissance du grain de blé à partir de plusieurs modalités d'imagerie ». Dir AL Chateigner-Boutin, D Legland

6- Enseignements (cours, ateliers, etc.)

- Master I Chimie, Parcours A3M (Université de Nantes). Spectrométrie de masse MALDI. Durée : 3h. ROGNIAUX, Hélène. 2020/01/23

7- Mémoires de stage

BONOMO, Alexandre. Rapport de stage M2 Bioinformatique-Biostatistique (Université de Nantes, 5.5 mois, 2020). Filtrage de données expérimentales et optimisation du traitement des données dans le logiciel SpecOMS.

FOURNIER, Anne-Lise, Rapport de stage M1 Chimie, parcours A3M (Université de Nantes, 5 mois, 2020). Développement d'une méthode de chromatographie liquide couplée à la spectrométrie de masse pour la caractérisation d'oligosaccharides neutres.

8- Brevets

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9- Documents à vocation de transfert

- 1- Suivi de la morphologie du grain de blé par micro-tomographie RX au cours de son développement, Legland D., Chateigner-Boutin A-L., (Rapport Recherche et Innovation, INRAE, département TRANSFORM, 2020)
- 2- La mobilité ionique haute résolution pour explorer la structure des biomolécules, Ropartz D., Rogniaux H., (Rapport Recherche et Innovation, INRAE, département TRANSFORM, 2020)