

# NEWSLETTER

Editor: Martin G. Peter, University of Potsdam, Germany

E-mail [Martin.Peter@uni-potsdam.de](mailto:Martin.Peter@uni-potsdam.de)

<http://euchis.org>

• Editorial	2
• EUCHIS Webinars	3
• Minutes of the Board Meeting	5
• Minutes of the General Assembly	7
• Membership Numbers	11
• Financial Report 2020	12
• Student bursary: call for applications	13
• Members Bibliography	14
• Books	25



*April 2021*

*No. 48*

## **Editorial**

All hopes of a return to normality have been dashed by the continuing restrictions on public life and lock-downs in many parts of the world. At least we have useful tools for communicating with members of our society, such as virtual meetings and even newsletters. In the absence of a conference in 2021, EUCHIS now provides a platform for the exchange of ideas and facts on chitin and chitosans as well as general aspects of polysaccharides in the form of a series of scholarly seminars initiated and coordinated by Gregor Tegl (see page 3).

This edition of the Newsletter contains the reports and information about activities of EUCHIS since January 2021. A virtual Board meeting took place in February (page 4) and a virtual General Assembly in March 2021 (page 6). Membership numbers (page 11) decreased in 2020, one of the reasons may be the fact that a regular conference could not convene, due to the pandemic. Fortunately, our financial situation (page 12) is quite healthy and it was decided to offer small bursaries for students to aid in mobility in case of a planned visit to a host laboratory, as well as materials for studies (page 13). The Braconnot Prize remains open for nominations and granted conference travel supports for students remain valid.

The scientific activity of our Society members continues at a high level. Twenty reviews, 136 research papers, and 8 patent applications appeared during the last 12 months (page 14).

Finally, tables of contents are cited from four books which came to the attention of the Secretary. These are about bio-composites, consisting also of polysaccharides other than chitin/chitosan, as well as about drug delivery, and the fungal cell wall (page 25). Maybe, some of these are of interest for our readers.

With best wishes,

Bruno Moerschbacher, President  
Martin Peter, Secretary

Münster and Bonn, April 18, 2021

## EUCHIS Webinars

Webinar  
Chitin / Chitosan  
Series



April  
27  
11 AM (CET)  
Two talks in one hour

**Bruno Moerschbacher**  
University of Münster  
Structure-function relationships  
of chitosans: the pattern of N-acetylation

**Rupert Kargl**  
Graz University of Technology  
Methods for the processing  
and shaping of polysaccharide  
based materials

**JOIN via ZOOM**

e-mail: [euchis.online@gmail.com](mailto:euchis.online@gmail.com)

The webinars will take place on the last Tuesday of a month, 11am (CET). They are open for the public.

**April 27** (link: <https://bokuvienna.zoom.us/j/97138344317>)

### **Bruno Moerschbacher, University of Münster: *Structure-function relationships of chitosans: the pattern of N-acetylation***

**Abstract:** Chitosans are a family of polysaccharides differing in their degree of polymerisation (DP), fraction of acetylation (FA), and pattern of acetylation (PA). The former two structural parameters can now be analysed and controlled fairly well and "second generation chitosans" which are well defined in both DP and FA are becoming commercially available in sufficient quantities not only for research but also for the development of reliable chitosan-based products that make use of their reproducible biological activities. But this is not yet the case for the third parameter, PA. We will present our recent progress in the preparation and analysis of chitosan oligomers and polymers with defined, non-random patterns of acetylation, and on the role of PA in defining biological functionalities.

### **Rupert Kargl, Graz University of Technology: *Methods for the processing and shaping of polysaccharide based materials***

**Abstract:** Homogeneous polymer analogous derivatization reactions are useful for increasing the property range and applicability of polysaccharides. Silylation with silanes, or esterification with amino acids can be two interesting options to change the properties and add functionality to these polymers. Several examples are given for the derivatization of celluloses and dextran, and peculiarities are described for the purification and analysis of resulting products.

Despite chemical functionalization, polysaccharides can be shaped into certain forms, namely nanoparticles, nanometric thin film coatings, and three dimensionally printed objects. Particles containing drug conjugates are for instance obtained by nanoprecipitation methods using emulsions of hydrophobically derivatized polysaccharides. These structures could find applications in drug delivery.

Thin films of polysaccharides prepared by spin coating are of interest for basic studies involving interactions at the solid/liquid and solid/gas interfaces. Such well-defined films, down to a thickness of several nanometres on large substrates, can be prepared from cellulose derivatives or chitosan under reproducible conditions. Polysaccharides formed by this method can also be processed photolithographically.

Finally, current research is dedicated to the preparation of 3D printed objects comprising polysaccharides in dissolved or dispersed form. Among these are aqueous cellulose derivative solutions, and cellulose nanofibril dispersions, that can form structured objects with micrometre resolution using an extrusion-based process. Plenty of shapes and material combinations are accessible through a 3D printer (Bioscaffolder 3.2, Gesim, Germany, <https://gesim-bioinstruments-microfluidics.com/bioprinter/>). Some prospects are given for possible future research directions related to the processing and shaping of polysaccharide-based materials.

<b>The next Webinars in 2021, save the dates:</b>
---

**May 25**

**June 29**

**July 27**

**August 31**

**September 28**

**October 26**

**November 30**

## Minutes of the **European Chitin Society** **Meeting of the Board**

Time: Tuesday, Feb. 02, 2021, 11:00 – 12:00 CET

Location: Online via Zoom

### Agenda

- |  |   |
|--|---|
| 1. Opening (B. Moerschbacher)  | 7. Chitin/Chitosan conferences and International Federation of Chitin/Chitosan Societies (IFCCS) (B. Moerschbacher) |
| 2. Ascertaining of quorum  |   |
| 3. Chair of the meeting  |   |
| 4. Keeping of minutes  |   |
| 5. Results of questionnaire of Jan. 17, 2021                                   | 8. General Assembly: Agenda and Date  |
| 6. Report of the Secretary, membership figures and financial report (M. Peter) | 9. Any other business   |

### Item 1

The assembly has been convened together with the agenda by e-mail on January 17, 2021. The agenda was approved by 15 Board members, one abstention.

B. Moerschbacher opened the meeting and briefly explained the main issue to be discussed, namely the situation of EUCHIS and its administration by the Board in times of the pandemic.

### Item 2

Fifteen of 16 Board members were present in the virtual meeting, forming a quorum.

### Item 3

The meeting is chaired by the President, Bruno Moerschbacher.

### Item 4

Minutes shall be kept by the Secretary, Martin Peter

### Item 5

The Bylaws of our Society stipulate that the Board shall be renewed every two years, through elections by the General Assembly of all EUCHIS members. Typically, this happens on the occasion of our biannual EUCHIS conferences. Under exceptional circumstances, this may happen after three years only, e.g. if a conference has to be postponed for one year. Our last EUCHIS conference, where we also convened the General Assembly and elected the current Board, was held in Seville in 2017, i.e. more than three years ago. Unfortunately, the 2019 conference had to be shifted to 2020 due to health reasons of the organizer, and then had to be further postponed due to the Corona situation. Whether or not we will be able to organize this conference in 2021 is not yet clear but in our opinion, this is rather unlikely. If we meet in 2022, the current Board will have been in place for five years.

However, it is not practical to elect a new Board under the present circumstances, and all 16 Board members agreed to continue in their function until a physical General Assembly and election of the new Board can be organized during the next EUCHIS conference, see Item 7.

Continuation of the Board must be authorized by General Assembly, which shall be convened as an online conference within one month after distribution of these minutes and invitation to all members of the society.

**Item 6**

EUCHIS has presently 70 members, 3 less than March 2020. This includes eight members whose subscription is overdue for three years, meaning that their membership has formally terminated by Dec. 31, 2020. However, those will be kept on the mailing list, but are not entitled to vote in the General assembly and will not profit from other benefits, such as reduced conference fees (for numbers, see page 11).

The financial report 2020 was presented by the Treasurer, Katja Richter (see page 12). The bank charges of Deutsche Bank are exceedingly high. See Item 9 for a possible way ahead.

Nominations for the Braconnot prize can be submitted any time until September 30, 2021. It will be awarded in December 2021 and the awardee will be invited to give the Braconnot Plenary Lecture during the next EUCHIS Conference.

Granted travel awards remain valid for the next EUCHIS Conference.

Additional funds shall be made available for student bursaries, 3 times 300 Euro. Inmaculada Aranaz-Corral shall set up the guidelines for applications.

**Item 7**

The EUCHIS conference planned for 2020 is now postponed to 2022, provided that international travel will be unrestricted then. M. Peter will ask the web administrator to update the EUCHIS homepage.

Conference schedules will have to be revised, because all regional conferences are postponed, piling up now for 2022. Harmonization of international and regional chitin conferences by an International Federation of Chitin and Chitosan Societies (IFCCS) is presently discussed between members of the IFCCS interest group which convened in Osaka, 2018.

In order to keep communication and exchange of scientific ideas and achievements alive in the absence of conferences, a series of monthly online seminars shall be created. These will consist of short presentations given by a student and a senior scientist in each seminar. Topics shall not be strictly limited to chitin and chitosan but can include polysaccharides in general, highlighting any impact on and from chitin/chitosan science. Coordination shall be in the hands of Gregor Tegl who will collect the ideas for thematic sessions and set up a schedule. He will be assisted by the Secretary as required.

**Item 8**

A virtual General Assembly will be organized around the middle of March. The invitation and agenda shall be distributed by the Secretary at least four weeks in advance.

**Item 9**

Fiscal situation of EUCHS: The society was inaugurated in 1992 and registered as a “Société non-lucrative” at the Département Rhône in the Prefecture of Lyon. At that time, opening of a bank account was a formality. The laws changed since then, and banks demand now a tax number for an association, to be assigned to the account. Furthermore, bank handling charges are often lower for non-profit than for commercial organizations, some banks even do not charge for keeping an account of a non-profit organization. It would be advantageous for EUCHIS to be registered as a non-profit organization with a tax number in France as the seat of the society. Laurent David will find out the requirements for official registration of EUCHIS as a non-profit organization with a tax number in France.

Bruno Moerschbacher closes the meeting and thanks all participants for attending and valuable comments.

Münster and Bonn, Feb. 05, 2021

B. Moerschbacher

M. Peter

## Minutes of the **European Chitin Society** **General Assembly**

A General Assembly (GA) of the European Chitin Society was held on March 16, 2021, 11:00 a.m. – 12:30, CET. Because of current restrictions by the COVID-19 pandemic, the meeting was organized as a virtual event via Zoom.

Twentyeight members of EUCHIS, including six members of the Committee of the Managing Board and seven members of the Board, attended the meeting (see page 10).

Ballots were held by show of hands or in secret by electronic means. Votes of two associate members and one attendant not in good standing are not counted.

### **Agenda**

1. Opening
2. Chair of the meeting
3. Keeping of minutes
4. Approval of the Agenda
5. Report of the President
6. Report of the Secretary (M. Peter)
7. Membership figures
8. Financial Report 2020
9. Discharge of the Managing Board
10. Confirmation of the Board
11. EUCHIS Seminar Series
12. Budget 2021: Braconnot Prize and Student bursaries
13. Conferences and International Federation of Chitin/Chitosan Societies (IFCCS)
14. Any other business

### **Item 1**

The President, Professor Moerschbacher, welcomed the participants and opened the meeting.

### **Item 2**

The meeting shall be chaired by The President, Professor Moerschbacher. There were no objections. Prof. Moerschbacher accepted to chair the meeting.

### **Item 3**

Minutes shall be kept by The Secretary, Professor Peter. There were no objections. Prof. Peter accepted to keep the minutes.

### **Item 4 – Approval of the Agenda**

The agenda was distributed to all EUCHIS members on February 12, 2021. No requests for additional items or corrections were received. The Agenda was approved unanimously.

### **Item 5 – Report of the President**

The President commented briefly on the current situation of EUCHIS in times of the pandemic. The last GA convened in June 2017 during the 13<sup>th</sup> EUCHIS conference in Seville, Spain. The next GA, scheduled for August 2019, was postponed to 2020, due to cancellation of the 14<sup>th</sup> EUCHIS conference in Cork, Ireland. It had to be postponed again due to COVID and was planned for September 2021 in Kazan, Russia, still on schedule. However, this conference had to be postponed further and is now tentatively planned for Spring 2022, pending widespread vaccination and permissive travel conditions. Thus, it was necessary to organize a GA soon after September 2020.

He then gave a brief summary of the Board Meeting (virtual), Feb. 02, 2021, as well as on activities of EUCHIS since June 2017, all of which were discussed in more detail during the GA and are reported below.

### **Item 6 – Report of the Secretary**

Newsletters # 40 - 47 appeared on a regular schedule during 2018 – 2020. They were uploaded to the website of EUCHIS and distributed to all members by e-mail. Members are invited to contribute more actively to the Newsletter, especially with focus on completed PhD thesis and ongoing non-confidential research items.

Initiated by Prof. Laurent David, most volumes of Advances in Chitin Sciences have now been digitalized and are available on the EUCHIS website, with the exception of some issues where the copyright could not yet be clarified.

Other tasks of the Secretary were maintaining the membership database, assisting the President in correspondence and preparation of documents for decisions, including planning of conferences, performing correspondence with members, including sending out notes for annual subscriptions and receipts for payments, and compiling annual records of members bibliography. Exchange of News with other, in particular Asian Chitin/Chitosan Societies are developing smoothly, albeit slowly.

### **Item 7 – Membership figures**

EUCHIS presently counts 62 members in good standing (see page 11). Membership of eight subscribers were terminated because of failure to pay the annual fee for more than three years, including three with invalid e-mail and physical address.

### **Item 8 – Financial Reports**

The financial report 2017 was published in Newsletter # 43 (December 2018), reports for 2018 and 2019 in Newsletter # 46 (May 2020). The financial report 2020 was presented to the GA by the Treasurer, Katja Richter (see page 12). All Financial reports had been audited by the vice-treasurer and by the secretary who examined the account statements and testified that all income and expenses were in accordance with the statutes, and factually and arithmetically correct.

The financial reports were approved by the General Assembly (secret ballot: pro 22 – abstention 3 – contra 0).

### **Item 9 – Discharge of the Managing Board**

It is proposed to discharge the Managing Board of Directors. The General Assembly approves the discharge of the Managing Board (secret ballot: Pro 16 – abstention 6 – contra 0). On behalf of all the members of the Managing Board, the Chairman thanked all those present for their approval and the confidence placed in the Board.

### **Item 10 - Confirmation of the Board**

As outlined in the invitation to the GA, Appendix 3 (Feb. 12, 2021), the Board proposed to continue with the administration of EUCHIS with its current composition until a physical meeting is possible, meaning that a new Board shall be elected during the next EUCHIS conference. Pending on approval of the GA, all 16 Board members declared their consent to remain in office by e-mail in advance of a (virtual) Board meeting which convened on Feb. 2, 2021 (Minutes to be published in the next Newsletter, # 48). Several EUCHIS members gave their consent in the GA discussion, and there were no objections (secret ballot: pro 25 – abstention 0 – contra 0). The Board members will continue, with functions as listed in the homepage of EUCHIS (<http://euchis.org>).



**Item 11 – EUCHIS Seminar Series**

Upon initiative by Gregor Tegl, a series of monthly video seminars (Webinars) with thematic focus on chitin/chitosan, but also including general aspects of glycoscience, will be offered to students and researchers. The audience is not restricted to EUCHIS members and is open for all interested researchers worldwide. Accounts on Twitter and gmail were established for communication, and news shall be posted to all EUCHIS members by personal e-mail messages through the office of the Secretary.

A proposal was made during the GA by our former president Prof. Sevda Senel to organize a webinar on the specific topic of chitosan applications for drug or vaccine delivery with special emphasis on Covid 19. Prof. Inmaculada Aranaz Corral and Prof. Carla Caramella offered their support in planning and organizing this event which might be offered in collaboration with other relevant scientific societies.

**Item 12 - Budget 2021: Braconnot Prize and Student bursaries**

The treasurer, K. Richter, gave an outlook on estimated income and expenses in 2021. Reserves must be kept for expenses occurring in advance for the organization of the next EUCHIS conference, as well as for the Braconnot Prize and travel grants for students. A new position in the budget appears in form of student bursaries, granted for use in 2022. Details are published on the Website as well as in this Newsletter (see page 13).

**Item 13 - Conferences**

The President informed about the future of regional and international conferences. Contacts with representatives of regional and national Chitin/Chitosan societies had been initiated in Osaka, 2018. With the goal to harmonize regional and international conferences and to avoid overcrowding, a schedule for International Chitin/Chitosan Conferences is presently discussed. Due to postponing of all conferences since 2020, a situation may arise that too many meetings could be planned for 2022. The official contact in Asia for international conferences is Professor Hiroshi Tamura, Kansai University, Osaka. Communication is also through the office of the Japanese Society for Chitin and Chitosan (JSCC).

Prof. Svetlana Bratskaya and Prof. Mar Masson confirmed their willingness to organize the next EUCHIS meetings in Kazan, Russia, and Ireland, respectively.

The issue of a virtual EUCHIS conference was raised in the discussion. Though not generally favored, it was considered for the case that a physical meeting would not be possible in 2022. A hybrid format combining online and onsite attendance is likely to become the standard for many conferences in future.

**Item 14 – Any other business**

No other items were raised.

The Chairman closed the General Assembly. He thanked the attendants of General Assembly for their participation and their constructive contributions in the discussions.

Bonn and Münster, 20.03.2021

Bruno M. Moerschbacher, President  
Martin G. Peter, Secretary

**General Assembly, March 16, 2021****Appendix 1: Attendants**

---

**Board Members**

1.	Moerschbacher	Bruno	active
2.	Aranaz Corral	Inmaculada	active
3.	Bratskaya	Svetlana	active
4.	Richter	Katja	active
5.	Cabrera-Escribano	Francisca	active
6.	Peter	Martin G.	active
7.	David	Laurent	donor
8.	Eijsink	Vincent	active
9.	Goñi Ramos	Oscar	active
10.	Goycoolea	Francisco M.	donor
11.	Skorik	Yuri	active
12.	Struszczyk	Marcin Henryk	active
13.	Tegl	Gregor	active

**Members**

14.	Andersson	Mats	active
15.	Caramella	Carla Marcella	active
16.	Christensen	Bjoern E.	active
17.	Espasa Valdepeñas	Anna	student
18.	Feuillat	Jean	collective
19.	Margoutidis	Georgios	student
20.	Másson	Már	active
21.	Osorio-Madrado	Anayancy	active
22.	Richter	Torsten	active
23.	Varlamov	Valery	active
24.	Weiss	Ingrid	active
25.	Wunder	Anke	active

**Associates and Guests**

26.	Madhuprakash	Jogi
27.	Mirajkar	Shriram
28.	Senel	Sevda

**General Assembly, March 16, 2021**  
**Appendix 2: Membership Numbers (Feb. 02, 2021)**

	donor	collective	active	associate	student	Sum
2020-03-31	7	6	43	7	10	73
Unpaid 3 years	-	1	4	1	2	8
Unpaid 2 years	-	-	-	1	2	3
Unpaid 2020	-	2	12	1		15
Paid 2020	7	3	25	3	6	44
2021-01-26	7	5	37	5	8	62
±	0	-1	-6	-2	-2	-11

**Members by Country**

Country	Active	Collective	Donor	Student	Associate	Total
Austria	1					1
Belgium		1	1	1		3
Canada					1	1
France	3	2	2			7
Germany	11		2	2		15
Greece				1		1
Hungary		1				1
Iceland	1				1	2
India					2	2
Ireland	1				1	2
Italy	4					4
Netherlands				1		1
Norway	3					3
Poland	3					3
Portugal				1		1
Russia	5					5
Spain	3			2		5
Sweden	1					1
Switzerland		1				1
Turkey			1			1
U.K.			1	1		2
<b>Total</b>	<b>36</b>	<b>5</b>	<b>7</b>	<b>9</b>	<b>5</b>	<b>62</b>

**General Assembly, March 16, 2021****Appendix 3: Financial Report 2020 and proposed Budget 2021**

<b>Balance per 31.12.2019</b>		<b>11.092,70</b>
Income		
	Member Subscriptions	2.045,50
<b>Total Positiva</b>		<b>2.045,50</b>
Expenses		
	Internet Expenses	-632,38
	Bank Charges	-161,22
<b>Total Expenses</b>		<b>-793,60</b>
<b>Balance per 31.12.2020</b>		<b>12.344,60</b>

**Budget Plan for 2021**

<b>Balance forward</b>	<b>12.344</b>
Member Subscriptions	1.500
Bank Charges	-180
Internet Expenses	-650
Reserve for conference support	-5.000
Reserve for Braconnot Prize	-1.000
Reserve for student travel support	-1.500
Reserve for unexpected expenses	-2.000
<b>Balance</b>	<b>3.514</b>

## **EUCHIS STUDENT BURSARY CALL FOR APPLICATIONS**

EUCHIS will award a bursary of 300 euros each to three EUCHIS student members.

### **Eligibility:**

- All EUCHIS student members are welcome to apply for an EUCHIS bursary.
- Possible sponsored activities include: Conference fees, short research/training stays (stays in laboratories of junior and senior EUCHIS members will be preferentially treated), courses, workshops, textbooks and scientific software, or any other activity that could be considered to support the scientific work of the applicant.

### **Required Documents:**

- Full name, address (residential and institutional), contact (e-mail), short C.V. (inc. list of publications, if any)
- Motivation letter describing the activity to be carried out and explaining how it will contribute to improve the scientific career
- Supporting letter of supervisor (only for graduate and PhD students)
- Copy of student ID (only graduate students) or prove of date that PhD was awarded within in the last two years (2019, 2020)
- Declaration of commitment to accept and observe the statutes of EUCHIS
- Declaration of acceptance of the conditions of the bursary

### **Deadline:**

- The deadline for submission of application is September 30, 2021.
- All applications will be reviewed by two Board members appointed by EUCHIS Directive Board. In case of a tie, the vote of a third Board member will be requested. Applicants will be informed about the decision by November 30, 2021.

### **Conditions:**

- EUCHIS student membership must be active for a minimum of two years 2020-2021. Applicants registering for membership after publication of this call shall pay a two-year student membership subscription (32 EURO). The funds must be used within 12 months of the date of authorisation.
- Successful applicants must sign a receipt upon reception of the bursary. Awards will be paid by bank transfer. Proof of realisation of the activity must be sent to the Secretary ([martin.peter@uni-potsdam.de](mailto:martin.peter@uni-potsdam.de)) within 30 days after concluding the activity. Lack of this documentation will exclude the person from any future EUCHIS support.
- The EUCHIS bursary must be acknowledged on any paper, thesis, etc. deriving from the action.
- After the Bursary action is completed, the student will be invited to submit a short non-confidential report which shall be published in the Newsletter.

## Members Bibliography

### March 20, 2020 – March 20, 2021

#### Reviews

- [1] Bonin, M.; Sreekumar, S.; Cord-Landwehr, S.; [Moerschbacher](#), B. M., *Preparation of defined chitosan oligosaccharides using chitin deacetylases*, *Int. J. Mol. Sci.*, (2020) **21**, 7835; <https://doi.org/10.3390/ijms21217835>
- [2] [Coma](#), V.; Bartkowiak, A. *Potential of Chitosans in the Development of Edible Food Packaging*, In: van den Broek, L.A.M., Boeriu, C. G. (Eds.) *Chitin and Chitosan: Properties and Applications*, Wiley, 2020; pp 349-369; <https://doi.org/10.1002/9781119450467.ch14>
- [3] Cord-Landwehr, S.; Niehues, A.; Wattjes, J.; [Moerschbacher](#), B. M. *New Developments in the Analysis of Partially Acetylated Chitosan Polymers and Oligomers*, In: van den Broek, L.A.M., Boeriu, C. G. (Eds.) *Chitin and Chitosan: Properties and Applications*, Wiley, 2020; pp 81-95; <https://doi.org/10.1002/9781119450467.ch4>
- [4] Cord-Landwehr, S.; Richter, C.; Wattjes, J.; Sreekumar, S.; Singh, R.; Basa, S.; El Gueddari, N. E.; [Moerschbacher](#), B. M., *Patterns matter part 2: Chitosan oligomers with defined patterns of acetylation*, *React. Funct. Polym.*, (2020) **151**, 104577; <https://doi.org/10.1016/j.reactfunctpolym.2020.104577>
- [5] Dubashynskaya, N.; [Poshina](#), D.; Raik, S.; Urtti, A.; [Skorik](#), Y. A., *Polysaccharides in ocular drug delivery*, *Pharmaceutics*, (2020) **12**, 22; <https://doi.org/10.3390/pharmaceutics12010022>
- [6] Dubashynskaya, N. V.; [Skorik](#), Y. A., *Polymyxin delivery systems: recent advances and challenges*, *Pharmaceutics*, (2020) **13**, 83; <https://doi.org/10.3390/ph13050083>
- [7] [Goni](#), O.; Quille, P.; O'Connell, S. *Seaweed Carbohydrates*, In: Geelen, D., Xu, L. (Eds.), *The Chemical Biology of Plant Biostimulants*, Wiley, 2020; pp 57-95; <https://doi.org/10.1002/9781119357254.ch3>
- [8] [Gorzalanny](#), C.; Mess, C.; Schneider, S. W.; Huck, V.; Brandner, J. M., *Skin Barriers in Dermal Drug Delivery: Which Barriers Have to Be Overcome and How Can We Measure Them?*, *Pharmaceutics*, (2020) **12**; <https://doi.org/10.3390/pharmaceutics12070684>
- [9] [Jaworska](#), M. M.; Antos, D.; Gorak, A., *Review on the application of chitin and chitosan in chromatography*, *React. Funct. Polym.*, (2020) **152**, 104606; <https://doi.org/10.1016/j.reactfunctpolym.2020.104606>
- [10] Miron-Merida, V. A.; Gong, Y. Y.; [Goycoolea](#), F. M., *Aptamer-based detection of fumonisin B1: a systematic comparison with conventional and other novel methods*, *ChemRxiv*, (2020), 1-41; <https://doi.org/10.26434/chemrxiv.13473867.v1>
- [11] Oestby, H.; Hansen, L. D.; Horn, S. J.; [Eijsink](#), V. G. H.; Varnai, A., *Enzymatic processing of lignocellulosic biomass: principles, recent advances and perspectives*, *J. Ind. Microbiol. Biotechnol.*, (2020) **47**, 623-657; <https://doi.org/10.1007/s10295-020-02301-8>
- [12] Potas, J.; [Szymanska](#), E.; Winnicka, K., *Challenges in developing of chitosan - Based polyelectrolyte complexes as a platform for mucosal and skin drug delivery*, *Eur. Polym. J.*, (2020) **140**, 110020; <https://doi.org/10.1016/j.eurpolymj.2020.110020>
- [13] Rani, T. S.; Nadendla, S. R.; Bardhan, K.; [Madhuprakash](#), J.; Podile, A. R. *Chitosan conjugates, microspheres, and nanoparticles with potential agrochemical activity*, In: Prasad, M. N. V. (Ed.), *Agrochemicals Detection, Treatment and Remediation: Pesticides and Chemical Fertilizers*, Elsevier, 2020; pp 437-464; <https://doi.org/10.1016/b978-0-08-103017-2.00017-9>
- [14] Roesner, J.; Wellmeyer, B.; [Merzendorfer](#), H., *Tribolium castaneum: A Model for Investigating the Mode of Action of Insecticides and Mechanisms of Resistance*, *Curr. Pharm. Des.*, (2020) **26**, 3554-3568; <https://doi.org/10.2174/1381612826666200513113140>
- [15] Ruggeri, M.; Bianchi, E.; Rossi, S.; Vigani, B.; Bonferoni, M. C.; [Caramella](#), C.; Sandri, G.; Ferrari, F., *Nanotechnology-based medical devices for the treatment of chronic skin lesions: from research to the clinic*, *Pharmaceutics*, (2020) **12**, 815; <https://doi.org/10.3390/pharmaceutics12090815>
- [16] Sandri, G.; Rossi, S.; Bonferoni, M. C.; [Caramella](#), C.; Ferrari, F., *Electrospinning Technologies in Wound Dressing Applications*, In: Boateng, J. (Ed.) *Therapeutic Dressings and Wound Healing Applications*, Wiley, (2020); pp 315-336; <https://doi.org/10.1002/9781119433316.ch14>

- [17] [Struszczyk](#), M. H.; Madej-Kielbik, L.; Zielinska, D. *The Application of Chitin and its Derivatives for the Design of Advanced Medical Devices*, In: van den Broek, L.A.M., Boeriu, C. G. (Eds.) *Chitin and Chitosan: Properties and Applications*, Wiley, 2020; pp 291-313; <https://doi.org/10.1002/9781119450467.ch12>
- [18] [Vaaje-Kolstad](#), G.; Tuveng, T. R.; Mekasha, S.; [Eijsink](#), V. G. H. *Enzymes for Modification of Chitin and Chitosan*, Wiley, 2020; pp 189-228; <https://doi.org/10.1002/9781119450467.ch8>
- [19] Vigani, B.; Rossi, S.; Sandri, G.; Bonferoni, M. C.; [Caramella](#), C. M.; Ferrari, F., *Recent advances in the development of in situ gelling drug delivery systems for non-parenteral administration routes*, *Pharmaceutics*, (2020) **12**, 859; <https://doi.org/10.3390/pharmaceutics12090859>
- [20] Wattjes, J.; Sreekumar, S.; Richter, C.; Cord-Landwehr, S.; Singh, R.; El Gueddari, N. E.; [Moerschbacher](#), B. M., *Patterns matter part 1: Chitosan polymers with non-random patterns of acetylation*, *React. Funct. Polym.*, (2020) **151**, 104583; <https://doi.org/10.1016/j.reactfunctpolym.2020.104583>

---

### Research Articles

---

- [21] Agboola, J. O.; Schiavone, M.; Oeverland, M.; Morales-Lange, B.; Lagos, L.; Arntzen, M. O.; Lapena, D.; [Eijsink](#), V. G. H.; Horn, S. J.; Mydland, L. T.; Francois, J. M.; Mercado, L.; Hansen, J. O., *Impact of down-stream processing on functional properties of yeasts and the implications on gut health of Atlantic salmon (Salmo salar)*, *Sci. Rep.*, (2021) **11**, 4496; <https://doi.org/10.1038/s41598-021-83764-2>
- [22] Aksenov, A. S.; Tyshkunova, I. V.; [Poshina](#), D. N.; Guryanova, A. A.; Chukhchin, D. G.; Sinelnikov, I. G.; Terentyev, K. Y.; [Skorik](#), Y. A.; Novozhilov, E. V.; Synitsyn, A. P., *Biocatalysis of industrial kraft pulps: similarities and differences between hardwood and softwood pulps in hydrolysis by enzyme complex of Penicillium verrucosum*, *Catalysts*, (2020) **10**, 536; <https://doi.org/10.3390/catal10050536>
- [23] Arntzen, M. O.; Bengtsson, O.; Varnai, A.; Delogu, F.; Mathiesen, G.; [Eijsink](#), V. G. H., *Quantitative comparison of the biomass-degrading enzyme repertoires of five filamentous fungi*, *Sci. Rep.*, (2020) **10**, 20267; <https://doi.org/10.1038/s41598-020-75217-z>
- [24] Arntzen, M. O.; Pedersen, B.; Oftebro, M.; Antonsen, S. G.; Fredriksen, L.; Horn, S. J.; [Eijsink](#), V. G. H.; Klau, L. J.; Aarstad, O. A.; Aachmann, F. L.; Stokke, R.; Sletta, H., *Alginate Degradation: Insights Obtained through Characterization of a Thermophilic Exolytic Alginate Lyase*, *Appl Environ Microbiol*, (2021) **87**; <https://doi.org/10.1128/AEM.02399-20>
- [25] Askarian, F.; Uchiyama, S.; Masson, H.; Soerensen, H. V.; Golten, O.; Bunaes, A. C.; Mekasha, S.; Roehr, A. K.; Kommedal, E.; Ludviksen, J. A.; Arntzen, M. O.; Schmidt, B.; Zurich, R. H.; van Sorge, N. M.; [Eijsink](#), V. G. H.; Krengel, U.; Mollnes, T. E.; Lewis, N. E.; Nizet, V.; [Vaaje-Kolstad](#), G., *The lytic polysaccharide monoxygenase CbpD promotes Pseudomonas aeruginosa virulence in systemic infection*, *Nat. Commun.*, (2021) **12**, 1230; <https://doi.org/10.1038/s41467-021-21473-0>
- [26] [Attjoui](#), M.; El, G. N. E.; [Moerschbacher](#), B. M.; Gillet, D., *Synergistic antimicrobial effect of chitosan polymers and oligomers*, *Mol Plant Microbe Interact*, (2021); <https://doi.org/10.1094/MPMI-07-20-0185-R>
- [27] [Attjoui](#), M.; Ryan, S.; Ristic, A. K.; Higgins, T.; [Goni](#), O.; Gibney, E.; Tierney, J.; O'Connell, S., *Kinetics and mechanism of  $\alpha$ -glucosidase inhibition by edible brown algae in the management of type 2 diabetes*, *Proc. Nutr. Soc.*, (2020) **79**, E633/631; <https://doi.org/10.1017/S0029665120005820>
- [28] [Attjoui](#), M.; Ryan, S.; Ristic, A. K.; Higgins, T.; [Goni](#), O.; Gibney, E. R.; Tierney, J.; O'Connell, S., *Comparison of edible brown algae extracts for the inhibition of intestinal carbohydrate digestive enzymes involved in glucose release from the diet*, *J. Nutr. Sci.*, (2021) **10**, e5; <https://doi.org/10.1017/jns.2020.56>
- [29] Ayrapetyan, O. N.; Obluchinskaya, E. D.; Zhurishkina, E. V.; [Skorik](#), Y. A.; Lebedev, D. V.; Kulminskaya, A. A.; Lapina, I. M., *Antibacterial Properties of Fucoidans from the Brown Algae Fucus vesiculosus L. of the Barents Sea*, *Biology (Basel)*, (2021) **10**; <https://doi.org/10.3390/biology10010067>
- [30] Badazhkova, V. D.; Raik, S. V.; Polyakov, D. S.; [Poshina](#), D. N.; [Skorik](#), Y. A., *Effect of double substitution in cationic chitosan derivatives on dna transfection efficiency*, *Polymers*, (2020) **12**, 1057; <https://doi.org/10.3390/polym12051057>
- [31] Benettayeb, A.; [Guibal](#), E.; Bhatnagar, A.; Morsli, A.; Kessas, R., *Effective removal of nickel(II) and zinc(II) in mono-compound and binary systems from aqueous solutions by application of alginate-based materials*, *Int. J. Environ. Anal. Chem.*, (2021), Ahead of Print; <https://doi.org/10.1080/03067319.2021.1887164>

- [32] Botta, L.; Saladino, R.; Barghini, P.; [Fenice](#), M.; Pasqualetti, M., *Production and identification of two antifungal terpenoids from the Posidonia oceanica epiphytic Ascomycota Mariannaea humicola IG100*, *Microb. Cell Fact.*, (2020) **19**, 184; <https://doi.org/10.1186/s12934-020-01445-7>
- [33] Calderaro, F.; Keser, M.; Akeroyd, M.; Bevers, L. E.; [Eijssink](#), V. G. H.; Varnai, A.; van den Berg, M. A., *Characterization of an AA9 LPMO from Thielavia australiensis, TausLPMO9B, under industrially relevant lignocellulose saccharification conditions*, *Biotechnol. Biofuels*, (2020) **13**, 195; <https://doi.org/10.1186/s13068-020-01836-3>
- [34] Canale-Salazar, I.; Lizardi-Mendoza, J.; Lopez-Franco, Y.; Peniche-Covas, C.; Hernandez, J.; [Goycoolea](#), F. M.; Arguelles-Monal, W., *Synthesis of regioselective chitosan copolymers with  $\beta$ -cyclodextrin and poly(N-isopropyl acrylamide)*, *J. Polym. Res.*, (2020) **27**, 112; <https://doi.org/10.1007/s10965-020-02076-7>
- [35] [Christensen](#), I. A.; [Eijssink](#), V. G. H.; Achmann, F. L.; Courtade, G., *<sup>1</sup>H, <sup>13</sup>C, <sup>15</sup>N resonance assignment of the apo form of the small, chitin-active lytic polysaccharide monoxygenase JdLPMO10A from Jonesia denitrificans*, *Biomol. NMR Assignments*, (2020), Ahead of Print; <https://doi.org/10.1007/s12104-020-09986-z>
- [36] Collado-Gonzalez, M.; Kaur, G.; Gonzalez-Espinosa, Y.; Brooks, R.; [Goycoolea](#), F. M., *Characterisation of the interaction among oil-in-water nanocapsules and mucin*, *Biomimetics*, (2020) **5**, 36; <https://doi.org/10.3390/biomimetics5030036>
- [37] Costa, T. H. F.; Kadic, A.; Chylenski, P.; Varnai, A.; Bengtsson, O.; Liden, G.; [Eijssink](#), V. G. H.; Horn, S. J., *Demonstration-scale enzymatic saccharification of sulfite-pulped spruce with addition of hydrogen peroxide for LPMO activation*, *Biofuels, Bioprod. Biorefin.*, (2020) **14**, 734-745; <https://doi.org/10.1002/bbb.2103>
- [38] Courtade, G.; Ciano, L.; Paradisi, A.; Lindley, P. J.; Forsberg, Z.; Soerlie, M.; Wimmer, R.; Davies, G. J.; [Eijssink](#), V. G. H.; Walton, P. H.; Achmann, F. L., *Mechanistic basis of substrate-O<sub>2</sub> coupling within a chitin-active lytic polysaccharide monoxygenase: an integrated NMR/EPR study*, *Proc. Natl. Acad. Sci. U. S. A.*, (2020) **117**, 19178-19189; <https://doi.org/10.1073/pnas.2004277117>
- [39] Czajkowska-Kosnik, A.; [Szymanska](#), E.; Czarnomysy, R.; Jacyna, J.; Markuszewski, M.; Basa, A.; Winnicka, K., *Nanostructured Lipid Carriers Engineered as Topical Delivery of Etodolac: Optimization and Cytotoxicity Studies*, *Materials*, (2021) **14**; <https://doi.org/10.3390/ma14030596>
- [40] de Oliveira, P. N.; Moussa, A.; Milhau, N.; Bini, R. D.; Prouillac, C.; Oliveira, B. F. d.; Dias, G. S.; Santos, I. A.; Morfin, I.; Sudre, G.; Alcouffe, P.; [Delair](#), T.; Cotica, L. F.; Trombotto, S.; Pin, D.; [David](#), L., *In situ synthesis of Fe<sub>3</sub>O<sub>4</sub> nanoparticles coated by chito-oligosaccharides: physicochemical characterizations and cytotoxicity evaluation for biomedical applications*, *Nanotechnology*, (2020) **31**, 175602; <https://doi.org/10.1088/1361-6528/ab68f9>
- [41] Deyab, M. A.; [Guibal](#), E., *Enhancement of corrosion resistance of the cooling systems in desalination plants by green inhibitor*, *Sci. Rep.*, (2020) **10**, 4812; <https://doi.org/10.1038/s41598-020-61810-9>
- [42] Domenge, O.; Ragot, H.; Deloux, R.; Crepet, A.; Revet, G.; Boitard, S. E.; Simon, A.; Mougnot, N.; [David](#), L.; [Delair](#), T.; Montembault, A.; Agbulut, O., *Efficacy of epicardial implantation of acellular chitosan hydrogels in ischemic and nonischemic heart failure: impact of the acetylation degree of chitosan*, *Acta Biomater.*, (2021) **119**, 125-139; <https://doi.org/10.1016/j.actbio.2020.10.045>
- [43] Dominguez-Robles, J.; Mancinelli, C.; Mancuso, E.; Garcia-Romero, I.; Gilmore, B. F.; [Casettari](#), L.; Larraneta, E.; Lamprou, D. A., *3D Printing of Drug-Loaded Thermoplastic Polyurethane Meshes: A Potential Material for Soft Tissue Reinforcement in Vaginal Surgery*, *Pharmaceutics*, (2020) **12**; <https://doi.org/10.3390/pharmaceutics12010063>
- [44] Draget, K. I.; [Christensen](#), B. E., *In memory of Professor Kjell M. Varum*, *React. Funct. Polym.*, (2020) **156**, 104712; <https://doi.org/10.1016/j.reactfunctpolym.2020.104712>
- [45] Dresvyanina, E. N.; Grebennikov, S. F.; Elokhovskii, V. Y.; Dobrovolskaya, I. P.; Ivan'kova, E. M.; Yudin, V. E.; [Hepppe](#), K.; Morganti, P., *Thermodynamics of interaction between water and the composite films based on chitosan and chitin nanofibrils*, *Carbohydr. Polym.*, (2020) **245**, 116552; <https://doi.org/10.1016/j.carbpol.2020.116552>
- [46] Dubashynskaya, N. V.; Golovkin, A. S.; Kudryavtsev, I. V.; Prikhodko, S. S.; Trulioff, A. S.; Bokaty, A. N.; [Poshina](#), D. N.; Raik, S. V.; [Skorik](#), Y. A., *Mucoadhesive cholesterol-chitosan self-assembled particles for topical ocular delivery of dexamethasone*, *Int. J. Biol. Macromol.*, (2020) **158**, 811-818; <https://doi.org/10.1016/j.ijbiomac.2020.04.251>



- [47] Elmowafy, E.; Soliman, M. E.; El-Derany, M. O.; Biondo, F.; Tiboni, M.; [Casettari, L.](#), *Quercetin Loaded Monolaurate Sugar Esters-Based Niosomes: Sustained Release and Mutual Antioxidant-Hepatoprotective Interplay*, *Pharmaceutics*, (2020) **12**; <https://doi.org/10.3390/pharmaceutics12020143>
- [48] Elwakeel, K. Z.; Al-Bogami, A. S.; [Guibal, E.](#), *2-Mercaptobenzimidazole derivative of chitosan for silver sorption - Contribution of magnetite incorporation and sonication effects on enhanced metal recovery*, *Chem. Eng. J.*, (2021) **403**, 126265; <https://doi.org/10.1016/j.cej.2020.126265>
- [49] Elwakeel, K. Z.; Elgarahy, A. M.; [Guibal, E.](#), *A biogenic tunable sorbent produced from upcycling of aquatic biota-based materials functionalized with methylene blue dye for the removal of chromium(VI) ions*, *J. Environ. Chem. Eng.*, (2021) **9**, 104767; <https://doi.org/10.1016/j.jece.2020.104767>
- [50] Elwakeel, K. Z.; Hamza, M. F.; [Guibal, E.](#), *Effect of agitation mode (mechanical, ultrasound and microwave) on uranium sorption using amine- and dithione-functionalized magnetic chitosan hybrid materials*, *Chem. Eng. J.*, (2021) **411**, 128553; <https://doi.org/10.1016/j.cej.2021.128553>
- [51] Elwakeel, K. Z.; Shahat, A.; Khan, Z. A.; Alshitari, W.; [Guibal, E.](#), *Magnetic metal oxide-organic framework material for ultrasonic-assisted sorption of titan yellow and rose bengal from aqueous solutions*, *Chem. Eng. J.*, (2020) **392**, 123635; <https://doi.org/10.1016/j.cej.2019.123635>
- [52] Forsberg, Z.; Stepnov, A. A.; Naerdal, G. K.; Klinkenberg, G.; [Eijsink, V. G. H.](#), *Engineering lytic polysaccharide monoxygenases (LPMOs)*, *Methods Enzymol.*, (2020) **644**, 1-34; <https://doi.org/10.1016/bs.mie.2020.04.052>
- [53] Galhoum, A. A.; Eisa, W. H.; El-Tantawy El-Sayed, I.; Tolba, A. A.; Shalaby, Z. M.; Mohamady, S. I.; Muhammad, S. S.; Hussien, S. S.; Akashi, T.; [Guibal, E.](#), *A new route for manufacturing poly(aminophosphonic)-functionalized poly(glycidyl methacrylate)-magnetic nanocomposite - Application to uranium sorption from ore leachate*, *Environ. Pollut. (Oxford, U. K.)*, (2020) **264**, 114797; <https://doi.org/10.1016/j.envpol.2020.114797>
- [54] Gasilova, E. R.; Lapina, I. M.; Kulminskaya, A. A.; [Skorik, Y. A.](#), *Branched architecture of fucoidan characterized by dynamic and static light scattering*, *Colloid Polym. Sci.*, (2020) **298**, 1349-1359; <https://doi.org/10.1007/s00396-020-04706-4>
- [55] Gockel, L. M.; Heyes, M.; Li, H.; Al Nahain, A.; [Gorzalanny, C.](#); Schlesinger, M.; Holdenrieder, S.; Li, J.-P.; Ferro, V.; Bendas, G., *Inhibition of Tumor-Host Cell Interactions Using Synthetic Heparin Mimetics*, *ACS Appl. Mater. Interfaces*, (2021) **13**, 7080-7093; <https://doi.org/10.1021/acsami.0c20744>
- [56] Golikov, A.; Malakhova, I.; Privar, Y.; Parotkina, Y.; [Bratskaya, S.](#), *Extended rate constant distribution model for sorption in heterogeneous systems: From batch to fixed-bed application and predictive modeling*, *Ind. Eng. Chem. Res.*, (2020) **59**, 19415-19425; <https://doi.org/10.1021/acs.iecr.0c03516>
- [57] Gopalakrishnan, S.; Srinivas, V.; Naresh, N.; Pratyusha, S.; Ankati, S.; [Madhuprakash, J.](#); Govindaraj, M.; Sharma, R., *Deciphering the antagonistic effect of *Streptomyces* spp. and host-plant resistance induction against charcoal rot of sorghum*, *Planta*, (2021) **253**, 57; <https://doi.org/10.1007/s00425-021-03577-5>
- [58] Gorrasi, S.; Franzetti, A.; Ambrosini, R.; Pittino, F.; Pasqualetti, M.; [Fenice, M.](#), *Spatio-temporal variation of the bacterial communities along a salinity gradient within a thalassohaline environment (Saline di Tarquinia Salterns, Italy)*, *Molecules*, (2021) **26**, 1338; <https://doi.org/10.3390/molecules26051338>
- [59] Gorrasi, S.; Pasqualetti, M.; Franzetti, A.; Pittino, F.; [Fenice, M.](#), *Vibrio communities along a salinity gradient within a marine saltern hypersaline environment (Saline di Tarquinia, Italy)*, *Environ. Microbiol.*, (2020) **22**, 4356-4366; <https://doi.org/10.1111/1462-2920.15041>
- [60] Gorzedowski, J.; Smiglak, M.; [Struszczyk, M. H.](#); Puchalski, M.; Krucinska, I., *Chitin fibre formation by the solution blow spinning method, using 1-butyl-3-methylimidazolium acetate ionic liquid as a solvent*, *Fibres Text. East. Eur.*, (2020) **28**, 42-48; <https://doi.org/10.5604/01.3001.0014.0932>
- [61] Gottesmann, M.; [Goycoolea, F. M.](#); Steinbacher, T.; Menogni, T.; Hensel, A., *Smart drug delivery against *Helicobacter pylori*: pectin-coated, mucoadhesive liposomes with antiadhesive activity and antibiotic cargo*, *Appl. Microbiol. Biotechnol.*, (2020) **104**, 5943-5957; <https://doi.org/10.1007/s00253-020-10647-3>
- [62] Hamza, M. F.; Mubark, A. E.; Wei, Y.; Vincent, T.; [Guibal, E.](#), *Quaternization of composite algal/PEI beads for enhanced uranium sorption-application to ore acidic leachate*, *Gels*, (2020) **6**, 12; <https://doi.org/10.3390/gels6020012>

- [63] Hamza, M. F.; Salih, K. A. M.; Abdel-Rahman, A. A. H.; Zayed, Y. E.; Wei, Y.; Liang, J.; [Guibal](#), E., *Sulfonic-functionalized algal/PEI beads for scandium, cerium and holmium sorption from aqueous solutions (synthetic and industrial samples)*, *Chem. Eng. J.*, (2021) **403**, 126399; <https://doi.org/10.1016/j.cej.2020.126399>
- [64] Hamza, M. F.; Wei, Y.; [Guibal](#), E., *Quaternization of algal/PEI beads (a new sorbent): Characterization and application to scandium sorption from aqueous solutions*, *Chem. Eng. J.*, (2020) **383**, 123210; <https://doi.org/10.1016/j.cej.2019.123210>
- [65] Harmsen, R. A. G.; Aam, B. B.; [Madhuprakash](#), J.; Hamre, A. G.; Goddard-Borger, E. D.; Withers, S. G.; [Eijssink](#), V. G. H.; Soerlie, M., *Chemoenzymatic Synthesis of Chito-oligosaccharides with Alternating N-D-Acetylglucosamine and D-Glucosamine*, *Biochemistry*, (2020) **59**, 4581-4590; <https://doi.org/10.1021/acs.biochem.0c00839>
- [66] Hassanein, T. F.; Masoud, A. M.; Mohamed, W. S.; Taha, M. H.; [Guibal](#), E., *Synthesis of polyamide 6/nano-hydroxyapatite hybrid (PA6/n-HAp) for the sorption of rare earth elements and uranium*, *J. Environ. Chem. Eng.*, (2021) **9**, 104731; <https://doi.org/10.1016/j.jece.2020.104731>
- [67] Iudin, D.; Zashikhina, N.; Demyanova, E.; Korzhikov-Vlakh, V.; Shcherbakova, E.; Boroznjak, R.; Tarasenko, I.; Zakharova, N.; Lavrentieva, A.; [Skorik](#), Y.; Korzhikova-Vlakh, E., *Polypeptide self-assembled nanoparticles as delivery systems for polymyxins B and E*, *Pharmaceutics*, (2020) **12**, 868; <https://doi.org/10.3390/pharmaceutics12090868>
- [68] Jitprasertwong, P.; Khamphio, M.; Petsrichuang, P.; [Eijssink](#), V. G. H.; Poolsri, W.; Muanprasat, C.; Rangnoi, K.; Yamabhai, M., *Anti-inflammatory activity of soluble chito-oligosaccharides (CHOS) on VitD3-induced human THP-1 monocytes*, *PLoS One*, (2021) **16**, e0246381; <https://doi.org/10.1371/journal.pone.0246381>
- [69] John, A.; Guenes, C.; Bolenz, C.; Vidal-y-Sy, S.; Bauer, A. T.; Schneider, S. W.; [Gorzelanny](#), C., *Bladder cancer-derived interleukin-1 converts the vascular endothelium into a pro-inflammatory and pro-coagulatory surface*, *BMC Cancer*, (2020) **20**, 1178; <https://doi.org/10.1186/s12885-020-07548-z>
- [70] John, A.; Robador, J. R.; Vidal-y-Sy, S.; Houdek, P.; Wladykowski, E.; Guenes, C.; Bolenz, C.; Schneider, S. W.; Bauer, A. T.; [Gorzelanny](#), C., *Urothelial carcinoma of the bladder induces endothelial cell activation and hypercoagulation*, *Mol. Cancer Res.*, (2020) **18**, 1099-1109; <https://doi.org/10.1158/1541-7786.mcr-19-1041>
- [71] Kadic, A.; Varnai, A.; [Eijssink](#), V. G. H.; Horn, S. J.; Liden, G., *situ measurements of oxidation-reduction potential and hydrogen peroxide concentration as tools for revealing LPMO inactivation during enzymatic saccharification of cellulose*, *Biotechnology for Biofuels*, (2021) **14**, 46; <https://doi.org/10.1186/s13068-021-01894-1>
- [72] Kolonko, A. K.; Bangel-Ruland, N.; [Goycoolea](#), F. M.; Weber, W.-M., *Chitosan nanocomplexes for the delivery of ENaC antisense oligonucleotides to airway epithelial cells*, *Biomolecules*, (2020) **10**, 553; <https://doi.org/10.3390/biom10040553>
- [73] Kolonko, A. K.; Efung, J.; Gonzalez-Espinosa, Y.; Bangel-Ruland, N.; Driessche, W. v.; [Goycoolea](#), F. M.; Weber, W.-M., *Capsaicin-loaded chitosan nanocapsules for wtCFTR-mRNA delivery to a cystic fibrosis cell line*, *Biomedicines*, (2020) **8**, 364; <https://doi.org/10.3390/biomedicines8090364>
- [74] Kont, R.; Bissaro, B.; [Eijssink](#), V. G. H.; Valjamae, P., *Kinetic insights into the peroxygenase activity of cellulose-active lytic polysaccharide monoxygenases (LPMOs)*, *Nat. Commun.*, (2020) **11**, 5786; <https://doi.org/10.1038/s41467-020-19561-8>
- [75] Lall, A.; Tamo, A. K.; Doench, I.; [David](#), L.; de Oliveira, P. N.; [Gorzelanny](#), C.; [Osorio-Madrado](#), A., *Nanoparticles and colloidal hydrogels of chitosan-caseinate polyelectrolyte complexes for drug-controlled release applications*, *Int. J. Mol. Sci.*, (2020) **21**, 5602; <https://doi.org/10.3390/ijms21165602>
- [76] Lapena, D.; Kosa, G.; Hansen, L. D.; Mydland, L. T.; Passoth, V.; Horn, S. J.; [Eijssink](#), V. G. H., *Production and characterization of yeasts grown on media composed of spruce-derived sugars and protein hydrolysates from chicken by-products*, *Microb. Cell Fact.*, (2020) **19**, 19; <https://doi.org/10.1186/s12934-020-1287-6>
- [77] Lemke, P.; [Moerschbacher](#), B. M.; Singh, R., *Transcriptome Analysis of Solanum tuberosum Genotype RH89-039-16 in Response to Chitosan*, *Front Plant Sci.*, (2020) **11**, 1193; <https://doi.org/10.3389/fpls.2020.01193>

- [78] Limon, T.; Birke, A.; Monribot-Villanueva, J. L.; Guerrero-Analco, J. A.; Altuzar-Molina, A.; Carrion, G.; [Goycoolea](#), F. M.; [Moerschbacher](#), B. M.; Aluja, M., *Chitosan coatings reduce fruit fly (Anastrepha obliqua) infestation and development of the fungus Colletotrichum gloeosporioides in Manila mangoes*, *J. Sci. Food Agric.*, (2020), Ahead of Print; <https://doi.org/10.1002/jsfa.10903>
- [79] Liu, H.; [Tegl](#), G.; Nidetzky, B., *Glycosyltransferase Co-Immobilization for Natural Product Glycosylation: Cascade Biosynthesis of the C-Glucoside Nothofagin with Efficient Reuse of Enzymes*, *Adv. Synth. Catal.*, (2021), Ahead of Print; <https://doi.org/10.1002/adsc.202001549>
- [80] Lopez-Moya, F.; [Lopez-Llorca](#), L. V.; Martin-Urdiroz, M.; Oses-Ruiz, M.; Were, V. M.; Littlejohn, G.; Talbot, N. J.; Oses-Ruiz, M.; Were, V. M.; Talbot, N. J.; Fricker, M. D.; Littlejohn, G., *Chitosan inhibits septin-mediated plant infection by the rice blast fungus Magnaporthe oryzae in a protein kinase C and Nox1 NADPH oxidase-dependent manner*, *New Phytol.*, (2021);
- [81] Lozano-Soria, A.; Picciotti, U.; Lopez-Moya, F.; [Lopez-Llorca](#), L. V.; Picciotti, U.; Porcelli, F.; Picciotti, U.; Lopez-Cepero, J., *Volatile Organic Compounds from Entomopathogenic and Nematophagous Fungi, Repel Banana Black Weevil (Cosmopolites sordidus)*, *Insects*, (2020) **11**;
- [82] [Madhuprakash](#), J.; Rani, T. S.; Podile, A. R.; [Eijssink](#), V. G. H.; Soerlie, M., *Thermodynamic insights into the role of aromatic residues in chitoooligosaccharide binding to the transglycosylating chitinase-D from Serratia proteamaculans*, *Biochim. Biophys. Acta, Proteins Proteomics*, (2020) **1868**, 140414; <https://doi.org/10.1016/j.bbapap.2020.140414>
- [83] Malakhova, I.; Golikov, A.; Azarova, Y.; [Bratskaya](#), S., *Extended rate constants distribution (RCD) model for sorption in heterogeneous systems: 2. Importance of diffusion limitations for sorption kinetics on cryogels in batch*, *Gels*, (2020) **6**, 15; <https://doi.org/10.3390/gels6020015>
- [84] Malakhova, I.; Privar, Y.; Parotkina, Y.; Eliseikina, M.; Golikov, A.; Skatova, A.; [Bratskaya](#), S., *Supermacroporous monoliths based on polyethyleneimine: Fabrication and sorption properties under static and dynamic conditions*, *J. Environ. Chem. Eng.*, (2020) **8**, 104395; <https://doi.org/10.1016/j.jece.2020.104395>
- [85] Malakhova, I.; Privar, Y.; Parotkina, Y.; Mironenko, A.; Eliseikina, M.; Balatskiy, D.; Golikov, A.; [Bratskaya](#), S., *Rational design of polyamine-based cryogels for metal ion sorption*, *Molecules*, (2020) **25**, 4801; <https://doi.org/10.3390/molecules25204801>
- [86] [Margoutidis](#), G.; Johns, M. A.; Kerton, F. M., *Dissolution studies of  $\alpha$ -chitin fibers in freezing NaOH(aq)*, *Cellulose (Dordrecht, Neth.)*, (2021) **28**, 1885-1891; <https://doi.org/10.1007/s10570-021-03679-z>
- [87] Marmey, P.; Lebaz, N.; Eissa, M.; [Delair](#), T.; Elaissari, A., *Polystyrene latex particles bearing primary amine groups via soap-free emulsion polymerization*, *Polym. Int.*, (2020) **69**, 1038-1044; <https://doi.org/10.1002/pi.6060>
- [88] Matacchione, G.; Gurau, F.; Silvestrini, A.; Tiboni, M.; Mancini, L.; Valli, D.; Rippo, M. R.; Recchioni, R.; Marcheselli, F.; Carnevali, O.; Procopio, A. D.; [Casettari](#), L.; Olivieri, F., *Anti-SASP and anti-inflammatory activity of resveratrol, curcumin and beta-caryophyllene association on human endothelial and monocytic cells*, *Biogerontology*, (2021); <https://doi.org/10.1007/s10522-021-09915-0>
- [89] Mathiesen, G.; Oeverland, L.; Kuczkowska, K.; [Eijssink](#), V. G. H., *Anchoring of heterologous proteins in multiple Lactobacillus species using anchors derived from Lactobacillus plantarum*, *Sci. Rep.*, (2020), Ahead of Print; <https://doi.org/10.1038/s41598-020-66531-7>
- [90] Mazurkewich, S.; Helland, R.; Mackenzie, A.; [Eijssink](#), V. G. H.; Pope, P. B.; Braenden, G.; Larsbrink, J., *Structural insights of the enzymes from the chitin utilization locus of Flavobacterium johnsoniae*, *Sci. Rep.*, (2020) **10**, 13775; <https://doi.org/10.1038/s41598-020-70749-w>
- [91] Mekasha, S.; Tuveng, T. R.; Askarian, F.; Choudhary, S.; Schmidt-Dannert, C.; Niebisch, A.; Modregger, J.; [Vaaje-Kolstad](#), G.; [Eijssink](#), V. G. H., *A trimodular bacterial enzyme combining hydrolytic activity with oxidative glycosidic bond cleavage efficiently degrades chitin*, *J. Biol. Chem.*, (2020) **295**, 9134-9147; <https://doi.org/10.1074/jbc.ra120.013040>
- [92] Miele, D.; Catenacci, L.; Rossi, S.; Sandri, G.; Sorrenti, M.; Terzi, A.; Giannini, C.; Riva, F.; Ferrari, F.; [Caramella](#), C.; Bonferoni, M. C., *Collagen/PCL Nanofibers electrospun in green solvent by DOE assisted process. An insight into collagen contribution*, *Materials*, (2020) **13**, 4698; <https://doi.org/10.3390/ma13214698>
- [93] Milkova, V.; [Goycoolea](#), F. M., *Encapsulation of caffeine in polysaccharide oil-core nanocapsules*, *Colloid Polym. Sci.*, (2020) **298**, 1035-1041; <https://doi.org/10.1007/s00396-020-04653-0>

- [94] Mingot-Ureta, C.; Lopez-Moya, F.; [Lopez-Llorca](#), L. V., *Isolates of the nematophagous fungus Pochonia chlamydosporia are endophytic in banana roots and promote plant growth*, *Agronomy*, (2020) **10**, 1299; <https://doi.org/10.3390/agronomy10091299>
- [95] Miron-Merida, V. A.; Gonzalez-Espinosa, Y.; Collado-Gonzalez, M.; Gong, Y. Y.; Guo, Y.; [Goycoolea](#), F. M., *Aptamer-target-gold nanoparticle conjugates for the quantification of fumonisin B1*, *Biosensors*, (2021) **11**, 18; <https://doi.org/10.3390/bios11010018>
- [96] Mo, I. V.; Dalheim, M. O.; Aachmann, F. L.; Schatz, C.; [Christensen](#), B. E., *2,5-Anhydro-D-Mannose End-Functionalized Chitin Oligomers Activated by Dioxamines or Dihydrazides as Precursors of Diblock Oligosaccharides*, *Biomacromolecules*, (2020) **21**, 2884-2895; <https://doi.org/10.1021/acs.biomac.0c00620>
- [97] Mo, Y.; Vincent, T.; Faur, C.; [Guibal](#), E., *Se(VI) sorption from aqueous solution using alginate/polyethylenimine membranes: Sorption performance and mechanism*, *Int. J. Biol. Macromol.*, (2020) **147**, 832-843; <https://doi.org/10.1016/j.ijbiomac.2019.10.055>
- [98] Mo, Y.; Zhang, Y.; Vincent, T.; Faur, C.; [Guibal](#), E., *Investigation of mercury(II) and copper(II) sorption in single and binary systems by alginate/polyethylenimine membranes*, *Carbohydr. Polym.*, (2021) **257**, 117588; <https://doi.org/10.1016/j.carbpol.2020.117588>
- [99] [Moerschbacher](#), B. M.; [Jaworska](#), M.; [Peter](#), M. G., *Obituary of George A.F. Roberts (1939-2018)*, *React. Funct. Polym.*, (2020) **156**, 104711; <https://doi.org/10.1016/j.reactfunctpolym.2020.104711>
- [100] Monclaro, A. V.; Petrovic, D. M.; Alves, G. S. C.; Costa, M. M. C.; Midorikawa, G. E. O.; Miller, R. N. G.; Filho, E. X. F.; [Eijnsink](#), V. G. H.; Varnai, A., *Characterization of two family AA9 LPMOs from Aspergillus tamarii with distinct activities on xyloglucan reveals structural differences linked to cleavage specificity*, *PLoS One*, (2020) **15**, e0235642; <https://doi.org/10.1371/journal.pone.0235642>
- [101] Montibus, M.; Vitrac, X.; [Coma](#), V.; Loron, A.; Pinson-Gadais, L.; Ferrer, N.; Verdal-Bonnin, M.-N.; Gabaston, J.; Waffo-Teguo, P.; Richard-Forget, F.; Atanasova, V., *Screening of wood/forest and vine by-products as sources of new drugs for sustainable strategies to control Fusarium graminearum and the production of mycotoxins*, *Molecules*, (2021) **26**, 405; <https://doi.org/10.3390/molecules26020405>
- [102] Morshedy, A. S.; Tawfik, S. M.; Hashem, K. M.; Abd El-Aty, D. M.; Galhoum, A. A.; Mostafa, M. S.; [Guibal](#), E., *The production of clean diesel fuel by facile sun light photocatalytic desulfurization process using Cd-based diacetate as a novel liquid photocatalyst*, *J. Cleaner Prod.*, (2021) **279**, 123629; <https://doi.org/10.1016/j.jclepro.2020.123629>
- [103] Mukherjee, S.; Behera, P. K.; [Madhuprakash](#), J., *Efficient conversion of crystalline chitin to N-acetylglucosamine and N,N'-diacetylchitobiose by the enzyme cocktail produced by Paenibacillus sp. LSI*, *Carbohydr. Polym.*, (2020) **250**, 116889; <https://doi.org/10.1016/j.carbpol.2020.116889>
- [104] Naas, A. E.; MacKenzie, A. K.; Dalhus, B.; [Eijnsink](#), V. G. H.; Pope, P. B., *Author Correction: Structural Features of a Bacteroidetes-Affiliated Cellulase Linked with a Polysaccharide Utilization Locus*, *Sci. Rep.*, (2020) **10**, 6287; <https://doi.org/10.1038/s41598-020-62786-2>
- [105] Nakagawa, Y. S.; Kudo, M.; Onodera, R.; Ang, L. Z. P.; Watanabe, T.; Totani, K.; [Eijnsink](#), V. G. H.; [Vaaje-Kolstad](#), G., *Analysis of Four Chitin-Active Lytic Polysaccharide Monoxygenases from Streptomyces griseus Reveals Functional Variation*, *J. Agric. Food Chem.*, (2020) **68**, 13641-13650; <https://doi.org/10.1021/acs.jafc.0c05319>
- [106] Omwenga, E. O.; [Goycoolea](#), F. M.; Hensel, A.; Shitandi, A., *Antimicrobial, cytotoxicity and preliminary phytochemical determination of commonly used medicinal plants to treat oral cavity, urinary tract and gut infections by inhabitants of Borabu sub-county, Nyamira County, Kenya*, *Malays. J. Microbiol.*, (2020) **16**, 312-322; <https://doi.org/10.21161/mjm.200697>
- [107] Paczkowska, M.; Chanaj-Kaczmarek, J.; Romaniuk-Drapala, A.; Rubis, B.; Szymanowska, D.; Kobus-Cisowska, J.; [Szymanska](#), E.; Winnicka, K.; Cielecka-Piontek, J., *Mucoadhesive chitosan delivery system with Chelidonium herba lyophilized extract as a promising strategy for vaginitis treatment*, *J. Clin. Med.*, (2020) **9**, 1208; <https://doi.org/10.3390/jcm9041208>
- [108] Petrova, V. A.; Golovkin, A. S.; Mishanin, A. I.; Romanov, D. P.; Chernyakov, D. D.; [Poshina](#), D. N.; [Skorik](#), Y. A., *Cytocompatibility of bilayer scaffolds electrospun from chitosan/alginate-chitin nanowhiskers*, *Biomedicines*, (2020) **8**, 305; <https://doi.org/10.3390/biomedicines8090305>

- [109] Petrova, V. A.; Khripunov, A. K.; Golovkin, A. S.; Mishanin, A. I.; Gofman, I. V.; Romanov, D. P.; Migunova, A. V.; Arkharova, N. A.; Klechkovskaya, V. V.; [Skorik](#), Y. A., *Bacterial cellulose (Komagataeibacter rhaeticus) biocomposites and their cytocompatibility*, *Materials*, (2020) **13**, 4558; <https://doi.org/10.3390/ma13204558>
- [110] [Poshina](#), D. N.; Raik, S. V.; Sukhova, A. A.; Tyshkunova, I. V.; Romanov, D. P.; Eneyskaya, E. V.; Kulminskaya, A. A.; [Skorik](#), Y. A., *Nonspecific enzymatic hydrolysis of a highly ordered chitopolysaccharide substrate*, *Carbohydr. Res.*, (2020) **498**, 108191; <https://doi.org/10.1016/j.carres.2020.108191>
- [111] Potas, J.; [Szymanska](#), E.; Basa, A.; Hafner, A.; Winnicka, K., *Tragacanth Gum/Chitosan Polyelectrolyte Complexes-Based Hydrogels Enriched with Xanthan Gum as Promising Materials for Buccal Application*, *Materials (Basel)*, (2020) **14**; <https://doi.org/10.3390/ma14010086>
- [112] Privar, Y.; Shashura, D.; Pestov, A.; Ziatdinov, A.; Azarova, Y.; [Bratskaya](#), S., *Effect of regioselectivity of chitosan carboxyalkylation and type of crosslinking on the metal-chelate sorption properties toward ciprofloxacin*, *React. Funct. Polym.*, (2020) **150**, 104536; <https://doi.org/10.1016/j.reactfunctpolym.2020.104536>
- [113] Qin, X.; Thota, G. K.; Singh, R.; Balamurugan, R.; [Goycoolea](#), F. M., *Synthetic homoserine lactone analogues as antagonists of bacterial quorum sensing*, *Bioorg. Chem.*, (2020) **98**, 103698; <https://doi.org/10.1016/j.bioorg.2020.103698>
- [114] Qin, X.; Vila-Sanjurjo, C.; Singh, R.; Philipp, B.; [Goycoolea](#), F. M., *Screening of bacterial quorum sensing inhibitors in a Vibrio fischeri LuxR-based synthetic fluorescent E. coli biosensor*, *Pharmaceuticals*, (2020) **13**, 263; <https://doi.org/10.3390/ph13090263>
- [115] Raik, S. V.; Gasilova, E. R.; Dubashynskaya, N. V.; Dobrodumov, A. V.; [Skorik](#), Y. A., *Diethylaminoethyl chitosan-hyaluronic acid polyelectrolyte complexes*, *Int. J. Biol. Macromol.*, (2020) **146**, 1161-1168; <https://doi.org/10.1016/j.ijbiomac.2019.10.054>
- [116] Rani, T. S.; [Madhuprakash](#), J.; Podile, A. R., *Chitinase-E from Chitiniphilus shinanonensis generates chitobiose from chitin flakes*, *Int. J. Biol. Macromol.*, (2020) **163**, 1037-1043; <https://doi.org/10.1016/j.ijbiomac.2020.07.052>
- [117] Rashad, M. M.; El-Sayed, I. E.; Galhoum, A. A.; Abdeen, M. M.; Mira, H. I.; Elshehy, E. A.; Zhang, S.; Lu, X.; Xin, J.; [Guibal](#), E., *Synthesis of  $\alpha$ -aminophosphonate based sorbents - Influence of inserted groups (carboxylic vs. amine) on uranyl sorption*, *Chem. Eng. J.*, (2020), Ahead of Print; <https://doi.org/10.1016/j.cej.2020.127830>
- [118] Rathinam, S.; Olafsdottir, S.; Jonsdottir, S.; Hjalmarsdottir, M. A.; [Masson](#), M., *Selective synthesis of N,N,N-trimethylated chitosan derivatives at different degree of substitution and investigation of structure-activity relationship for activity against P. aeruginosa and MRSA*, *Int. J. Biol. Macromol.*, (2020) **160**, 548-557; <https://doi.org/10.1016/j.ijbiomac.2020.05.109>
- [119] Rathinam, S.; Solodova, S.; Kristjansdottir, I.; Hjalmarsdottir, M. A.; [Masson](#), M., *The antibacterial structure-activity relationship for common chitosan derivatives*, *Int. J. Biol. Macromol.*, (2020) **165**, 1686-1693; <https://doi.org/10.1016/j.ijbiomac.2020.09.200>
- [120] Real, D. A.; [Hoffmann](#), S.; Leonardi, D.; [Goycoolea](#), F. M.; Salomon, C. J., *A quality by design approach for optimization of Lecithin/Span 80 based nanoemulsions loaded with hydrophobic drugs*, *J. Mol. Liq.*, (2020), Ahead of Print; <https://doi.org/10.1016/j.molliq.2020.114743>
- [121] Revuelta, J.; [Aranaz](#), I.; Acosta, N.; Civera, C.; Bastida, A.; Pena, N.; Monterrey, D. T.; Doncel-Perez, E.; Garrido, L.; Heras, A.; Garcia-Junceda, E.; Fernandez-Mayoralas, A., *Unraveling the Structural Landscape of Chitosan-Based Heparan Sulfate Mimics Binding to Growth Factors: Deciphering Structural Determinants for Optimal Activity*, *ACS Appl. Mater. Interfaces*, (2020) **12**, 25534-25545; <https://doi.org/10.1021/acsami.0c03074>
- [122] Rizzi, Y. S.; Happel, P.; Lenz, S.; Urs, M. J.; Bonin, M.; Cord-Landwehr, S.; Singh, R.; [Moerschbacher](#), B. M.; Kahmann, R., *Chitosan and Chitin Deacetylase Activity Are Necessary for Development and Virulence of Ustilago maydis*, *mBio*, (2021) **12**; <https://doi.org/10.1128/mBio.03419-20>
- [123] Roesner, J.; Tietmeyer, J.; [Merzendorfer](#), H., *Functional analysis of ABCG and ABCH transporters from the red flour beetle, Tribolium castaneum*, *Pest Manage. Sci.*, (2021), Ahead of Print; <https://doi.org/10.1002/ps.6332>

- [124] [Sahariah](#), P.; Vieira, A. P.; Guiomar, A. J.; Alves, P.; [Masson](#), M., *Utilization of TBDMS chitosan for synthesis of photoactive chitosan derivatives and application in photografting on ophthalmic lens material*, *React. Funct. Polym.*, (2020) **153**, 104600; <https://doi.org/10.1016/j.reactfunctpolym.2020.104600>
- [125] Salih, K. A. M.; Hamza, M. F.; Mira, H.; Wei, Y.; Gao, F.; Atta, A. M.; Fujita, T.; [Guibal](#), E., *Nd(III) and Gd(III) sorption on mesoporous amine-functionalized polymer/SiO<sub>2</sub> composite*, *Molecules*, (2021) **26**, 1049; <https://doi.org/10.3390/molecules26041049>
- [126] Sonin, D.; Pochkaeva, E.; Zhuravskii, S.; Postnov, V.; Korolev, D.; Vasina, L.; Kostina, D.; Mukhametdinova, D.; Zelinskaya, I.; [Skorik](#), Y.; Naumysheva, E.; Malashicheva, A.; Somov, P.; Istomina, M.; Rubanova, N.; Aleksandrov, I.; Vasyutina, M.; Galagudza, M., *Biological safety and biodistribution of chitosan nanoparticles*, *Nanomaterials*, (2020) **10**, 810; <https://doi.org/10.3390/nano10040810>
- [127] Stepanov, A. A.; Forsberg, Z.; Soerlie, M.; Nguyen, G.-S.; Wentzel, A.; Roehr, A. K.; [Eijssink](#), V. G. H., *Unraveling the roles of the reductant and free copper ions in LPMO kinetics*, *Biotechnol. Biofuels*, (2021) **14**, 28; <https://doi.org/10.1186/s13068-021-01879-0>
- [128] Stokke, R.; Reeves, E. P.; Dahle, H.; Fedoy, A. E.; Viflot, T.; Onstad, S. L.; Vulcano, F.; Pedersen, R. B.; [Eijssink](#), V. G. H.; Steen, I. H., *Tailoring Hydrothermal Vent Biodiversity Toward Improved Biodiscovery Using a Novel in situ Enrichment Strategy*, *Frontiers in Microbiology*, (2020) **11**, 249; <https://doi.org/10.3389/fmicb.2020.00249>
- [129] Suarez-Fernandez, M.; Marhuenda-Egea, F. C.; Lopez-Moya, F.; Arnao, M. B.; [Cabrera-Escribano](#), F.; Nueda, M. J.; Gunse, B.; [Lopez-Llorca](#), L. V., *Chitosan Induces Plant Hormones and Defenses in Tomato Root Exudates*, *Front Plant Sci*, (2020) **11**, 572087; <https://doi.org/10.3389/fpls.2020.572087>
- [130] Suarez-Fernandez, M.; Sambles, C.; Lopez-Moya, F.; Nueda, M. J.; Studholme, D. J.; [Lopez-Llorca](#), L. V., *Chitosan modulates Pochonia chlamydosporia gene expression during nematode egg parasitism*, *Environ Microbiol*, (2021); <https://doi.org/10.1111/1462-2920.15408>
- [131] Sukul, M.; [Sahariah](#), P.; Lauzon, H. L.; Borges, J.; [Masson](#), M.; Mano, J. F.; Haugen, H. J.; Reseland, J. E., *in vitro biological response of human osteoblasts in 3D chitosan sponges with controlled degree of deacetylation and molecular weight*, *Carbohydr. Polym.*, (2021) **254**, 117434; <https://doi.org/10.1016/j.carbpol.2020.117434>
- [132] [Szymanska](#), E.; Wos-Latosi, K.; Jacyna, J.; Dabrowska, M.; Potas, J.; Jan Markuszewski, M.; Winnicka, K., *The correlation between physical crosslinking and water-soluble drug release from chitosan-based microparticles*, *Pharmaceutics*, (2020) **12**, 455; <https://doi.org/10.3390/pharmaceutics12050455>
- [133] Taha, M. H.; Masoud, A. M.; Khawassek, Y. M.; Hussein, A. E. M.; Aly, H. F.; [Guibal](#), E., *Cadmium and iron removal from phosphoric acid using commercial resins for purification purpose*, *Environ. Sci. Pollut. Res.*, (2020) **27**, 31278-31288; <https://doi.org/10.1007/s11356-020-09342-7>
- [134] Tamo, A. K.; Doench, I.; Helguera, A. M.; Hoenders, D.; Walther, A.; Madrazo, A. O., *Biodegradation of crystalline cellulose nanofibers by means of enzyme immobilized-alginate beads and microparticles*, *Polymers*, (2020) **12**, 1522; <https://doi.org/10.3390/polym12071522>
- [135] [Tegl](#), G.; Hanson, J.; Chen, H.-M.; Kwan, D. H.; Santana, A. G.; Withers, S. G., *Corrigendum: Facile Formation of  $\beta$ -thioGlcNAc Linkages to Thiol-Containing Sugars, Peptides, and Proteins using a Mutant GH20 Hexosaminidase*, *Angew. Chem., Int. Ed.*, (2020) **59**, 8752; <https://doi.org/10.1002/anie.202001582>
- [136] [Tegl](#), G.; Nidetzky, B., *Leloir glycosyltransferases of natural product C-glycosylation: structure, mechanism and specificity*, *Biochem. Soc. Trans.*, (2020) **48**, 1583-1598; <https://doi.org/10.1042/bst20191140>
- [137] Tiboni, M.; Benedetti, S.; Skouras, A.; Curzi, G.; Perinelli, D. R.; Palmieri, G. F.; [Casettari](#), L., *3D printed microfluidic chip for the preparation of glycyrrhetic acid-loaded ethanolic liposomes*, *Int. J. Pharm.*, (2020) **584**, 119436; <https://doi.org/10.1016/j.ijpharm.2020.119436>
- [138] Tiboni, M.; Campana, R.; Frangipani, E.; [Casettari](#), L., *3D printed clotrimazole intravaginal ring for the treatment of recurrent vaginal candidiasis*, *Int. J. Pharm.*, (2021) **596**, 120290; <https://doi.org/10.1016/j.ijpharm.2021.120290>

- [139] Tiboni, M.; Coppari, S.; [Casettari, L.](#); Guescini, M.; Colomba, M.; Fraternali, D.; Gorassini, A.; Verardo, G.; Ramakrishna, S.; Guidi, L.; Di Giacomo, B.; Mari, M.; Molinaro, R.; Albertini, M. C., *Prunus spinosa Extract Loaded in Biomimetic Nanoparticles Evokes In Vitro Anti-Inflammatory and Wound Healing Activities*, *Nanomaterials (Basel)*, (2020) **11**; <https://doi.org/10.3390/nano11010036>
- [140] Tiboni, M.; Tiboni, M.; Pierro, A.; Del Papa, M.; Sparaventi, S.; Cespi, M.; [Casettari, L.](#), *Microfluidics for nanomedicines manufacturing: An affordable and low-cost 3D printing approach*, *Int. J. Pharm.*, (2021) **599**, 120464; <https://doi.org/10.1016/j.ijpharm.2021.120464>
- [141] Tuveng, T. R.; Jensen, M. S.; Fredriksen, L.; [Vaaje-Kolstad, G.](#); [Eijsink, V. G. H.](#); Forsberg, Z., *A thermostable bacterial lytic polysaccharide monoxygenase with high operational stability in a wide temperature range*, *Biotechnol. Biofuels*, (2020) **13**, 194; <https://doi.org/10.1186/s13068-020-01834-5>
- [142] van Leeuwe, T. M.; Wattjes, J.; Niehues, A.; Forn-Cuni, G.; Geoffrion, N.; Melida, H.; Arentshorst, M.; Molina, A.; Tsang, A.; Meijer, A. H.; [Moerschbacher, B. M.](#); Punt, P. J.; Ram, A. F. J., *A seven-membered cell wall related transglycosylase gene family in Aspergillus niger is relevant for cell wall integrity in cell wall mutants with reduced  $\alpha$ -glucan or galactomannan*, *Cell Surf.*, (2020) **6**, 100039; <https://doi.org/10.1016/j.tcs.2020.100039>
- [143] Vidal, R. R. L.; Desbrieres, J.; Borsali, R.; [Guibal, E.](#), *Oil removal from crude oil-in-saline water emulsions using chitosan as biosorbent*, *Sep. Sci. Technol. (Philadelphia, PA, U. S.)*, (2020) **55**, 835-847; <https://doi.org/10.1080/01496395.2019.1575879>
- [144] Vijaya Kumar, A.; Brezillon, S.; Untereiner, V.; Sockalingum, G. D.; Kumar Katakam, S.; Mohamed, H. T.; Kemper, B.; Greve, B.; Mohr, B.; Ibrahim, S. A.; [Goycoolea, F. M.](#); Kiesel, L.; Pavao, M. S. G.; Motta, J. M.; Goette, M., *HS2ST1-dependent signaling pathways determine breast cancer cell viability, matrix interactions, and invasive behavior*, *Cancer Sci.*, (2020) **111**, 2907-2922; <https://doi.org/10.1111/cas.14539>
- [145] Vila-Sanjurjo, C.; Hembach, L.; Netzer, J.; Remunan-Lopez, C.; Vila-Sanjurjo, A.; [Goycoolea, F. M.](#), *Covalently and ionically, dually crosslinked chitosan nanoparticles block quorum sensing and affect bacterial cell growth on a cell-density dependent manner*, *J. Colloid Interface Sci.*, (2020) **578**, 171-183; <https://doi.org/10.1016/j.jcis.2020.05.075>
- [146] Vincent, T.; Vincent, C.; Dumazert, L.; Otazaghine, B.; Sonnier, R.; [Guibal, E.](#), *Fire behavior of innovative alginate foams*, *Carbohydr. Polym.*, (2020) **250**, 116910; <https://doi.org/10.1016/j.carbpol.2020.116910>
- [147] [von Palubitzki, L.](#); Wang, Y.; [Hoffmann, S.](#); Vidal-y-Sy, S.; Zobiak, B.; Failla, A. V.; Schmage, P.; John, A.; [Osorio-Madrado, A.](#); Bauer, A. T.; Schneider, S. W.; [Goycoolea, F. M.](#); [Gorzalanny, C.](#), *Differences of the tumour cell glycocalyx affect binding of capsaicin-loaded chitosan nanocapsules*, *Sci. Rep.*, (2020) **10**, 22443; <https://doi.org/10.1038/s41598-020-79882-y>
- [148] Vortmann, M.; Stumpf, A. K.; Sgobba, E.; Dirks-Hofmeister, M. E.; Krehenbrink, M.; Wendisch, V. F.; Philipp, B.; [Moerschbacher, B. M.](#), *A bottom-up approach towards a bacterial consortium for the biotechnological conversion of chitin to L-lysine*, *Appl. Microbiol. Biotechnol.*, (2021) **105**, 1547-1561; <https://doi.org/10.1007/s00253-021-11112-5>
- [149] Wang, S.; Xiao, K.; Mo, Y.; Yang, B.; Vincent, T.; Faur, C.; [Guibal, E.](#), *Selenium(VI) and copper(II) adsorption using polyethyleneimine-based resins: Effect of glutaraldehyde crosslinking and storage condition*, *J. Hazard. Mater.*, (2020) **386**, 121637; <https://doi.org/10.1016/j.jhazmat.2019.121637>
- [150] Wattjes, J.; Niehues, A.; [Moerschbacher, B. M.](#), *Robust enzymatic-mass spectrometric fingerprinting analysis of the fraction of acetylation of chitosans*, *Carbohydr. Polym.*, (2020) **231**, 115684; <https://doi.org/10.1016/j.carbpol.2019.115684>
- [151] Wei, Y.; Rakhmatyzy, M.; Salih, K. A. M.; Wang, K.; Hamza, M. F.; [Guibal, E.](#), *Controlled bi-functionalization of silica microbeads through grafting of amidoxime/methacrylic acid for Sr(II) enhanced sorption*, *Chem. Eng. J.*, (2020) **402**, 125220; <https://doi.org/10.1016/j.cej.2020.125220>
- [152] Wei, Y.; Salih, K. A. M.; Rabie, K.; Elwakeel, K. Z.; Zayed, Y. E.; Hamza, M. F.; [Guibal, E.](#), *Development of phosphoryl-functionalized algal-PEI beads for the sorption of Nd(III) and Mo(VI) from aqueous solutions - Application for rare earth recovery from acid leachates*, *Chem. Eng. J.*, (2020), Ahead of Print; <https://doi.org/10.1016/j.cej.2020.127399>
- [153] Westereng, B.; Kracun, S. K.; Leivers, S.; Arntzen, M. O.; Aachmann, F. L.; [Eijsink, V. G. H.](#), *Synthesis of glycoconjugates utilizing the regioselectivity of a lytic polysaccharide monoxygenase*, *Sci. Rep.*, (2020) **10**, 13197; <https://doi.org/10.1038/s41598-020-69951-7>

- [154] Wroblewska, M.; [Szymanska](#), E.; Szekalska, M.; Winnicka, K., *Different types of gel carriers as metronidazole delivery systems to the oral mucosa*, *Polymers*, (2020) **12**, 680; <https://doi.org/10.3390/polym12030680>
- [155] Zaid, O. F.; El-Said, W. A.; Yousif, A. M.; Galhoum, A. A.; Elshehy, E. A.; Ibrahim, I. A.; [Guibal](#), E., *Synthesis of microporous nanocomposite (hollow spheres) for fast detection and removal of As(V) from wastewater*, *Chem. Eng. J.*, (2020) **390**, 124439; <https://doi.org/10.1016/j.cej.2020.124439>
- [156] Zhurishkina, E. V.; Stepanov, S. I.; Ayrapetyan, O. N.; [Skorik](#), Y. A.; Vlasova, E. N.; Kruchina-Bogdanov, I. V.; Lebedev, D. V.; Kulminskaya, A. A.; Lapina, I. M., *The effect of polydisperse fucoidans from Fucus vesiculosus on Hep G2 and Chang liver cells*, *Bioact. Carbohydr. Diet. Fibre*, (2020) **21**, 100209; <https://doi.org/10.1016/j.bcdf.2019.100209>

---

**Patents**

---

- [157] Ceccaldi, C.; Guerry, A.; [Bertaina](#), F. (Bioxis Pharmaceuticals, France), *Subcutaneous chitosan gel modelling*, FR3091995A1, 2020 / WO2020157416A1, 2020.
- [158] Schwarz, S.; Schwarz, D.; [Heppe](#), A. (Leibniz-Institut fuer Polymerforschung Dresden e.V., Germany), *Verfahren zur Herstellung biokompatibler Adsorptionsmittel, biokompatible Adsorptionsmittel und deren Verwendung (Process for the production of biocompatible adsorbents, biocompatible adsorbents and their use)*, DE102018123105A1, 2020.
- [159] [Grisotech SA](#), F., *Method for preparing stabilized and inactivated Saccharomyces cerevisiae cell culture*, CH715559A2, 2020.
- [160] Vincent, T.; [Guibal](#), E. (Institut Mines Telecom, France), *Method for manufacturing a membrane with high percolation power*, FR3095353A1, 2020 / WO2020217029A1, 2020.
- [161] Vincent, T.; [Guibal](#), E., (Institut Mines Telecom, France), *Method for producing an expanded rigid foam with sealed pores*, FR3094372A1, 2020 / WO2020193682A1, 2020.

**Not You ?**  
**Anything missing or incorrect ?**  
Please send a notice to: [Martin.Peter@uni-potsdam.de](mailto:Martin.Peter@uni-potsdam.de). Thank you.



## Books

(Editor's selection from the Internet)

### Synthesis and Applications of Biopolymer Composites.

Díez-Pascual, A. M., Cinelli, P. (Eds.), Special Issue: *International Journal of Molecular Sciences*, MDPI, Basel, 2019, XII, 297 pp.

### Contents

Ana María Díez-Pascual

*Synthesis and Applications of Biopolymer Composites*

Reprinted from: *Int. J. Mol. Sci.* 2019, 20, 2321, doi:10.3390/ijms20092321

Maria-Beatrice Coltelli, Patrizia Cinelli, Vito Gigante, Laura Aliotta, Pierfrancesco Morganti, Luca Panariello and Andrea Lazzeri

*Chitin Nanofibrils in Poly(Lactic Acid) (PLA) Nanocomposites: Dispersion and Thermo-Mechanical Properties*

Reprinted from: *Int. J. Mol. Sci.* 2019, 20, 504, doi:10.3390/ijms20030504

Moritz Koch, Sof'ia Doello, Kirstin Gutekunst and Karl Forchhammer

*PHB is Produced from Glycogen Turn-over during Nitrogen Starvation in Synechocystis sp. PCC 6803*

Reprinted from: *Int. J. Mol. Sci.* 2019, 20, 1942, doi:10.3390/ijms20081942

Laura Aliotta, Vito Gigante, Maria Beatrice Coltelli, Patrizia Cinelli and Andrea Lazzeri

*Evaluation of Mechanical and Interfacial Properties of Bio-Composites Based on Poly(Lactic Acid) with Natural Cellulose Fibers*

Reprinted from: *Int. J. Mol. Sci.* 2019, 20, 960, doi:10.3390/ijms20040960

Maria Cristina Righetti, Patrizia Cinelli, Norma Mallegni, Carlo Andrea Massa, Simona Bronco, Andreas St'abler and Andrea Lazzeri

*Thermal, Mechanical, and Rheological Properties of Biocomposites Made of Poly(lactic acid) and Potato Pulp Powder*

Reprinted from: *Int. J. Mol. Sci.* 2019, 20, 675, doi:10.3390/ijms20030675

Yun Zhao, Bei Liu, Hongwei Bi, Jinjun Yang, Wei Li, Hui Liang, Yue Liang, Zhibin Jia, Shuxin Shi and Minfang Chen

*The Degradation Properties of MgO Whiskers/PLLA Composite In Vitro*

Reprinted from: *Int. J. Mol. Sci.* 2018, 19, 2740, doi:10.3390/ijms19092740

Patrizia Cinelli, Maurizia Seggiani, Norma Mallegni, Vito Gigante and Andrea Lazzeri

*Processability and Degradability of PHA-Based Composites in Terrestrial Environments*

Reprinted from: *Int. J. Mol. Sci.* 2019, 20, 284, doi:10.3390/ijms20020284

Estefan'ia Lid'on S'anchez-Safont, Alex Arrillaga, Jon Anakabe, Luis Cabedo and Jose Gamez-Perez

*Toughness Enhancement of PHBV/TPU/Cellulose Compounds with Reactive Additives for Compostable Injected Parts in Industrial Applications*

Reprinted from: *Int. J. Mol. Sci.* 2018, 19, 2102, doi:10.3390/ijms19072102

J. Vincent Edwards, Krystal Fontenot, Falk Liebner, Nicole Doyle nee Pircher, Alfred D. French and Brian D. Condon

*Structure/Function Analysis of Cotton-Based Peptide-Cellulose Conjugates: Spatiotemporal/Kinetic Assessment of Protease Aerogels Compared to Nanocrystalline and Paper Cellulose*

Reprinted from: *Int. J. Mol. Sci.* 2018, 19, 840, doi:10.3390/ijms19030840

Sanna Siljander, Pasi Keinanen, Anna Raty, Karthik Ram Ramakrishnan, Sampo Tuukkanen, Vesa Kunnari, Ali Harlin, Jyrki Vuorinen and Mikko Kanerva

*Effect of Surfactant Type and Sonication Energy on the Electrical Conductivity Properties of Nanocellulose-CNT Nanocomposite Films*

Reprinted from: *Int. J. Mol. Sci.* 2018, 19, 1819, doi:10.3390/ijms19061819

Elena Manaila, Maria Daniela Stelescu and Gabriela Craciun

*Degradation Studies Realized on Natural Rubber and Plasticized Potato Starch Based Eco-Composites Obtained by Peroxide Cross-Linking*

Reprinted from: *Int. J. Mol. Sci.* 2018, 19, 2862, doi:10.3390/ijms19102862

Faraz Muneer, Eva Johansson, Mikael S. Hedenqvist, Tom'as S. Plivelic and Ramune Kuktaite

*Impact of pH Modification on Protein Polymerization and Structure–Function Relationships in Potato Protein and Wheat Gluten Composites*

Reprinted from: *Int. J. Mol. Sci.* 2019, 20, 58, doi:10.3390/ijms20010058

Qichun Liu, Fang Wang, Zhenggui Gu, Qingyu Ma and Xiao Hu

*Exploring the Structural Transformation Mechanism of Chinese and Thailand Silk Fibroin Fibers and Formic-Acid Fabricated Silk Films*

Reprinted from: *Int. J. Mol. Sci.* 2018, 19, 3309, doi:10.3390/ijms19113309

Su-Kyoung Baek, Sujin Kim and Kyung Bin Song

*Characterization of Ecklonia cava Alginate Films Containing Cinnamon Essential Oils*

Reprinted from: *Int. J. Mol. Sci.* 2018, 19, 3545, doi:10.3390/ijms19113545

Diana Isela Sanchez-Alvarado, Javier Guzm'an-Pantoja, Ulises P'aramo-Garc'ia, Alfredo Maciel-Cerda, Reinaldo David Mart'inez-Orozco and Ricardo Vera-Graziano  
*Morphological Study of Chitosan/Poly (Vinyl Alcohol) Nanofibers Prepared by Electrospinning, Collected on Reticulated Vitreous Carbon*

Reprinted from: *Int. J. Mol. Sci.* 2018, 19, 1718, doi:10.3390/ijms19061718

Na Liang, Shaoping Sun, Xianfeng Gong, Qiang Li, Pengfei Yan and Fude Cui

*Polymeric Micelles Based on Modified Glycol Chitosan for Paclitaxel Delivery: Preparation, Characterization and Evaluation*

Reprinted from: *Int. J. Mol. Sci.* 2018, 19, 1550, doi:10.3390/ijms19061550

Liang Li, Na Liang, Danfeng Wang, Pengfei Yan, Yoshiaki Kawashima, Fude Cui and Shaoping Sun

*Amphiphilic Polymeric Micelles Based on Deoxycholic Acid and Folic Acid Modified Chitosan for the Delivery of Paclitaxel*

Reprinted from: *Int. J. Mol. Sci.* 2018, 19, 3132, doi:10.3390/ijms19103132

Shaoyun Chen, Min Xiao, Luyi Sun and Yuezhong Meng

*Study on Thermal Decomposition Behaviors of Terpolymers of Carbon Dioxide, Propylene Oxide, and Cyclohexene Oxide*

Reprinted from: *Int. J. Mol. Sci.* 2018, 19, 3723, doi:10.3390/ijms19123723

Dongmei Han, Guiji Chen, Min Xiao, Shuanjin Wang, Shou Chen, Xiaohua Peng and Yuezhong Meng

*Biodegradable and Toughened Composite of Poly(Propylene Carbonate)/Thermoplastic Polyurethane (PPC/TPU): Effect of Hydrogen Bonding*

Reprinted from: *Int. J. Mol. Sci.* 2018, 19, 2032, doi:10.3390/ijms19072032

Serena Danti, Luisa Trombi, Alessandra Fusco, Bahareh Azimi, Andrea Lazzeri, Pierfrancesco Morganti, Maria-Beatrice Coltelli and Giovanna Donnarumma

*Chitin Nanofibrils and Nanolignin as Functional Agents in Skin Regeneration*

Reprinted from: *Int. J. Mol. Sci.* 2019, 20, 2669, doi:10.3390/ijms20112669

### **Functional Chitosan: Drug Delivery and Biomedical Applications**

Jana, S., Jana, S. (Eds.),

Springer Nature Singapore (2019), XII, 489 pp., ISBN 978-981-15-0262-0; ISBN 978-981-15-0263-7 (eBook), <https://doi.org/10.1007/978-981-15-0263-7>

### **Contents**

- 1 Chitosan and Its Derivatives: A New Versatile Biopolymer for Various Applications  
Deepali Rahangdale, Neha Joshi, and Anupama Kumar
- 2 Application of Chitosan in Oral Drug Delivery  
Reza Baradaran Eftekhari, Niloufar Maghsoudnia, Shabnam Samimi, and Farid Abedin Dorkoosh
- 3 Transdermal Delivery of Chitosan-Based Systems  
Arshiya Praveen and Mohd Aqil
- 4 Chitosan-Based Ocular Drug Delivery Systems  
Subramanian Natesan, Venkateshwaran Krishnaswami, Saranya Thekkila Veedu, Dhilin Pathayappurakkal Mohanan, K. Ruckmani, and Rajaguru Palanichamy
- 5 Functional Chitosan Carriers for Oral Colon-Specific Drug Delivery  
Nafisah Musa and Tin Wui Wong
- 6 Chitosan-Based Hydrogels for Drug Delivery  
Michelly Cristina Galdioli Pellá, Hugo Henrique Carline de Lima, Andrelson Wellington Rinaldi, André Ricardo Fajardo, Ernandes Taveira Tenório-Neto, Marcos Rogério Guilherme, Adley Forti Rubira, and Michele Karoline Lima-Tenório
- 7 Recent Advances in Chitosan-Based Systems for Delivery of Anticancer Drugs  
Mehmet Polat and Hurriyet Polat
- 8 Chitosan-Based Systems for Gene Delivery  
Divya Sharma, Sanjay Arora, Bruna dos Santos Rodrigues, Sushant Lakkadwala, Amrita Banerjee, and Jagdish Singh
- 9 Chitosan-Based Interpenetrating Polymer Networks: Drug Delivery Application  
Sougata Jana, Arijit Gandhi, and Kalyan Kumar Sen
- 10 Chitosan-Based Systems in Tissue Engineering  
M. Azeera, S. Vaidevi, J. Kumar, A. Shanmugarathinam, and K. Ruckmani
- 11 Chitosan-Based Nanoformulation as Carriers of Small Molecules for Tissue Regeneration  
Shoba Narayan
- 12 Chitosan-Based Systems for Theranostic Applications  
V. Balan, S. Malihin, and Liliana Verestiuc

## 13 Grafted Chitosan Systems for Biomedical Applications

S. Dhanavel, Sheril Ann Mathew, and A. Stephen

## 14 Chitosan-Based Systems for Controlled Delivery of Antimicrobial Peptides for Biomedical Application

Viorica Patrulea, Islem Younes, Olivier Jordan, and Gerrit Borchard

## 15 Antibacterial Activity of Chitosan-Based Systems

Hüsnügül Yilmaz Atay

**Chitin- and Chitosan-Based Biocomposites for Food Packaging Applications**Jacob, J., Loganathan, S., Thomas, S. (Eds.), CRC Press / Taylor & Francis, Boca Raton, 2020, XXIV, 98 pp. ISBN 9780429299605 (e-book); <https://doi.org/10.1201/9780429299605>**Contents**

## An Overview of Biopolymers from Natural Resources

Marcia R. de Moura, Fauze A. Aouada

## Fabrication of Bionanocomposites from Chitin

Seema A. Kulkarni, V. Dharini, S. Periyar Selvam, M. Mahesh Kumar, Emmanuel Rotimi Sadiku, J. Jayaramudu, Upendra Nath Gupta

## Fabrication of Bionanocomposites from Chitosan, Preparation to Applications

Anuradha Biswal, Sarat K. Swain

## Thermal and Mechanical Studies for Chitin and Chitosan Bionanocomposites

Wen Shyang Chow

## Barrier, Degradation, and Cytotoxicity Studies for Chitin-Chitosan Bionanocomposites

Aseel T. Issa, Reza Tahergorabi

## Chitin- and Chitosan-Based Bionanocomposites for Active Packaging

Maria Rapa, Cornelia Vasile

## A Theoretical Approach to Chitin- and Chitosan-Based Bionanocomposites

K. P. Sajsha

## Novel Approaches for Chitin/Chitosan Composites in the Packaging Industry

Victor Gomes Lauriano Souza, João Ricardo Afonso Pires, Carolina Rodrigues, Isabel Coelho, Ana Luisa Fernando

**The Fungal Cell Wall: An Armour and a Weapon for Human Fungal Pathogens**Latgé, J.-P. (Ed.), Current Topics in Microbiology and Immunology, Vol. 425, Springer Nature Switzerland, Cham, 2020, X, 369 pp.; ISSN 0070-217X, ISSN 2196-9965 (electronic); <https://doi.org/10.1007/978-3-030-49928-0>**Contents**

## Synthetic Oligosaccharides Mimicking Fungal Cell Wall Polysaccharides . . . . .

Vadim B. Krylov and Nikolay E. Nifantiev

## Aspergillus fumigatus DHN-Melanin . . . . .

Georgios Chamilos and Agostinho Carvalho

## Hydrophobin Rodlets on the Fungal Cell Wall. . . . .

Sarah R. Ball, Ann H. Kwan, and Margaret Sunde

- $\alpha$ - and  $\beta$ -1,3-Glucan Synthesis and Remodeling . . . . .  
Johannes Wagener, Kristina Striegler, and Nikola Wagener
- Chitin: A “Hidden Figure” in the Fungal Cell Wall . . . . .  
Hannah E. Brown, Shannon K. Esher, and J. Andrew Alspaugh
- Control of Actin and Calcium for Chitin Synthase Delivery to the Hyphal  
Tip of *Aspergillus* . . . . .  
Norio Takeshita
- Glucanases and Chitinases . . . . .  
César Roncero and Carlos R. Vázquez de Aldana
- GPI Anchored Proteins in *Aspergillus fumigatus* and Cell Wall Morphogenesis  
Marketa Samalova, Paul Carr, Mike Bromley, Michael Blatzer,  
Maryse Moya-Nilges, Jean-Paul Latgé, and Isabelle Mouyna
- PAMPs of the Fungal Cell Wall and Mammalian PRRs . . . . .  
Remi Hatinguais, Janet A. Willment, and Gordon D. Brown
- Exopolysaccharides and Biofilms . . . . .  
François Le Mauff
- Cell Wall-Modifying Antifungal Drugs . . . . .  
David S. Perlin
- Mitochondrial Control of Fungal Cell Walls: Models and Relevance  
in Fungal Pathogens . . . . .  
Barbara Koch and Ana Traven
- Impact of the Environment upon the *Candida albicans* Cell Wall and  
Resultant Effects upon Immune Surveillance. . . . .  
Delma S. Childers, Gabriela M. Avelar, Judith M. Bain,  
Daniel E. Larcombe, Arnab Pradhan, Susan Budge, Helen Heaney, and  
Alistair J. P. Brown
- Revisiting Old Questions and New Approaches to Investigate the Fungal  
Cell Wall Construction . . . . .  
Michael Blatzer, Anne Beauvais, Bernard Henrissat, and Jean-Paul Latgé
-