2023 June 1st

CCC SYMPOSIUM

abstract booklet

Groningen

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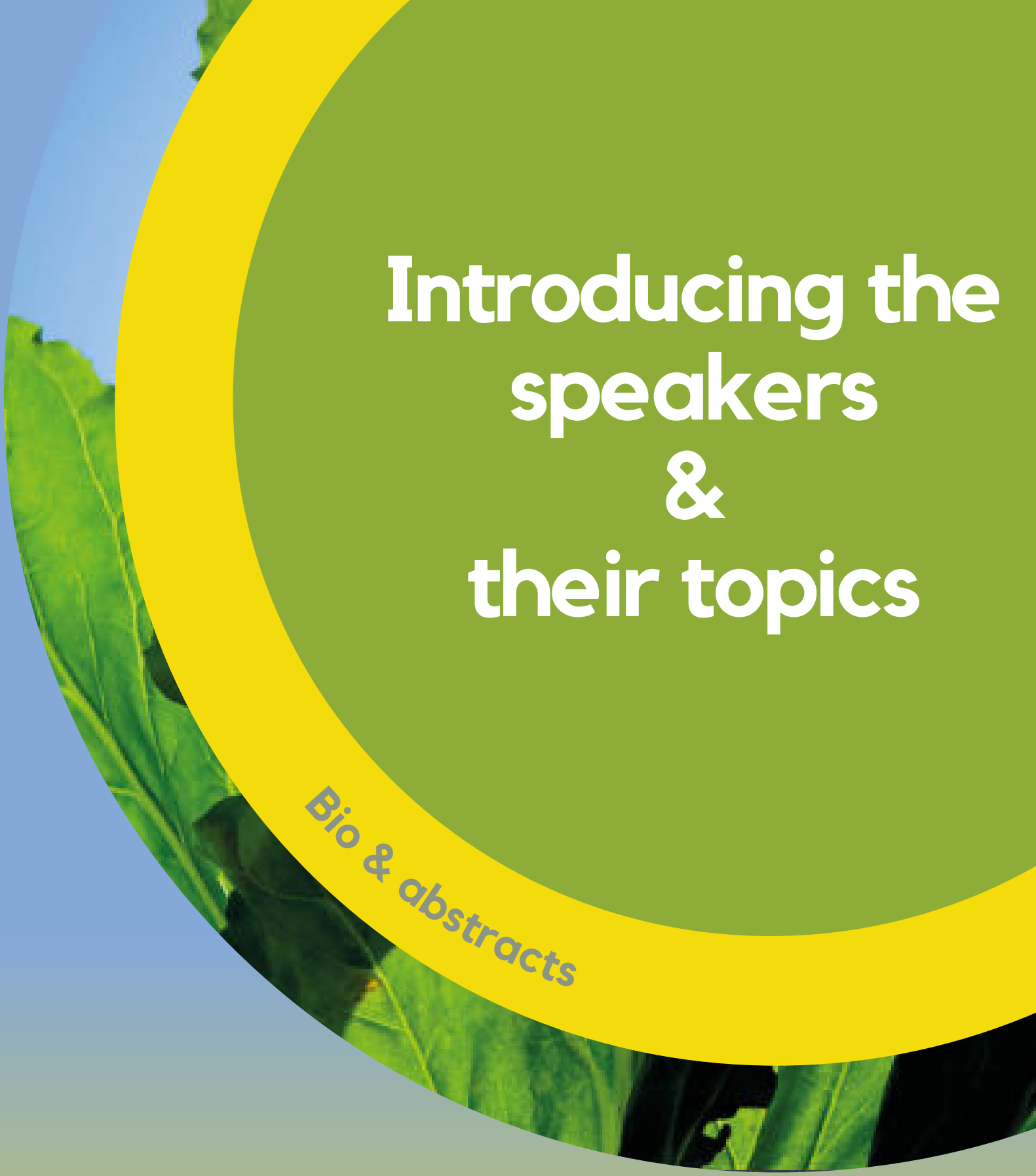
Program

10.00 - 10.30	**Registration, coffee & tea**
10.30 - 10.45	Welcome by Prof. dr. **Henk Schols** (CCC)
10.45 - 11:25	Prof. dr. **Iris Sommer** (UMCG) *Nutritional Psychiatry; an apple a day keeps the psychiatrist away?*
11.25 - 11.45	Dr. ir. **Sonja de Vries** (CCC PhD 2014 – WUR Animal Nutrition) *Insights in passage and degradation kinetics of carbohydrates in the digestive tract of pigs.*
11.45 - 12.05	Dr. **Lingmin Tian** (CCC PhD 2016 – Jinan University, Guangzhou, China) *Interactions between pectin and other dietary components: Effects on fermentation patterns.*
12.05 - 12.15	**Poster pitches**
12.15 - 13.00	**Poster session and networking**
13.00 - 14.05	**Lunch break**
14.05 - 14.20	**Marian Geluk** (Executive Director, Next Food Collective) *Introducing Next Food Collective.*
14.20 - 15.00	Prof. dr. **Bjørn E. Christensen** (Norwegian Uni. of Science and Technology) *Alginates: structure, properties and novel applications.*
15.00 - 15.10	**Poster pitches**
15.10 - 16.00	**Poster session and networking**
16.00 - 16.20	Dr. **Neha Sahasrabudhe** (CCC PhD 2016– Delft University of Technology) *Innovation and learning, every step of the way.*
16.20 - 16.35	**Rudy Rabbinge** hands over the **best poster award.**
16.35 - 16.45	Closing Remarks Prof. dr. **Gert-Jan Euverink** (CCC)
16.45	**Drinks**



Introducing the speakers & their topics

Bio & abstracts

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PROF. DR. **IRIS SOMMER** (UMCG)

Nutritional Psychiatry; an apple a day keeps the psychiatrist away

Bio

Iris Sommer , psychiatrist and neuroscientist, works at the University Medical Center in Groningen (Netherlands). Her main aim is to improve diagnosis and treatment for people with complex brain disorders, in particular for those with schizophrenia. Her current work focusses on three main topics: brain-gut axis, including nutritional psychiatry, optimal care for women with psychosis and the use of quantitative speech markers to predict important clinical events. She performs these studies with her fantastic team of some 25 bright PhD students and post-docs. Iris wrote several popular scientific books, from which two became national best-sellers.
Iris is a member of the Royal Holland Academy of Science. In 2021 she was appointed distinguished Lorentz fellow at the Netherlands Institute for Advanced Sciences (NIAS) and in 2022 she won the Dutch price for Science and Society.

Abstract

Psychiatric and gastro-intestinal complaints are strongly associated, both intra-individually, over time and between individuals. A healthy gut has great promises for strong mental health. I will show deviations in microbiome and gut barrier function in people with psychiatric disorders and discuss the potential of probiotics, prebiotics and nutritional interventions for this group.

DR. IR. **SONJA DE VRIES** (WUR)

Insights in passage and degradation kinetics of carbohydrates in the digestive tract of pigs.

Bio

As Associate Professor at the Animal Nutrition Group of Wageningen University & Research, Sonja leads research projects and teaches topics in the field of digestive physiology and quantitative nutrition of monogastric animals, including digestion kinetics, processing and enzyme technologies, and nutritional modelling, with special emphasis on dietary fibres and fibre rich ingredients.

Sonja obtained her BSc and MSc degrees in Animal Sciences and PhD degree in Animal Nutrition at Wageningen University & Research, The Netherlands. Her PhD research, funded within the framework of the CCC-1 programme, focused on the degradation of fibres in pigs and poultry. Since then, she has been working on the nutritional characterization of fibre-rich ingredients and our understanding of their fate in the digestive tract of animals, with the aim to increase the use of agricultural by-products in animal feed. First at the Ingredient Research Centre of Trouw Nutrition R&D and since 2015 at the Animal Nutrition Group of Wageningen University & Research.

Abstract

To evaluate the nutritional value of diets, it is essential to estimate the quantity of nutrients that are absorbed and thus become available to the animal for metabolism. The fate of nutrients in the gastrointestinal tract is determined by intrinsic nutrient properties, their embedding within the feed matrix, and physicochemical properties of the complete diet. Particularly fibres may considerably interfere with the digestion and absorption of other nutrients through their effects on physicochemical properties of the digesta, thereby influencing a.o. nutrient accessibility, bulking properties, microbial activity, gut physiology and function, endogenous secretions, and flow of digesta through the gastrointestinal tract. During this talk, I will discuss the effects of different types of fibres on digesta passage kinetics in pigs and the consequences for fibre and nutrient degradation kinetics. Furthermore, intrinsic and matrix properties affecting starch digestion and fermentation along the gastrointestinal tract will be discussed.

DR. **LINGMIN TIAN** (JINAN UNIVERSITY, GUANGZHOU)

Interactions between pectin and other dietary components: Effects on fermentation patterns.

Bio

Lingmin Tian is an Associate Professor in the Department of Food Science and Engineering at Jinan University in Guangzhou, China. He holds a PhD degree from the Laboratory of Food Chemistry at Wageningen University, where he conducted his research under the guidance of Henk Schols and Harry Gruppen. His doctoral project, supported by CCC, was completed in 2016. Afterward, he returned to China to establish his own research team, which specializes in investigating the structure-function relationships of food carbohydrates, with a specific focus on gut health.

Abstract

The nutritional quality of foods is influenced by the food matrix, which in turn affects their metabolism through interactions with the gut microbiota. The interactions between DF and other components of food can impact digestion patterns and alter substrates available for colonic microbiota. In my PhD project (CCC WP24), we found that all pectins underwent rapid fermentation, leading to a shift in the fermentation of other consumed DF (e.g. cereal AXs) towards the more distal part of the colon in rats and pigs. To better understand the competition between pectins and AXs, we used them as sole carbon sources to study their fermentation patterns in vitro. Furthermore, we also studied the interaction between pectin and polyphenol (anthocyanin), and the consequent influence of the interactions on fermentation patterns of the complex.

MARIAN GELUK (NEXT FOOD COLLECTIVE)

Introducing Next Food Collective

Bio

Marian Geluk is an accomplished professional with over three decades of experience in the agri-food sector. As the Executive Director at Next Food Collective, Marian leads the mission of delivering tangible change in the Dutch agri-food industry, focusing on nutritious food and sustainable food systems. With a passion for collaboration and innovation, Marian is looking forward to connect to people across the food value chains, with the Partners of Next Food Collective and beyond, to create and facilitate programs at a scale that will deliver on selected key transitions in food and agri.

Abstract

Next Food Collective emerged from a merger of TiFN, the Protein Competence Center (PCC), the Carbohydrate Competence Center (CCC), and the Sustainable Food Initiative (SFI). The mission of Next Food Collective is to accelerate the pace of sustainable and healthy food innovation. Bringing together multinationals, small and medium size enterprises and knowledge institutes, Next Food Collective will provide a new impulse to public-private partnerships in the agri-food domain. This new collaboration will enable its participants to translate sustainable and healthy food innovations more efficiently to products, services and/or policies and will coordinate large national and international funding applications.

CARBOHYDRATE COMPETENCE CENTER

PROF. DR. **BJØRN E. CHRISTENSEN** (NTNU)

Alginates: structure, properties and novel applications.Valorization of biomass feedstocks using carbohydrate chemistry.

Bio

I am professor at the Norwegian University of Science and Technology (NTNU), Department of Biotechnology and Food Science since 2002. I work with several polysaccharides including alginates, chitosans, xanthan, and B-1,3-glucans. Present focus is primarily on diblock polysaccharides, a new type of polysaccharide derivatives consisting of two different oligo- or polysaccharides conjugated at the reducing end. They have very interesting self-assembly and interaction properties.
I am also Editor of Carbohydrate Polymers and reviewer for many biopolymer-related journals.

Abstract

Alginates are naturally occurring block polysaccharides found in brown seaweeds and produced by some bacteria. Algal and bacterial alginates are obtained via the intermediate homopolymeric mannuronan (a) by the action of mannuronan C-5 epimerases, converting 4-linked-D-mannuronate (M) to L-guluronate (G) at the polymer level. The resulting alginates have a blocky structure whose structure depends on the action of several epimerases. The epimerization changes the chair conformations from 4C1 to 1C4. G-blocks thus adopt a 'zig-zag' like helical structure with cavities or sites which is the basis for binding of Ca++ with high selectivity. Calcium binding is associated with chain dimerization leading to the famous egg-box structure for junction zones in calcium alginate gels.
In seaweeds alginates equilibrate with sea water cations, especially Ca 2+, to form Ca-alginate gels which contribute to strength and elasticity of the plant tissues.
The presentation will cover the basic structure-function relationships of alginates and some recent developments in biomedicine and food science.

DR. **NEHA SAHASRABUDHE** (TU DELFT)

Innovation and learning, every step of the way.

Bio

Dr. Neha M. Sahasrabudhe, graduated from University of Groningen in 2016 with a PhD under the supervision of Prof. Paul de Vos. Neha's PhD was funded by CCC and she worked on dietary fibers and how they interact with the immune system of the gut. Anti-inflammatory effects of pectin were novel at the time and were part of a patent application by CCC partners. Following PhD, Neha worked at Amsterdam UMC as postdoc on immune-suppressive effects of glycans in cancer and continued work on immune-oncology at Lava Therapeutics as scientist. From 2021 till mid 2022, Neha worked as Innovation consultant for Agrifirm, paving the way for innovative health promoting products for feed and food. Currently, Neha is working as Business developer at TU Delft working on creating public private partnerships and building strategic directions for convergence collaboration between TU Delft and Erasmus MC-Erasmus University.

Abstract

Innovation is at the core of every PhD study, and I have carried this with me through different career changes from postdoc, scientist to innovation consultant in industry and currently as Business developer for Tech University of Delft. CCC PhD with great supervision along with freedom to operate, innovate, and with support of extensive collaborations provided me with a head start in career and I carry the learnings with me till today. I learned Innovation in research, and I apply those learnings to innovate in Business and organization, by being curious and learning every step of the way.

Participants

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Participants

first name	last name	organization
Renate	Akkerman	University Medical Center Groningen
Geert-Jan	Arends	Rijksuniversiteit Groningen
Edwin	Bakx	Wageningen University
David	Barnett	Maastricht University
Hilda	Bax	University of Groningen
Doede	Binnema	Hanze UAS
Ellen	Blaak	Maastricht University
Laura	Boetje	University of Groningen
Lidwien	Boven	UMCG
Onno	Broekman	University of Groningen
Geert	Bruggeman	Nutrition Sciences
Pedro	Chaves	CarbExplore Research BV
Bjørn	Christensen	NTNU
Anouk	de Haan	CarbExplore Research
Tijn	de Leeuw	CarbExplore Research BV
Robbert	de Ridder	Avebe
Paul	de Vos	UMCG
Sonja	de Vries	WUR
Jeanette	Dekker	AVEBE
Lubbert	Dijkhuizen	CarbExplore Research BV
Gert-Jan	Euverink	CCC
René	Finkers	RUG
Marian	Geluk	Next Food Collective
Gerrit	Gerwig	CarbExplore Research BV
Tao	He	Hanzehogeschool
Floor	Hugenholtz	NWO
Adil	Ijaz	Utrecht University
Eva	Jermendi	CCC
Stephanie	Jongejan	Royal Koopmans

Participants

first name	last name	organization
Edita	Jurak	UUniversity of Groningen
Hans	Kamerling	Utrecht University
Sonia	Kassai	UMCG
Evangelia	Kerezoudi	√ñrebro University
Anne	Kleijn	FCH WUR
Dimitris	Kouzounis	Laboratory of Food Chemistry, WUR
Janneke	Krooneman	CCC
Colja	Laane	CCC
Lisa	Langelaan	Avebe
Yosephine	Laura	University of Groningen
Hans	Leemhuis	Avebe
Luis	Llanos	Wageningen University
Siti	Mariyam	University of Groningen
Bianca	Martens	Agrifirm
Sue	Mckay	NutriLeads
A.J.	Minnaard	Rijksuniversiteit Groningen
Marc	Mouthaan	University of Groningen
Aart J.	Mul	BDFI
Varshini	Munjurpet Krishnamoorthy	University of Groningen
Huy	Nguyen	CarbExplore
Miriam	Oost	University Maastricht-Campus Venlo
Lizette	Oudhuis	Avebe
Lira	Palmer	CarbExplore Research
John	Penders	Maastricht University
Ivonne	Peugnet Gonzalez	UMCG
Michael	Polhuis	Royal Avebe
Rudy	Rabbinge	WUR
Neha	Sahasrabudhe	TU Delft
Thelma	Scarf	CO KG
Henk	Schols	CCC

Participants

first name	last name	organization
Kristina	Smit	Royal Avebe
Iris	Sommer	UMCG
Ronald	Terpstra	Avebe
Willeke	Thürkow	Royal Avebe
Lingmin	Tian	Jinan University
Bertus	van den Burg	IMEnz Bioengineering BV
Marc	van der Maarel	Rijksuniversiteit Groningen
Eelke	van der Wal	VanDrie Group
Thirza	van Deuren	Maastricht Unversity
Hubèrt	van Hees	Trouw Nutrition R&D
Sander	van Leeuwen	UMCG
Ellen	van Leusen	Abbott Nutrition
Alle	van Wijk	University of Groningen
Elaine	Vaughan	Sensus (Royal Cosun)
Edwin	Veldhuizen	UU, Fac. of VetMed, Dept of Biomol. Health Sciences
Marian	Verbruggen	Ruitenberg Ingredients B.V.
J.H.H.	Verheesen	Cosun Nutrition Center
Stijn	Verhoeven	Synvenio
Stefanie	Verstringe	Agrifirm
Lars	Vliex	MUMC+
Marthe	Walvoort	University of Groningen
Adrienne	Weiss	Yili Innovation Center Europe
Lieske	Wekema	UMCG
Caifang	Wen	Microbiology& Food Chemistry of WUR
Chen	Yang	University of Groningen
Jan Willem	Zwolschen	WUR - Laboratory of Food Chemistry

THANK YOU
for attending the CCC Symposium

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