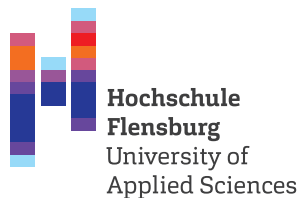


Thank You to Our Supporters

The work would not have been possible without the generous support of our donors. We thank all those who supported us:



Kanzleistraße 91–93
24943 Flensburg

T +49 (0)461 805–01
www.hs-flensburg.de

AnSciCon 2019 PROGRAMM



**Annual Scientific Conference of
Applied Bio and Food Sciences 2019**
am 12.12.2019 im Hörsaal H 130 der
Hochschule Flensburg



Dear visitors, teaching staff, professors and dear students,

I have the honor to welcome you to the Annual Scientific Conference of Applied Bio and Food Sciences 2019 (AnSciCon 2019). This conference has been organized by our students of the master programme “Applied Bio and Food Sciences” at Flensburg University of Applied Sciences.

According to the Food Report 2019 of the Federal Ministry of Food and Agriculture (BMEL), our students carried out projects over a whole semester in the field of Bio and Food Sciences. Therefore, four scientific approaches were designed and developed.

This conference provides an optimal opportunity for our students to present the knowledge and the skills that they have gained in the current semester while acquiring experiences crucial for organizing scientific conferences.

I want to thank everyone involved in the conference for their work and wish you all an enlightening and inspiring day.

Sincerely,

A handwritten signature in black ink, appearing to be 'C. Jansen', written in a cursive style.

Dr. Christoph Jansen

President of Flensburg University of Applied Sciences

Dear conference participants,

It is a great pleasure to welcome you to the conference AnSciCon at Flensburg University of Applied Sciences. We are looking forward to interesting presentations and inspiring discussions during this day.

The annual conference on current food and biotechnology topics illustrates the connection of research, development and production necessary for innovation in product and method development in the field. The demand for future food and fossil-free production based on biotechnology approaches are rising and are recognised by science, politic and industry.

M.Sc. students of the study programme “Applied Bio and Food Sciences” of Flensburg University of Applied Sciences will present their research with focus to food product development and a contribution to algal strain characterisation for the sustainable production of carotenoids. The students made a valuable contribution to the specific fields and illustrate the chances for product development for a more sustainable and healthier life.

The scientific results contribute significantly to the applied sciences in food and biotechnology. Food processing and life sciences are exciting areas to work and study, with a high demand for well-trained future technologists, interested in interdisciplinary approaches and to be open to new ideas and innovations in a global world.

Two focus areas of the master programme are food and bio technology, which are reflected in the presented projects. The main goal of this year’s projects was to contribute to the national reduction strategy, which aims to provide overall, balanced and moderate nutrition to prevent nutritionally related diseases. If applicable, products and processes shall support the national research strategy BioEconomy 2030 for a sustainable bio-based economy by the year 2030.

The conference is the final highlight of the project semester of M.Sc. students of the study programme “Applied Bio and Food Sciences” of Flensburg University of Applied Sciences. The students design and conduct a research project on a specific advanced topic of the field, but also gain skills for scientific work. The conference and its proceedings are an integral part of the study programme. The content and arrangement of the conference but also all organisational parts were scheduled and prepared by the students in an independent manner.

During the conference, you can expect overviews on the projects, insights in their results and the applied methodology. Next to the presentations, the students present their work in posters and welcome discussion with you to proof the significance of their results. They also share their experiences, information on the master’s program and their personal highlights.

The success of the projects is based on the efforts put by the students into their projects. We, as the professors, congratulate the project teams to this success and wish the best for the presentations and poster sessions today.

We thank you for joining in and wish an insightful and enjoyable time.

Sincerely,

Prof. Dr. Antje Labes,
Prof. Dr. Birte Nicolai,
Prof. Dr. Andreas Nicolai,
Prof. Dr. Hans-Udo Peters,

Professors of the Master’s study
Applied Bio and Food Science,
Flensburg University
of Applied Sciences



Introduction

The increase of the human lifespan that has occurred during human history is still accompanied with non-communicable diseases (NCDs) such as cardiovascular disorders, cancer, respiratory and neurological diseases and diabetes. According to the World Health Organization (WHO), NCDs are responsible for 86% of all deaths and for 77% of the disease burden in the European region of the WHO. The diseases induce individual suffering and, further, grave economic consequences. Causes for NCDs are tobacco use, physical inactivity, harmful alcohol use and unhealthy diets.

Those health concerns can be largely prevented.

Despite efforts and financial support to establish healthier and more balanced diets from Health Care Organizations, medical researchers and European governments, a major part of the population still purchase food products that are considered to be unhealthy.

Another approach can be the enhancement of the nutritional content of food products that have been sold often.

A more potential approach can be the enhancement of the nutritional content of food products which have been sold often.

Time Table 12.12.2019

(Length of presentation: 30 minutes & 10-15 minutes discussion)

Time	Agenda	Referents
12:00 - 12:05	Opening words	Christoph Künzel
12:05 - 12:15	Welcome by the Presidium of the University of Applied Sciences Flensburg	Dr. Christoph Jansen, President of the University of Applied Sciences
12:15 - 13:00	Project MORPH	Marco Genuardi Simone Möller
13:00 - 13:45	Project ROSA Yoghurt	Tim Buhmann Lasse Richter Lukas Rommen Antonia Schewe
13:45 - 14:00	Coffee break	
14:00 - 14:45	Project SuRF GUM	Lucas Bernhard Christoph Künzel Marwin Lenz Behnush Taherrakee
14:45 - 15:30	Project SURREAL	Annika Gerste Selina Jagst
15:30 - 17:00	Poster session incl. tasting & snacks	

MORPH – Monitoring of the morphology and proliferation of Haematococcus pluvialis using CASY technology

The CASY technology provides a simplified method to determine the cell number and cell size. It is suitable for a wide range of microorganisms, including microalgae. We present an application example describing life stages in *Haematococcus pluvialis* and compare this CASY method with conventional techniques such as the optical density, cell counting chambers and microscopical observations. Through the simplified analysis, MORPH supports the biotechnological production of astaxanthin that is considered to be a preventive of nutrition-related diseases.



ROSA Yoghurt – Calorie reduced fruit Yoghurt fermented by modified lactic acid cultures combined with a Replacement Of Sucrose by Allulose in fruit preparation

The reduction of sugar is one of the six fields of action in the national reduction and innovation strategy of the Federal Ministry of Food and Agriculture. The aim is to reduce total calories and improve nutrient composition. A high caloric value and a high glycaemic index are two of the main factors responsible for nutrition-related noncommunicable diseases.

Sugar gives taste and fulfils technological functions. Sugar substitutes and sweeteners have their main disadvantages in terms of sensory perception. They influence the body and colouring as well as the mouth feeling. Therefore, the novel sugar allulose is used in this project to produce calorie-reduced fruit yoghurt. Allulose is a monosaccharide and has a significantly lower caloric value and glycaemic index compared to sucrose.

The development of this sugar is supported by the Federal Ministry of Food and Agriculture as part of its reduction strategy. In order to counteract the 70% lower sweetening power of allulose compared to sucrose, the yoghurt is produced with the modified yoghurt culture SweetY-Y1[®]. This culture metabolises less glucose and increases the sweetness of the yoghurt.

We would like to thank our project partners Savanna-Ingredients GmbH, Chr. Hansen GmbH and Herbstreith&Fox KG.

SuRF Gum – Finding the optimal composition of sugar alternatives for Sugar Reduced Fruit Gum

High consumption of sugar can increase the risk of non-communicable diseases. To support customers to take healthier decisions while shopping, it is important to provide more opportunities on healthier products when shopping.

Therefore, the projects' goal was the development of a sugar substitute composition for reducing 50 % of sugar amount in conventional fruit gum recipes. Three different sugar substitutes erythritol, xylitol and steviolglycoside were tested in varying concentrations for the composition. In order to find the optimal composition, design of experiments and statistic software was used. To verify that the sensory properties did not change negatively, analytical and sensory tests were carried out.



Surreal – Production of a sugar reduced alternative for hazelnut cream liqueur

A commercial cream liqueur contains between 100 and 250 g of sugar per liter. Although liqueur is not considered to be a staple food, its consumption can contribute to an increased sugar intake and thus a higher risk of nutrition related non-communicable diseases and obesity. The Surreal project team has therefore partially replaced the sugar in hazelnut cream liqueur with the sugar substitutes erythritol and xylitol to create alternatives for consumption. The samples were then tested for acceptability and comparability with a classically prepared hazelnut cream liqueur, that was also developed by the project team. Since sugar reduced liqueurs are currently hard to find on the market, the presented results can be used as a reference in the manufacture of other liqueurs and thus can facilitate the sugar reduction of comparable products.

