Bridging Training and Research
for Industry and the Wider Community

6th International ISEKI-Food Conference

"Sustainable Development Goals in Food Systems: Challenges and Opportunities for the Future"

BOOK OF ABSTRACTS

23 – 25 June, 2021
ONLINE

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ONLINE

2021

All abstracts accepted for presentation in the 6th International ISEKI-Food Conference Book of Abstracts have been *Peer Reviewed* for acceptance by the Scientific Committee members.

Published by:

ISEKI-Food Association, A-1190 Vienna, Muthgasse 18, https://www.iseki-food.net/

e-ISBN 978-989-9023-52-9

DOI https://doi.org/10.34623/9hhy-1y83

ORGANISING INSTITUTION

ISEKI-Food Association (IFA)

IFA is an independent European non-profit organisation, established in 2005 by university institutions, research institutes, companies and associations related to food, coming from all over the world.

Muthgasse 18, 1190 Vienna, Austria

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PREFACE

The general aims of the ISEKI-Food conference series are to contribute to the creation of an "open" international forum for researchers, education scientists, technologists and industry representatives as well as the wider society, to promote a constructive dialogue and collaboration on topics relevant to research, industry and education in the agri-food sector for the benefit of our society.

The 6th ISEKI-Food Conference, planned in July 2020 in Cyprus, due to COVID-19 pandemic has been postponed to 2021 and held as an online event. The title of this 6th conference edition is "***Sustainable Development Goals in Food Systems: challenges and opportunities for the future***".

The 2030 Agenda for Sustainable Development issued by the United Nations and its 17 Sustainable Development Goals (SDGs) call all actors of our society to commit, at all levels, to identify, develop and apply appropriate actions to contribute to the main societal and environmental issues. Development and innovation strategies are required to sustainably increase agricultural and food production, improve global supply chains, decrease food losses and waste, diminish environmental impact, save energy and ensure nutritious and safe food for all worldwide. The food system represents a key strategic approach in achieving the SDGs thanks to its intrinsic inter-disciplinarity and involvement of social, political, cultural, technological, economic and natural environments. Sustainable food systems, including production and consumption, must be pursued from a holistic and integrated perspective. Thus, there is a main need to promote a wide and constructive discussion on the current status and achievements of the SDGs among all the stakeholders of the food system.

The 6th International ISEKI-Food Conference consists of three main sessions dedicated to Education, Research and the Wider Community hosting oral and poster presentations on innovative practices, researches, methodologies, projects, programmes and other initiatives aimed at implementing the 2030 Agenda for SDGs.

196 abstracts, submitted from all over the world, were reviewed by members of the Scientific Committee. 59 oral (10 invited) and 123 poster presentations were selected and assigned to the following Sessions:

- **Education** – *Facing challenges in education for a globalised and sustainable world.*
- **Research** – *Sustainable Systems for High Quality, safe and healthy foods*, including parallel sessions on: New technologies, Minimising losses in food production, Valorisation of postharvest losses and food wastes, Food Risk assessment and Food safety, New products for a sustainable diet.
- **Societal Engagement** – *Sustainable development goals: good practices and the way forward.*

In this book, the abstracts of the presentations delivered at the **4th International PhD Workshop** are also included.

The 6th International ISEKI-Food Conference Scientific and Organizing Committees thank all conference attendees for their participation and their active contribution.

Greatly appreciated is also the help and valuable contribution of all members of the Organizing Committee, the Scientific Committee and the Industry Advisory Committee.

On behalf of the Organizing and Scientific Committee

Paola Pittia, Cristina L. Silva, Florence Dubois-Brissonnet

Margarida Vieira, Rui Costa

#208: Chestnut purée: a possible growth media for probiotic microorganisms – Preliminary results

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Portugal and Spain are important chestnut producers. It is crucial to valorise this nut by using small-size and broken fruits that are usually discarded or used to produce animal feed. In this way, the production of chestnut purée seems to be an excellent alternative to valorise these fruits. Considering that chestnut does not contains lactose and is gluten-free, the present work aimed to use chestnut purée as a growth medium for probiotic microorganisms to obtain a probiotic product that lactose-intolerants and celiac people could consume.

In the present study, chestnut purées were produced and inoculated with Lactobacillus casei subsp. casei CECT 4043, Lactococcus lactis subsp. lactis CECT 539 and kefir grains. The following parameters were determined: Colony forming units per millilitre (CFU/mL), pH, total sugars, protein, total phosphorous and total nitrogen. Previously, a rheologic study was also performed to understand the flow behaviour of the chestnut purée when subjected to different temperatures (15, 25, 50 and 75 °C).

The chestnut purée showed a pseudoplastic behaviour, as the viscosity decreased with the shear rate. Nevertheless, at the lowest temperatures, some time-dependency was observed. A hysteresis was detected between the loading and unloading curves, suggesting the existence of thixotropy. However, this behaviour was not so evident at 50 or 75 °C. Furthermore, the viscosities of chestnut purées decreased with temperature due to starch gelatinization.

Regarding the bacterial growth, Lb. casei and L. lactis reached approximately 109 and 108 UFC/mL of chestnut purée, respectively, after 26 h fermentation. Concerning the fermentation with kefir, bacteria and yeasts were detected, being the first in higher number than the second at the end of fermentation. At this time, bacterial counts higher than 107 UFC/mL of chestnut purée were achieved.

In all fermentations a reduction in pH was observed. The initial pH of the chestnut purée was around 6.4, decreasing to 4.7 for Lb. casei and L. lactis, or 3.7 for the kefir grains, at the end of the fermentation.

In conclusion, the chestnut purée seems to be a good growth media for probiotic microorganisms.

Keywords

Chestnut purée, Lactobacillus casei, Lactococcus lactis, Kefir, Rheology

Acknowledgements

FCT, Portugal[CIMO: UID/AGR/00690/2019]; Portugal 2020 [Go_ClimCast Project: PDR2020-1.0.1-FEADER-032060]