



Newsletter No. 39

The 6th School on Pulsed Electric Field (PEF) Applications in Food and Biotechnology

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The 6th School on Pulsed Electric Field (PEF) Applications in Food and Biotechnology took place from 3rd to 7th June 2019 in Cesena (Italy), at the Campus of Food Science of the University of Bologna (UNIBO).

Following the success of the previous five Schools, the 6th PEF School continued to bring together undergraduate students, PhD students, academic, and industrial researchers to offer them an overview of the current knowledge and understanding of the basic principles involved in food processing and preservation by PEF. Twenty participants from all over Europe were able to enjoy a week that consisted of theoretical lessons given by fourteen invited speakers, and practical courses given by eleven young researchers and students.

The lectures that were given by renowned international experts were selected such as to cover fundamental principles of pulsed electric fields, methods to detect electroporation, PEF applications in food technology, industrial development and legal aspects of PEF, as well as biomedical and bio-refinery employment of the technology. Moreover, five students were given the opportunity to present the results of their research on PEF in short five minute presentations.

To deepen the knowledge gained during the theoretical part of the course, each afternoon five parallel practical courses were organized and held in the laboratories of the Interdepartmental Centre for Industrial Research on Agri-Food (CIRIAGRO) of the University of Bologna. In the Practical Course No. 1, Chiara Montanari from UNIBO showed the application of PEF for microbial inactivation in model and real systems using plate count and flow cytometry to assess the effects. Different methods to assess vegetable tissue electroporation and metabolic effect such as cell disintegration index, low field NMR, and isothermal calorimetry were shown in the Practical Course No. 2 by Jessica Genovese, Nicolò Dellarosa and Silvia Tappi from UNIBO.

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**3rd World Congress on Electroporation
& Pulsed Electric Fields in Biology, Medicine
& Food and Environmental Technologies**
Toulouse, France September 3–6, 2019





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Thanks to the support of the Technical University of Berlin, Tobias Horneber and Justus Knappert carried out modelling and simulation of PEF treatment, while the team from the University of Ljubljana composed of Matej Reberšek and Anja Zajc held a course on pulse generation and equipment design. Finally, in Practical Course No. 5, other non-thermal technologies such as high pressure homogenization (HPH) and vacuum impregnation (VI) were illustrated by Cinzia Mannozi, Giacomo Braschi, and Francesca Patrignani from UNIBO.

The proposed and executed scientific program to which participants responded with enthusiasm, was aimed at both academic and industrial researchers in the hope of fostering their cooperation and increasing the growing industrial relevance of PEF-facilitated processing.

Finally, a rich social program nicely complemented the scientific program, favoring interaction and networking among the participants. The social activities included a welcome buffet supported by local producers that offered a selection of their own wine, beer, fish, salami and cheese, an outdoor dinner based on piadina (a typical regional street food), a guided tour of the historical Malatestiana library and of the center of Cesena, a pizza-night, and the concluding dinner during which small presents were distributed to all invited speakers as a token of appreciation for sharing their knowledge and enabling a successful PEF School.



Group of participants in the CIRIAGRO Food Technology Pilot Plant gaining an insight into PEF vegetable tissue electroporation in one of the practical courses.

Forthcoming events

3rd World Congress on Electroporation and Pulsed Electric Fields in Biology, Medicine, and Food & Environmental Technologies

Toulouse, September 3 – 6, 2019

<http://wc2019.electroporation.net>

Electroporation-Based Technologies and Treatments

Ljubljana, November 10 – 16, 2019

<http://2019.ebtt.org>

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Group photo of all participants, invited speakers, and organizers of the 6th PEF School.

Newsletter is issued in electronic form only by The International Society for Electroporation-Based Technologies and Treatments (ISEBTT).

ISSN: 2463-9850

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