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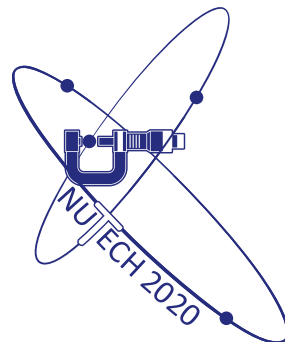
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of Nuclear Technologies



CONFERENCE ABSTRACTS & PROGRAMME

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Warsaw, 2020

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Session V: RADIATION TECHNOLOGIES AND APPLICATIONS

Chair: P. Ulański/ X. Coqueret

Presenting author	Title
Nikolay Kuksanov Budker Institute of Nuclear Physics, Russia Invited Speaker	<u>Modification of the high power DC electron ELV accelerators for research and industrial application</u>
Colombani Juliette IRSN, France	<u>IRSN irradiation facilities</u>
Mark Driscoll State University of New York College of Environmental Science and Forestry, USA	<u>Electron Beam Degradation of Microcystin LR</u>
Uliana Pinaeva Université de Reims Champagne Ardenne, France	<u>Radiolytic synthesis of HEMA-based hydrogel composites including gold nanoparticles: potentialities for the design of functional 3D-printed materials</u>
Amilcar Antonio Instituto Politécnico de Braganca, Portugal	<u>Food irradiation: Where is the Limit?</u>
Urszula Gryczka Institute of Nuclear Chemistry and Technology, Poland	<u>Application of low energy electron beam for microbial decontamination of food products</u>
Ivana Sandeva Ss. Cyril and Methodius University in Skopje, Macedonia	<u>Interlaboratory comparison for detection of irradiated food by luminescence methods</u>
	Discussion

FOOD IRRADIATION: WHERE IS THE LIMIT?

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Abstract:

Food irradiation persist as an underused technology in several countries, namely in Europe region, where scientific misconceptions about the technology are wide spread in the population, including in more educated persons. Also, EU regulations are quite old (from 1999) and contribute, in some way, to maintain this status quo. On the last years we have been validating the use of this technology in several food products (chestnut fruits, edible wild mushrooms, different fresh fruits, wild edible plants, etc), limiting our studies to a commercial-technological purpose, focusing on the low dose to attain the desired effect, without compromising the nutritional characteristics of the processed products. Recently, we have moved to a more scientific point of view, to test how far we can go, how high is the dose we could apply. Again, we re-started this scientific approach using chestnut fruits as a first case study. For that we have started to measure two physical parameters that are easily assessed (colour and texture), for doses up to 10 kGy. And the results shown that, for this specific case, colour changes and texture variation can easily be used to check at what dose to stop. Further studies are ongoing to assess other parameters (chemical composition and molecular structure) to check where is the “trigger” point to define the dose limit for this food product. With this work, extended to other food matrices, we expect to give a scientific contribute for a critical revision of current EU legislation for food irradiation limits and limited food products included in that list.

Keywords:

Food irradiation, dose limit, chestnut fruits, colour, texture

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Reference

Ferreira, I. C. F. R., Antonio, A. L., & Cabo Verde, S. (Editors) (2018). Food Irradiation Technologies: Concepts, Applications and Outcomes. Cambridge, U.K.: Royal Society of Chemistry.