



**9th International Topical Meeting on
Industrial Radiation and
Radioisotope Measurement
Applications
IRRMA-9**

**6-11 July 2014
Valencia (Spain)**

Book of Abstracts

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IRRMA-9
Abstracts of the 9th International Topical Meeting on
Industrial Radiation and Radioisotope Measurement Applications

José Ródenas (editor)

Published by Projectem Comunicació (Violeta Martín Núñez)

336 pages, 200 copies

Printed by Martín Impresores

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ISBN: 978-84-942137-5-5

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Ionizing Radiation Applications for a Sustainable Environment: Food Preservation Processing by Gamma Radiation

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Key Words: Gamma radiation, food irradiation, physico-chemical effects

The use of ionizing gamma radiation is regulated and authorized by international organizations (EU, EFSA, IAEA, FAO, WHO) for industrial radiation processing of several products: medical devices sterilization, materials modification, cultural heritage preservation and food decontamination. Due to the wrong association of irradiated food with radioactive food, several obstacles have to be overcome in order to promote the civil use of radioisotopes for food irradiation, as a safe and useful application of ionizing radiations. The increasing demand for safe and healthy food is another issue that could help to promote the peaceful use of ionizing radiations. In Europe, the preservation of food by irradiation is strongly regulated and is still not very popular, in spite of several food safety issues, such as bacteria contamination or insects' infestation, which could be easily solved by an environment friendly technology, without use of chemical fumigants. Focused on food safety and industrial processing with gamma radiation, we will present briefly the technical aspects regarding dosimetry and dosimetric systems, the physico-chemical effects of gamma irradiation on post-harvest processed chestnut fruits, comment consumers' acceptance and prospect future uses.

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Acknowledgements

Foundation for Science and Technology, Portugal (Project FCT-RECI/AAG-TEC/0400/2012).

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