



2015 International Congress on Ultrasonics



Metz, France,
May 11-14, 2015

hosted by



Lorraine
Georgia Institute of Technology

in collaboration with



Abstract Book 2015 ICU - Metz, France



© crédit photo: Christian Legay

With the financial support of:



Support from partners:



Concert support:



Technical sponsors:



Reference to this book

2015 ICU International Congress on Ultrasonics Abstract Book, Metz, France, Declercq N. F. editor (2015)

Publication year

2015

Acknowledgement

The compilation of this book has been made possible with the help of Didier Cassereau, Bertrand Dubus and John Fritsch with support from the Scientific and Technical Committee of 2015 ICU.

Copyright

© This work is freely usable if proper reference is given.

ISBN

978-0-692-43231-0



Tue 15:00 Main Hall

Ultrasonic particle and fluid manipulation as the "Acoustofluidics 2015" (poster)

Planar acoustic nodes in large format Acoustofluidic chambers for high flow rate sample processing applications – (Contributed, 000463)

J. W. Elling, J. Gatewood and R. Applegate

Acoustic Biosystems, 3900 Paseo del Sol, Santa Fe, 87507-4072, USA

Corresponding author E-mail: elling@acousticbiosystems.com

Acoustic Biosystems has succeeded in producing a uniform single acoustic node focus region in wide (>15mm) rectangular channels. This capability allows acoustophoretic sample processing at high (>10ml/min) flow rates with quantitative recovery of cells and particles in the focused streams. The resonant acoustic cell enrichment (RACE™) technology is used for automated sample processing in a continuous flow system that is capable of concentrating and washing cells.

RACE will be applied as a cost effective, low power, continuous flow replacement to a centrifuge. This will enable automation of processing and analysis protocol that currently require centrifuge concentration to be deployed in continuous flow systems.

Additional applications for optical imaging of cells focused into the planar acoustic node will be discussed.

Tue 15:00 Main Hall

Ultrasound in Food science, Pharmaceutical and Cosmetics (poster)

Impact of power ultrasound on the quality of fruits and vegetables during dehydration – (Contributed, 000086)M. Villamiel^a, J. Gamboa^a, A.C. Soria^b, E. Riera^c, J.V. García-Pérez^d and A. Montilla^a

^aInstituto de Investigación en Ciencias de la Alimentación, CIAL (CSIC-UAM), Nicolás Cabrera, 9, Campus de la Universidad Autónoma de Madrid, E28049 Madrid, Spain; ^bInstituto de Química Orgánica (CSIC), Juan de la Cierva, 3, E28006 Madrid, Spain; ^cInstituto de Tecnologías Físicas y de la Información (ITEFI), CSIC, Serrano 144, E28006 Madrid, Spain; ^dUniversitat Politècnica de València. Dpto. Tecnología Alimentos, Camino de Vera s/n, 46022 Valencia, Spain

Corresponding author E-mail: enrique.riera@csic.es

To date, most of dehydrated vegetables and fruits are obtained by convection preceded or not by a pre-treatment. In general, their quality is low due to the physical modifications, loss of vitamins, polyphenols and carbohydrates and Maillard reaction (MR). MR can originate a remarkable loss of nutritional value due to the involvement of lysine. To improve the final quality of these products, one of the alternatives is the application of power ultrasound (US). US produces mechanical effects, such as cavitation, microstream and formation of microscopic channels which facilitate the mass transport and so, the removal of water from the food. The synergistic effect of US and temperature allows carrying out dehydration at low temperatures and short times. In the present work, the influence of power US on the quality of fruits and vegetables during

the pre-treatment and drying was evaluated. Chemical indicators such as pectinmethyl esterase and peroxidase enzymes, vitamin C, carbohydrates, proteins, polyphenols and 2-furoylmethylamino acids was studied. In addition, rehydration capacity, leaching losses, shrinkage and organoleptic characteristics of the final product was assessed. During blanching, similar leaching losses and enzyme inactivation were found in low temperature and prolonged conventional treatments and in US processes, but with a significant reduction in the time for the latter. Application of US in the drying of carrots and strawberries provided high-quality end-products. The quality was better as compared to marketed products and superior or equivalent to samples obtained in a convective dryer, and, in some indicators, similar to that of freeze-dried samples.

Tue 15:00 Main Hall

Ultrasound in Food science, Pharmaceutical and Cosmetics (poster)

Exploring the use of low-intensity ultrasonics as a tool for assessing the salt content in pork meat products – (Contributed, 000099)J.V. García-Pérez^a, M. De Prados^a, G. Martínez-Escrivá^a, R. González^b, A. Mulet^a and J. Bénédicto^c

^aUniversitat Politècnica de València. Dpto. Tecnología Alimentos, Camino de Vera s/n, 46022 Valencia, Spain; ^bDpto. de Evaluación, Personalidad y Tratamientos Psicológicos. U. Valencia, Av. Blasco Ibáñez, 21, 46010 Valencia, Spain; ^cUniversitat Politècnica de València, Camino de Vera s/n, 46022 Valencia, Spain

Corresponding author E-mail: jjbenedi@tal.upv.es

Achieving a homogeneous final salt content in salted meat products with anatomical integrity, such as loin or ham, represents a milestone due to salting is influenced by mul-

tiples product and process factors. Therefore, meat industry demands non-destructive techniques for quality control purposes in the salting process. The main aim of this work