

FOOD SAFETY & REGULATORY MEASURES

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New advances in food safety by treatment with cavitation reactors and dielectric heating

This report aims to highlight best practices in food safety and processing through the synergy of academia and industry in the development of green enabling technologies in particular the use of cavitation reactors (ultrasound and hydrodynamic cavitation) and microwaves. These technologies combine food safety with process intensification. Typical processes under ultrasound are: emulsification, degassing, de-foaming, and extraction, while for dielectric heating: drying, cooking, defrosting. Of course scale up design, investment costs and environmental impact of new technologies requires multidisciplinary expertise. In the last three decades, several specific industrial applications of these technologies have been reported: flavour isolation, molecular encapsulation, enhanced hydrodistillation in lab and industrial scale, extraction in edible oils, fresh milk treatment and even in the degradation of allergens.

Biography

Giancarlo Cravotto after 4-year experience in pharmaceutical industry became a researcher in the Department of Drug Science and Technology (University of Turin). He is currently Full Professor of Organic Chemistry and Department Director since 2007 as well as President of the European Sonochemistry Society (ESS) since 2012. His research activity is documented by more than 330 scientific peer-reviewed papers, more than 20 book chapters and 15 patents. His research activity has been centered on natural products extraction, purification and chemical modification. These studies have paved the road to new chemical procedures by means of non conventional energy sources (ultrasound, hydrodynamic cavitation, microwaves, ball milling, flow reactors etc.). These studies prompted the development of innovative hybrid reactors and innovative green protocols applied in different fields: pharmaceutical, cosmetics, food processing and biomass valorization.

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