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# FOOD CHEMISTRY & NUTRITION

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### Breaking the ice with nonthermal processing

The challenge that food processors have faced for many years to manufacture safe but not over processed foods was, in principle, without a clear solution. Efforts to improve thermal processes rendered promising results, but the outcomes were not satisfactory for consumers looking for fresh-like quality and wholesome products. In response to these consumer demands, a number of strategies to inactivate microorganisms, none of which were based on the use of heat, were explored by an overwhelming number of research and development groups well scattered around the world. Some of these nonthermal approaches offered very promising results, mainly for pasteurization and decontamination. Pulsed electric fields, pulsed light, ultrasound, and high hydrostatic pressure, among others, were some of the technologies that offered sound alternatives for processing the foods of the future. This “revolution” in the food world opened the way to not only in processing foods by innovative methods, but also offering the possibility of attaining new products, updating regulations, modifying concepts about inactivation mechanisms, and initiating the advent of nonlinear inactivation kinetics, to name a few. This presentation reviews some of the major developments that have taken place over the last 25 years to make nonthermal processing of foods the most significant contribution of the century to further advance food science and engineering.

### Biography

Barbosa is director of the Center for Non Thermal Processing of Food (CNPF) and works in the BSysE Food Engineering research emphasis area. His primary interest is in finding effective and less harmful methods of preserving food through the study, development, and application of nonthermal technologies.

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