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UNIVERSITAT POLITÈCNICA DE VALÈNCIA

NEW DEVICE FOR ELIMINATING MICROORGANISMS IN FOOD USING ULTRASOUND AND SUPERCRITICAL FLUIDS

DESCRIPTION OF THE INVENTION

Thermal treatments have been commonly used for eliminating microorganisms from food in order to prolong usage time. The main drawback of these treatments is that they are associated with a loss of flavour, color, smell and nutrients in food.

The system designed by the Group for Analysis and Simulation of Agrifood Processes (ASPA) and patented by the Universitat Politècnica de València combines ultrasound and supercritical fluids, thereby avoiding a reduction in product quality.

The procedure is based upon the use of low temperatures (35ºC) in the tests carried out thus far- which leads to greater organoleptic and nutritional quality, and low pressure, which significantly reduces operating costs and time. The method consists of introducing the food into an atmosphere of carbon dioxide in a supercritical state. Under these conditions, and via a piezoelectric ultrasound transducer, the food is subjected to a high intensity acoustic field to render the microorganisms inactive.

APPLICABLE BUSINESS SECTORS

This technology can be mainly applied to reducing the amount of microbes found on foods of all kinds. The invention is designed for use in the Food Industry.

TECHNICAL ADVANTAGES AND BUSINESS BENEFITS

In comparison to other food preservation technologies, the advantages are:

•Thermal treatment: Use of low temperatures (our tests suggest 35º) which leads to greater organoleptic and nutritional quality of food.

•High pressure levels: this system uses much lower levels of pressure (100-350bar), which significantly reduces operating costs and the possibility of the changes in texture. High pressure techniques use 3000-6000 bars.

•With regard to the inactivation technique using supercritical fluids, the timescale using this method is greatly reduced.

DEVELOPMENT STAGE OF THE TECHNOLOGY

The technology has been developed to a laboratory stage, and has been applied to treatment groups divided into different lots.

INDUSTRIAL PROPERTY RIGHTS

The technology has been patented by the UPV, with a registered Spanish patent pending number P201131099 listed on 29/06/2011.
The Spanish patent has been extended via PCT (ES2012/070165)

COLLABORATION REQUIRED

The UPV is looking for firms that deal with related equipment and/or food who are interested in establishing collaboration agreements to develop the technology in a pilot scheme and possible licensing of the patent, as well as in commercializing the product.

CONTACT

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