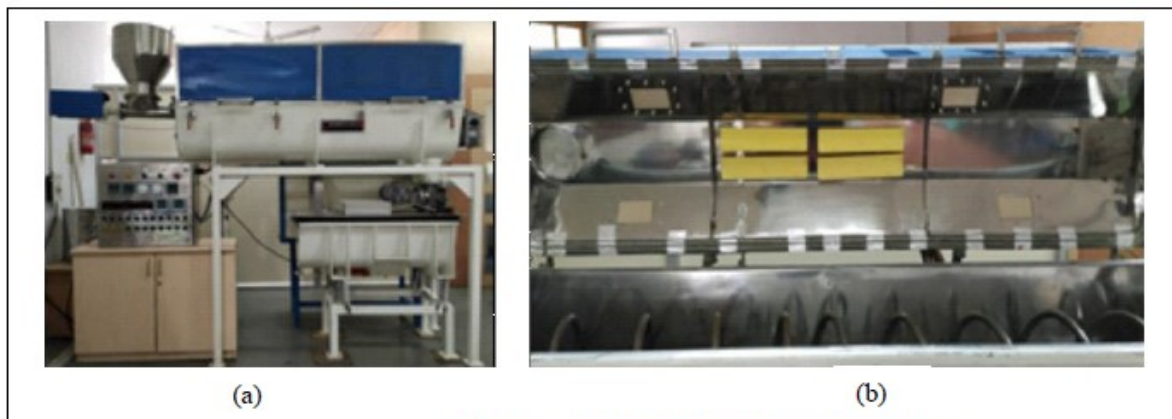

Continuous Sterilization System for Dried Spices

Salient features

- A low water activity dried lemon spice with microbial and enzyme inactivation using combined microwave infrared radiation.
- High microwave power short time (HPST) quick sterilization process for powdered spice (turmeric).
- Modelling and simulation of microwave sterilization of onion powder for reduction of *E. coli*, *S. aureus* and *B. cereus*.
- Combined microwave assisted rehydration and sterilization process for hard spices (mustard seed) for the reduction of *Aspergillus niger*.
- Infrared and ultraviolet radiation treatment of whole spices (cinnamon and coriander) for reduction of *Aspergillus niger* (in cinnamon) and *Aspergillus terreus* (in coriander).
- Surface sterilization of leafy spices (bay leaf) using microwave heating and reduction of *Aspergillus niger*
- Heating and drying of whole garlic bulbs in the microwave rotary processor to inactivate the *Aspergillus* spp.
- Infrared drying cum sterilization of high moisture whole spices (whole green chili)
- High temperature short time microwave infrared sterilization process for paprika powder.
- IR sterilization of large cardamom
- Microwave sterilization process for black pepper
- Microwave drying and sterilization of *Murraya koenigii* leaves with volatile compounds recovery.
- Infrared dry peeling process and equipment for ginger.
- Osmotic pre-concentration of green chilli, ginger, tamarind and bell pepper with microwave and infrared pre-treatment to increase mass transfer rates.

Advantages

- ✓ The high temperature short time process maintained the quality of the product.
- ✓ Lesser oxygen exposure.
- ✓ Retarded the moisture associated deterioration reactions and enabled inactivation of microbes in spices.



Custom built MW-IR-UV sterilizer

**Process
Technology /
product
developed by**

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**More
information**

Status of commercialization / Patent / Publication

Kate, A.E. and Sutar, P.P. 2018. Development and optimization of novel infrared dry- peeling method for ginger (*Zingiber officinale Roscoe*) rhizome. Innovative Food Science and Emerging Technologies, 48: 111-121

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