

SUPERCRITICAL CO₂ DRYING OF FOOD MATRICES

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Drying of food is considered one of the most promising preservation technologies to supply high nutritional foodstuffs to the worldwide population. On the desiccated state the food is lighter, easier and cheaper to deliver since the expensive food chain can be avoided. Although the microorganism growth is inhibited in the dried state, the risk to exploit in quick spoilage is very high : the contamination to a wide range of microorganisms might happen in the pre and post harvest manufacturing.

The increasing demand of dried products is requiring the development of improved and novel technologies that can support and ameliorate the production of sustainable and safe high quality dried products. In this regards supercritical carbon dioxide (SC-CO₂) drying can be used as an alternative drying technology able to dry and pasteurize the foodstuffs, preserving most of the initial nutritional values thanks to the low process temperatures.

The aim of this work features on the investigation of SC-CO₂ drying of test food products. The inactivation of naturally present microorganisms and pathogens were evaluated at different process conditions. Moreover, retention of nutrients was compared with respect to conventional drying methods. Overall the results show that supercritical carbon dioxide is a promising novel technology for the drying of food.