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Ultrasound in Wet Biological Materials Subjected to Drying

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The aim of this article is to present the effect of external action of air-borne ultrasound (US) upon biological wet materials subjected to drying. The study allows to determine the drying effectiveness of such products like fruits and vegetables by convective drying with ultrasound enhancement. The vibration and heating effects induced by power ultrasound are considered. The mathematical model of drying is developed and validated experimentally using the data obtained from the experimental tests carried out on the hybrid dryer equipped with ultrasonic generator. The obtained results prove that the vibration effect induced by ultrasound has a great impact on the acceleration of mass transferwithout significant elevation of product temperature, and thus on thedrying efficiency with respect to energy utilization and the quality of dried products like fruits and vegetables.

Key words: Drying;Ultrasound;Biological materials; Experimental; Mathematical modeling.

Bipgraphy:

Kowalski Stefan Jan is a Full Professor in Poznań University of Technology, Faculty of Chemical Technology, Stefan Jan is a Menager of Editor Process Engineering.