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Subscription

Czech J. Food Sci.

Jambrak A.R, Mason T.J., Paniwnyk L.,

Leiaš V.: Ultrasonic effect on pH, electric conductivity, and tissue surface of button mushrooms, Brussels sprouts and cauliflower.

Czech J. Food Sci., 25 (2007): 90-99

The aim of this work was to use ultrasound pre-treatment as a potential method prior to the subsequent processing in the food industry, for button mushrooms, Brussels sprouts, and cauliflower in order to observe the impact of ultrasound on the vegetable surrounding media properties in the processing conditions. The samples treated with 20 kHz probe and 40 kHz bath for 3 and 10 min were compared with blanched (80 ° C/3 min) and untreated samples. The effect was followed of ultrasound and blanching treatments on pH, electrical conductivity,

and temperature changes. The effect of ultrasound on the sample tissue surface was also studied. The pH decreased after the ultrasound treatment with the probe, the largest change having been observed after using a 20 kHz probe for 10 min in all samples as compared with the blanching treatment, whereas it increased in mushroom and cauliflower and decreased in Brussels sprouts. Electric conductivity of the surrounding water before and after the ultrasound and blanching treatments of vegetables increased with all the treatments suggesting the loss of electrolyte. The highest increase was observed with the blanching treatment in all samples, followed by the treatments using an ultrasonic bath (10 min > 3 min) and an ultrasonic probe (3 min > 10 min). The temperature increase in the surrounding water during the ultrasonic treatments was by 1 ° C using the bath, and by 25&des;C using the probe. Staining of cauliflower and button mushroom tissues surfaces carried out for the damage determination showed that cavitation damage (blue spots) was present after the ultrasonical treatment with 20 kHz