THE EFFECTS OF ULTRASONIC TREATMENT IN CANNING TECHNOLOGY

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ABSTRACT

In case of dry red kidney beans, the most time consuming process of the technology is the soaking in the canning industry. The ultrasound treatment is a possible method to reduce the process time required for soaking. In our experiment, the traditional soaking procedure (untreated) with the ultrasonic-assisted soaking one was compared. The ultrasonic treatment was performed at 40 kHz and 300 W of power level. Both soaking experiments were carried out at 25 °C. Based on our results, the soaking time required to double the initial weight of the beans by water uptake can be described by an exponential function. Significant difference was found between the soaking intensity of the untreated control and ultrasound-treated samples. The change in the quality of the soaking water was analyzed also. Significant difference was found between treated and untreated soaking water samples conserning ΔE* values. Our results showed that ultrasonic treatment provides a significant influence on the a* (increase, redder) and L* (decrease, darker) color parameters of the soaking water, clearly showing increased mass transport and faster water uptake features induced by the applied ultrasonic treatments. As a possible positive outcome, this kind of relationship can provide the successful application of ultrasound treatments in canning industry technology development.

Keywords: ultrasounds, canning, technology, hydration