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EVALUATION OF YOGURT FERMENTATION BY AN ULTRASONIC TECHNIQUE

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The aim of this work is to characterize the different process steps of the fermentation of yogurt by an ultrasonic technique. Acidity is conventionally measured by a pH meter to determine the progress of fermentation. However, this method is not practical, since a pH meter requires cleaning and calibration before each measurement. The ultrasonic method is rapid, non-invasive and less expensive. It consists in using an ultrasonic transducer, a generator and a digital oscilloscope. This method may give effect to a lightweight and easy-to-use portable instrument. The study of parameters such as the ultrasonic amplitude and the time of flight, of the echoes backscattered by the sample of yogurt, was able to detect the main phases of the fermentation. A comparison was made between the results of the pH meter and those of the ultrasonic method gives very promising results for real-time control of fermentation in the food industry. On the other hand, our study was compared with a basic and original study (Heertje *et al.*) and provided consistent results. The major contribution of this work is to detect with high accuracy the moment that the fermentation should be finished to stop the reproduction of the bacteria in the yogurt not to have a layer of water in the pot of yogurt.

Keywords: Ultrasonic technique, real-time control, yogurt, fermentation.

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