

Title Monitoring tangerine quality by non-destructive technique
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Abstract

Tangerine quality scoring in this work is carried out by monitoring the ethanol concentration inside the tangerine. Commercially, a tangerine is coated with wax in order to keep it fresh for a longer time. However, waxed tangerine can generate an anaerobic respiration known as “fermentation” which has an effect on the quality of the tangerine. Ethanol is the product of the fermentation, thus, it could be used as a means to determine the quality of the tangerine. From our previous work, we have found that the fermented tangerine has an ethanol concentration more than 50 ppm. In this study, we have tested tangerine with our home-made alcohol meter and compared it with the human taste. The ethanol diffused from the tangerine surface was measured by the meter in a close system, at a constant temperature of 30 °C. For human scoring, the tangerine was orally tasted by two persons then the score was given after eating. From the experimental results, a correlation between the human scores and the ethanol concentrations was established and used for indication of the tangerine quality. By this way it was found that the home-made alcohol meter could be use for continuously monitoring the quality of a tangerine during its transformation from a fresh one to a fermented one, in the non-destructive way.