

Title Experimental investigation of the temperature variation in the vacuum chamber during vacuum cooling
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Abstract

In this paper, vacuum cooling of cooked meats is carried out to investigate the variations of temperature in the vacuum chamber, moisture content and evaporation rate. The experimental results show that the chamber temperature has some fluctuations during vacuum cooling, the variation of temperature in the vacuum chamber includes four different phases: (1) the reduction of the initial chamber temperature from 15.8 °C to 10.7 °C; (2) the increment of the chamber temperature from 10.7 °C to the maximum temperature, 19.2 °C; (3) the reduction of the chamber temperature from the maximum, 19.2 °C to the minimum, 6.1 °C; (4) the increment of the chamber temperature from the minimum temperature, 6.1 °C, to the final chamber temperature, 13.1 °C. In addition, it can be also found that the average moisture content of cooked meat decreases from 71% to 60.69%. The weight loss of cooked meat during vacuum cooling is 10.31%. For evaporation rate during vacuum cooling, there are two periods: an accelerating period and a falling period. The transition from the accelerating evaporation rate period to the falling evaporation rate period occurs after about 4 min.