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Comparison of the single step and double-step sous vide treatment in the quality attributes of chicken breast

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Sous vide is a modern cooking technology which is already applied in the catering industry and in the last 10 years has received considerable attention by researchers. The traditional sous vide treatment is a minimal processing cooking technique that use a single step temperature of 55-70° C and longer time. The quality attributes of meat might be improved by including cooking steps at below 50°C temperatures in the single step sous vide treatment. The main goal of the current study was to investigate the effects of the 1h double step sous vide treatments on the quality attributes of the chicken breast and comparing with the single step sous vide treatment (at 60°C for 1h). The double step sous vide treatments included the 45° C or 55° C as a first step temperature and 60°C was the end temperature. All of the 1h double step sous vide treatments where 45°C was employed as an early temperature had higher tenderness than the single step sous vide treatment. The tenderness effect in chicken breast was partly achieved when 55°C was employed as first step temperature in the sous vide treatment. Redness had higher intensity at the double step SV treatments comparing to the single step SV treatment in case when 45°C temperature was employed as an early temperature. The expressible moisture was higher and the cooking losses were lower in the double step sous vide treatments compared to the single step sous vide treatment. The double step sous vide treatment appears to be an attractive method to produce tender chicken breast with higher water holding capacity and lower cooking losses compared with the single step sous vide treatment.