

IMPROVING THE EATING QUALITY OF SPENT BUFFALO (BUBALUS BUBALIS) MEAT USING SOUS-VIDE COOKING

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Sous vide is a French cooking technique of low temperature and longtime cooking performed under vacuum-packed conditions. The current study was conducted to investigate the effect of the sous vide cooking method with different temperatures and time intervals on the eating quality particularly tenderness of two muscles (Bicep femoris (BF) & Semitendinosus (ST)) of spent buffalo (? 60-month age) meat. Three steaks from each muscle were cooked at three different time-temperature treatments (T1=55? for 480 minutes, T2= 65? for 300 minutes & C= 95? for 45 minutes), where C was the conventional treatment as control. We analyzed physicochemical parameters including pH, cooking loss, cooking yield, tenderness (WBSF), color (raw & cooked), water activity (aW), total water content (TWC), total collagen content (TCC), heat soluble collagen (HSC) myofibrillar fragmentation index (MFI) and sensory evaluation. The results demonstrated that meat cooked around 55? for 480 minutes showed a reduced WBSF value ($p < 0.05$) as compared to the 65? for 300 minutes, while the least value was observed in the control. However, within muscle comparison, semitendinosus (ST) gave more tendered meat as compared to the Bicep femoris (BF). The least cooking losses were observed in low-temperature cooking samples. Hence, more cooking yield ($p < 0.05$) was observed in treatment 1 where cooking was done at 55? for 480 minutes as compared to the other two treatments. Similar results were observed for TWC and MFI. In sensory evaluation, semitendinosus steak that was cooked at 55? for 480 minutes was liked by the sensory panelist as compared to the other treatment groups and had more consumer acceptability. A significant difference ($p < 0.05$) was also observed in the water activity and meat color between treatments. With muscle variation, cooking loss, myofibrillar fragmentation index, total collagen content (TCC), heat soluble collagen (HSC) & color values were significant ($p < 0.05$). Results showed that extended time sous vide cooking along with low temperature helps to reduce toughness and cooking loss while increasing cooking yield and collagen solubility. The key benefit of LTLT sous vide was to provide a better nutritional profile, more uniform cooking, and tendered meat product.