

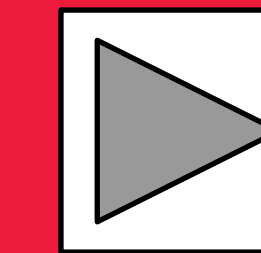


Effects of Sous Vide Cookery on Tenderness, Degrees of Doneness, and Cook Loss Compared to Clamshell Cookery

#035

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Introduction

- Traditional clam shell cooking methods produce varying results
- Sous vide cooking offers more thermal control and consistency in the product

Objectives

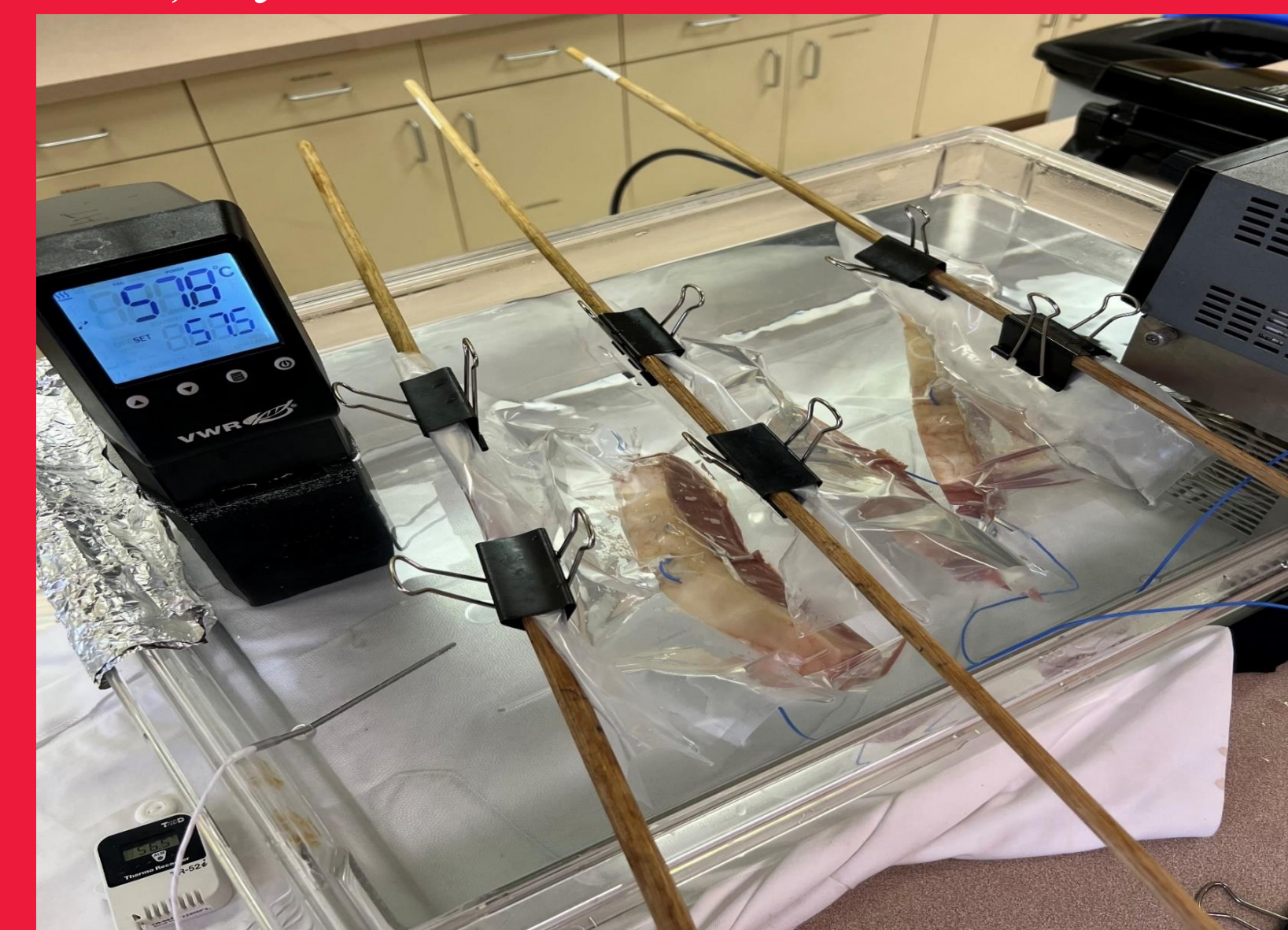
- To evaluate the effects of cooking method and holding times on steaks in the last 1/3rd of the longissimus lumborum on texture and yield
- Better understanding sous vide applications to aid in the efficacy of restaurants and home cooks

Methodology

- Twenty frozen 1/3rd sections of longissimus lumborum (LL) were selected (aged 14 days)
- Four steaks were cut 2.5cm thick and labeled Loc 1-4 anterior to posterior
- Steaks blocked by location were assigned cooking method (CM)
 - Clam shell (CS)
 - Sous vide to temperature (SV0)
 - Sous vide to temperature with 30-minute holding (SV30)
 - Sous vide to temperature with 60-minute holding (SV60)
- Frozen weight, total area, LL area, and 4-point thickness measured prior to thawing
- Thaw weight was collected
- Steaks were cooked to the target temperature of 57.2°C (CS pulled at 55°C for thermal rise)
- Samples were weighed and chilled
- Six cores (1.27 cm diameter) per steak were taken parallel to the muscle fiber
 - Cores were used to evaluate degrees of doneness (DOD)
 - Cores were sheared perpendicular to the muscle fibers for Warner-Bratzler shear force (WBSF)
- Data was analyzed as Randomized Complete Block Design
 - Fixed effects were cooking method and location
 - Random term was day

Results

- There were no CM x LOC interactions ($P > 0.05$)
- The CS had 8.62% and 7.1 % greater cook loss from SV0 and SV30, respectively ($P < 0.02$), and was not different ($P > 0.05$) from SV60. Steak location did not affect ($P > 0.05$) cook loss
- Warner-Bratzler shear force was not different among SV0, SV30, and SV60 ($P > 0.05$), however, CS had greater ($P < 0.05$) WBSF than any of the SV treatments. There was no LOC effect on WBSF ($P > 0.05$)
- Cooking method impacted DOD ($P < 0.01$), CS had greater DOD than SV0, SV30, and SV60 ($P < 0.01$). Degree of doneness was not affected ($P > 0.05$) by LOC



Conclusion

- Sous vide cookery of LL steaks decreases cooking loss, results in consistent degree of doneness, and provides a more tender product
- Holding LL steaks up to 60 minutes after reaching temperature may not impact tenderness, but does increase cook loss

Acknowledgements

Funding was provided in part by USDA HATCH



Figure 1. Sous vide tank setup



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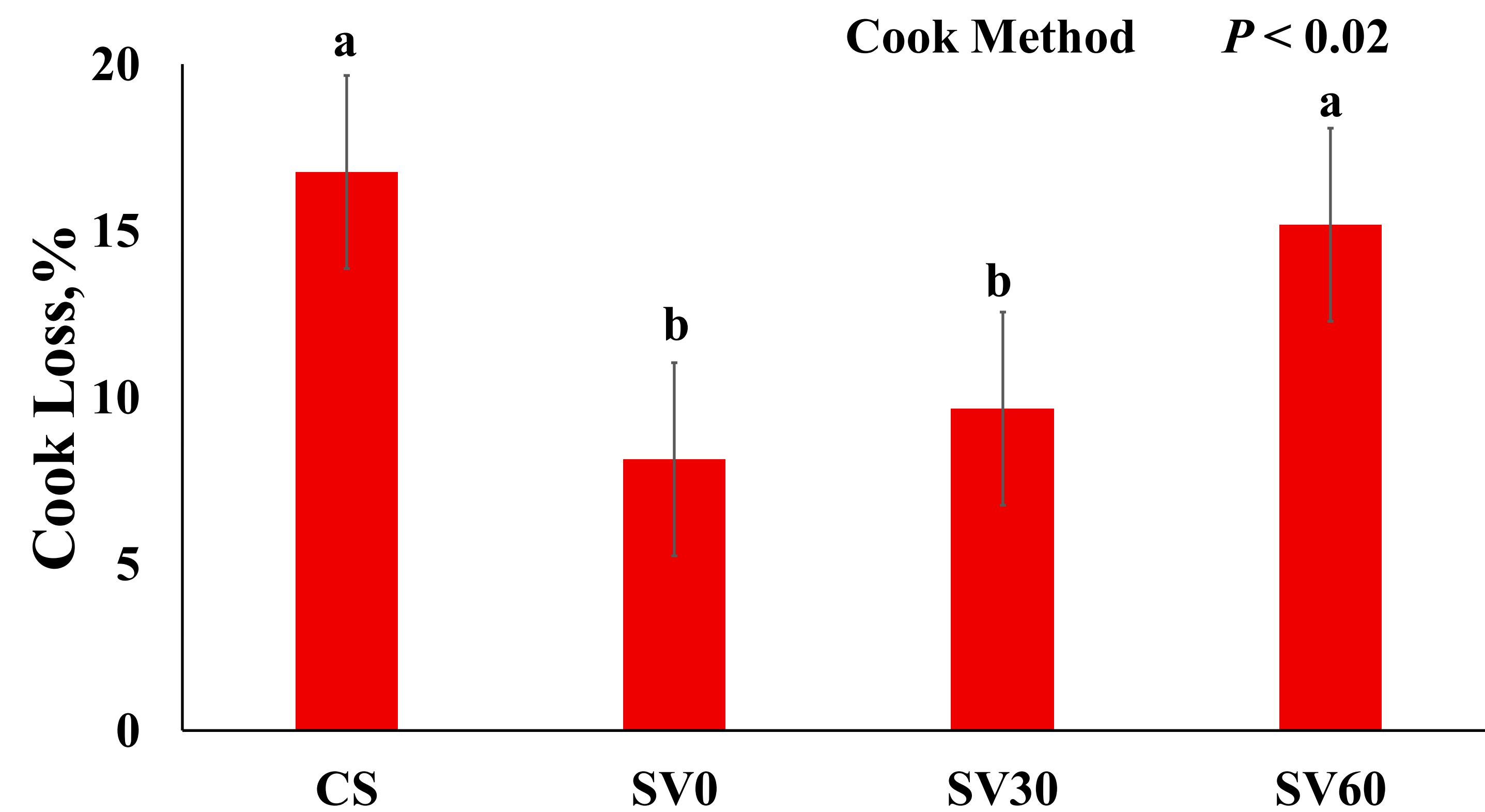
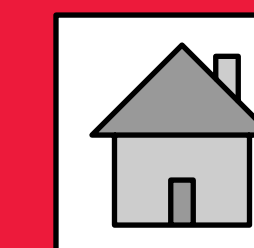


Figure 2. Effects of cooking method on percent cook loss of LL steaks

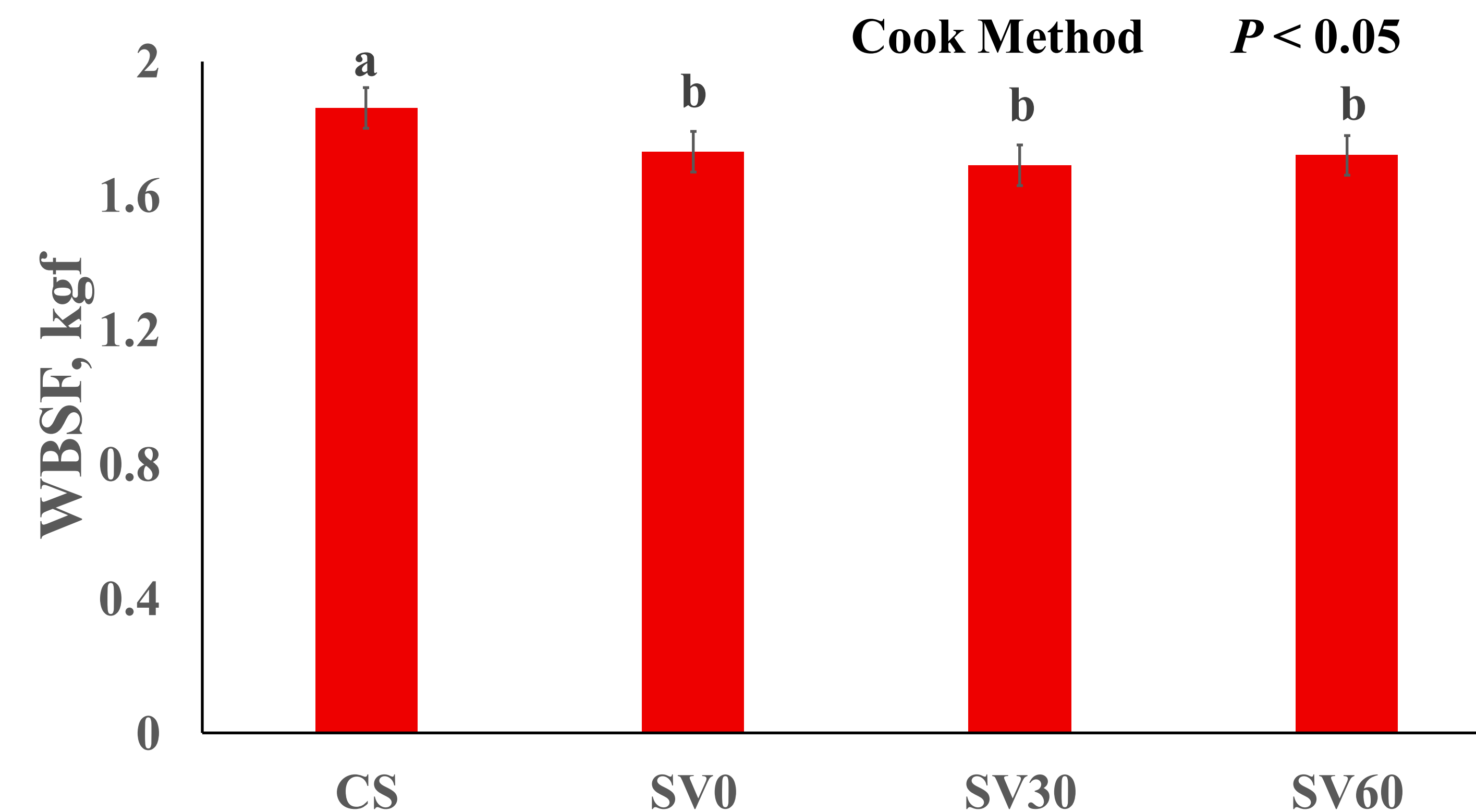


Figure 3. Effects of cooking method on WBSF of LL steaks

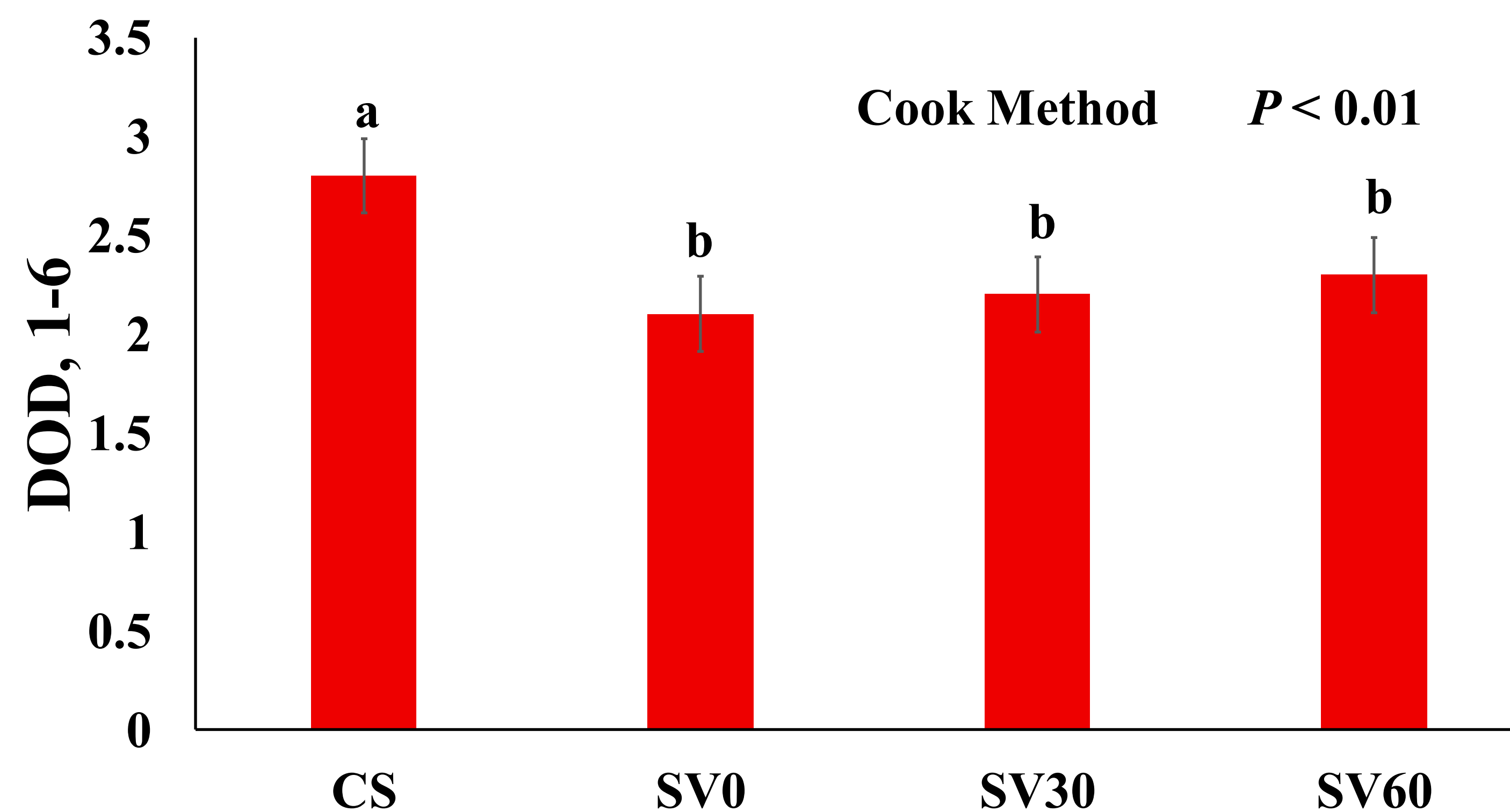


Figure 4. Effects of cooking method on degrees of doneness on LL steaks



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