Sensory acceptability and chemical characteristics of healthy rib-eye steaks from forage-finished steers

Damin Dennis Torrico, Wannita Jirangrit, Guillermo Scaglia, Fatemeh Malekian, Marlene Janes, Kenneth McMillin and Witloon Prinyawiwatkul

INTRODUCTION

Numerous studies have demonstrated the need to increase intakes of polyunsaturated fatty acids (PUFA), especially those belonging to the omega-3 (n-3) group, to foods for infants and adults (Ridding et al. 2009). The presence of n-3 fatty acids is an important determinant in decreasing the risk coronary heart diseases. The n-6/n-3 fatty acid ratio is a crucial variable to modify in order to decrease the risk of developing heart diseases (Miller et al. 1980). Hispanic population is an important ethnic group to consider for product marketing.

MATERIALS AND METHODS

Sensory, feeding systems, and rib-eye steaks: Steers were blocked into nine groups (6 steers/group) and each group was randomly assigned to one of three forage feeding systems (Table 1). Two steers per group (18 steers) were selected and harrowed. Six rib steaks from each steer (left and right of each carcass 14 samples were used for two steaks. The left rib steaks were used for the freshly harvested beef consumer study (first study) and left rib steaks were stored for 5 months -20 °C for the second study. Treatment labels are specified in Table 1.

RESULTS

CONCLUSIONS

DISCUSSION

Consumer acceptance of different cooked rib-eye steaks (freshly harvested beef): For all sensory attributes, no significant differences were found between cooking methods except for S3 where the grilling method had a higher mean score compared to 2-sided grilling. For overall appearance and overall beef flavor, no significant differences were found (P > 0.05) among steaks treatments regarding the mean consumer acceptances. For juiciness, tenderness and overall liking, C (2-sided grilling and grilling) and S3(grilling) consistently presented higher mean scores compared to other treatments. Differences regarding forage-finished steaks treatments could be due to differences in sensory panels or quality of the grasses used (Miller et al. 1980). The purchase intent of all cooked steaks treatments was greater than 60%. Overall liking of S3 and S2 was negatively affected by the lack of juiciness and/or tenderness. Conversely for C, less than 21.4% of the consumers perceived the steak not juicy enough and less than 16.3% considered the steaks to be not tender enough. The attributes tenderness, juiciness and overall liking were the main factors that influenced the consumer acceptance of forage-finished steers (Table 6) of the linear discriminant functions.

CONCLUSIONS

Two cooking methods did not cause significant differences in liking scores. Purchase intent was affected by the lack of knowing the health benefits of forage-finished steaks. The acceptability of forage-finished beef was not affected by the frozen storage. This study demonstrated that forage-finished steaks are potentially healthier than grain-fed commercial steaks and forage-finished steaks, especially those obtained from S3 production system, have market potential toward Hispanic population.

Table 2 Mean values* for the proximate and fatty acids analyses of the raw rib-eye steaks

Table 3 Mean acceptances scores for overall appearance and overall appearance of the let of rib-eye steaks and their positive purchase intent

Table 4 Mean values for sensory attributes of raw rib-eye steaks

Table 5 Mean acceptances scores for sensory attributes of rib-eye steaks cooked by the grilling method (frozen stored during 5 months)

Table 6 Presents within canonical structure (n) describing variables that underlie group differences

CONCLUSIONS

Consumer acceptance of different cooked rib-eye steaks (frozen stored for 5 months): For overall liking, S3 presented a significant higher mean score compared to 2-sided but was not significantly different to S1. The purchase intent of cooked S3 was presented a significant lower mean score compared to 2-sided and S1. The purchase intent of all cooked steaks treatments was greater than 60%. Overall liking of S3 and S2 was negatively affected by the lack of juiciness and/or tenderness. Conversely for C, less than 21.4% of the consumers perceived the steak not juicy enough and less than 16.3% considered the steaks to be not tender enough. The attributes tenderness, juiciness and overall liking were the main factors that influenced the consumer acceptance of forage-finished steers (Table 6) of the linear discriminant functions.

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Torrico, D

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