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, for both infants and adults (Ridder et al. 2008). The balance of n-6:n-3 fatty acids is an important determinant in decreasing the risk coronary heart disease. The n-3:n-3 enrichment can be achieved by modifying dietary animal fat sources. The concern is not only n-3:n-3 enrichment, but also the intake levels of certain saturated acidities including flavor, juiciness, tenderness and overall acceptability. The availability of grass-finished beef during the whole year can be achieved by finishing steers in confinement. However, freezing and stored condition can affect the structural and chemical properties of muscle foods (Miller et al. 1988).

Sensory acceptability characteristics of healthy ribeye steaks from forage-finished steers

MATERIALS AND METHODS

Steers, feeding systems, and rib-eye steaks: Steers were blocked into nine groups (6 steers/group) and each group was randomly assigned to one of the three forage feeding systems (Table 1). Two steers per group (10 steers) were selected and harvested. Six rib-eye steaks from each steer (6 and 4 cervices) (18 steaks) were for used sensory testing. Right hind quarter steaks from the forfed beef harvest carcasses were used for sensory analysis (first study) and left hind quarter steaks were stored for 5 months -20 °C for the second study. Treatments were evaluated on 2.5 cm thick steaks (eye steaks) (United States Department of Agriculture, 2008) with Warner-Bratzler shears, and one commercially available eye steak (C, USDA Choice grade, Winn Dixie, Baton Rouge, LA) was used as a reference. The treatment * treatment interactions were used to determine differences in prices. Consumer interest in health benefits of forage-finished beef has lead to increased product demand. To date, little information is available on sensory acceptability and chemical characteristics of rib-eye steaks from forage-finished steers. Rib-eye steaks from 3 forage-finished steers (S1 (bermudagrass+ryegrass, etc.); S2 (bermudagrass+ryegrass, etc.); S3 (bermudagrass+ryegrass, etc.); S2 (bermudagrass+ryegrass, etc.); and S3 (bermudagrass+ryegrass, etc.) beef, and degree of doneness. Two cooking procedures were used: "2-sided grilling" and "1-sided grilling using a rotisserie" (Dixie, Baton Rouge, LA, Table 1).

RESULTS

The results of this study were the evaluation of the sensory acceptability, chemical characteristics and microbiological safety of ribeye steaks, from forage-finished steers and one commercial steak cooked by grilling and/or 2-sided grilling using Hispanic consumers. In addition to this, acceptability of soymeal added rib-eye steaks were also assessed. Cooked and raw rib-eye steaks were free of E. coli. This study demonstrated that forage-finished steaks are potentially healthier than grain-fed commercial steaks and have market potential toward Hispanic population.

CONCLUSIONS

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

DISCUSSION

Consumer acceptability of different cooked rib-eye steaks (frozen stored for 5 months): For all sensory attributes, no significant difference was found between cooking methods except for C where the grilling method had a higher mean score compared to 2-sided grilling. For overall appearance and overall beef flavor, no significant difference was found (P = 0.05) among steaks treatments regarding the mean consumer acceptance scores. For juiciness, tenderness and overall liking C (2-sided grilling and grilling) and S3(grilling) presented higher mean scores compared to other treatments. Differences of forage-finished steaks treatments could be due to differences in sensory panels or quality of the grasses (Miller et al. 1988). The purchase intent of all cooked steaks treatments was greater than 60%. Overall liking of 53 and S2 was negatively affected by the lack of juiciness and tenderness. Conversely for C, less than 21.52% of the panelists considered the steaks not juicy enough and less than 16.36% considered the steaks to be not tender enough. The attributes tenderness, juiciness and overall liking of forage-finished steaks S3 were significantly higher than other treatments. However, freezing and frozen storage can affect the sensory acceptability of beef (74.4%, dry weight basis) contents compared with S1 and S2. S1 and S3 had higher omega-3 (49.05 vs. 0.09), lower omega-6:omega-3 ratio (251.81 vs. 10.07), and lower PUFA (34.14±77 vs. 4.84%) contents than C, thus exhibiting a healthier fatty acid profile. Concentration of total fatty acids (Figure 1, size of each picture of 8” x 11”) of the different treatments. Attributes evaluated of the cooked steaks were juiciness, tenderness and overall acceptability. The availability of grass-finished beef during the whole year can be achieved by finishing steers in confinement. However, freezing and frozen storage can affect the structural and chemical properties of muscle foods (Miller et al. 1988).
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Torrico, D

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