ALTERNATE MUSCLES FOR BEEF FAJITAS

Koushik Adhikari[1], Diana Huerta-Montauti[2], Rhonda Miller[2], Jeffrey Savell[2]

[1]Sensory Analysis Center, Department of Human Nutrition, Kansas State University, Manhattan, KS 66506
[2]Meat Science Group, Texas A&M University, College Station, TX 77843

INTRODUCTION

Juan Antonio "Sonny" Falcon claims that he was the one that came up with the term fajita and the dish. Sonny was an employee of the shipping-and-receiving department of the old Austin Meat Company where he and other employees would prepare creative dishes with trimmings. One of the dishes that evolved were fajitas but no one paid much attention to it. In the 1960s, Sonny worked in his in-law's store as the meat-market manager. He says that he looked at the skirt steak and would say to himself that it looked just like a belt, which, in Spanish, is called "faja," with "fajita" as the diminutive form. Sonny thought that he could attract more people to the family business by marketing this cut so he set up a concession booth at a weeklong outdoor event at the Dies y Seis celebration in Kyle, Texas. At this event, he sold some fajitas but made little money. Sonny kept promoting the product at different events to the point that he was christened "The Fajita King," for which he owns the trademark (Wood 2005).

Over the years, the demand for both inside and outside skirt steaks has dramatically increased due to the popularity of fajitas, thus increasing purchasing costs for consumers, retailers, and foodservice. Many entities, especially those in foodservice, need other thin muscle alternatives to serve as fajitas and compete successfully with the demand for inside and outside skirt steaks. Thus, there is a substantial need to evaluate alternative muscles from the beef carcass in combination with traditional processing techniques, such as tenderization and marination, to provide the industry and consumers with highly palatable, fajita options from the under-utilized thin muscles of the chuck.

OBJECTIVE

The objective of the present study was to determine if alternative muscles might have similar eating characteristics to those currently marketed as beef fajitas. Descriptive analysis and consumer evaluations were carried out.

EXPERIMENTAL

MUSCLES

Seven muscles were used –

- *M. obliquus abdominis internus* (Flap)
- *M. transversus abdominis* (In)
- *M. latissimus* (Lati)
- *M. diaphragma pars costalis* (Out)
- *M. rhomboideus* (Rhom)
- *M. serratus ventralis* (Serr)
- *M. trapezius* (Trap)

TREATMENTS

All the seven muscles were subjected to four different treatments –

- Control (C)
- Blade tenderized (B)
- Papain (P)
- Papain + blade tenderized (P+B)

TRAINED PANEL

A six-member expert meat and flavor descriptive attribute panel was trained for two days to familiarize them with samples that would be used in the study. Panelists were trained as defined by AMSA (1995) and Meilgaard, Civille, and Carr (1999). This panel had over 18 years of extensive training and experience in evaluation of beef. Blind evaluations were performed using a a 9-point (0-8) scale over ten sensory days. Each panelist first received a warm-up sample (unseasoned top loin) that was standardized across sensory days. Panelists were seated in individual booths under red lights to reduce communication and mask differences in visual appearance of samples.

ATTRIBUTES

Juiciness (JUICE)
Muscle Fiber Tenderness (MFT)
Connective Tissue (CT)
Overall Tenderness (OT)
Cooked Beef Lean (CBLEAN)
Cooked Beef Fat (CBFAT)
Serum/Bloody (SERUM)
Livery (LIVER)
Cardboard (CARD)
Burned (BURNED)
Chemical (CHEM)

CONSUMER PANEL

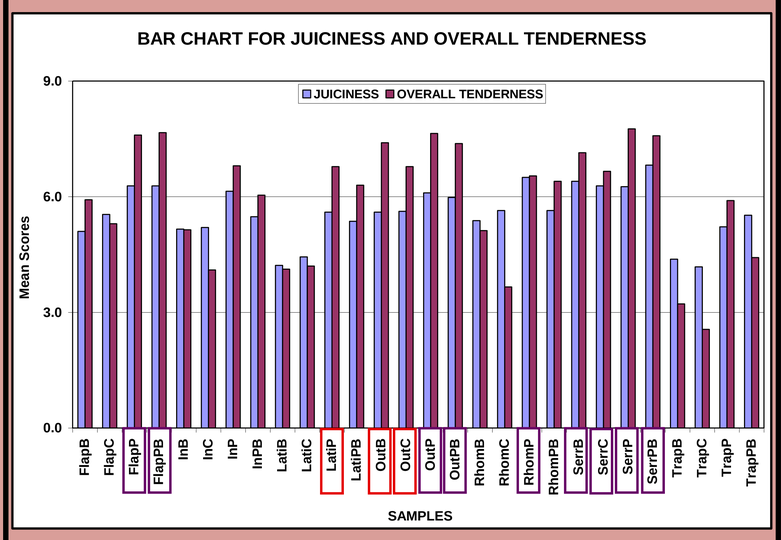
Randomly selected consumer panelists (n=81) evaluated overall like/dislike of the fajita using a 9-point hedonic scale.

ANALYSES

Analysis of Variance was done to look at the differences in the 28 fajita samples because of the descriptive attributes.

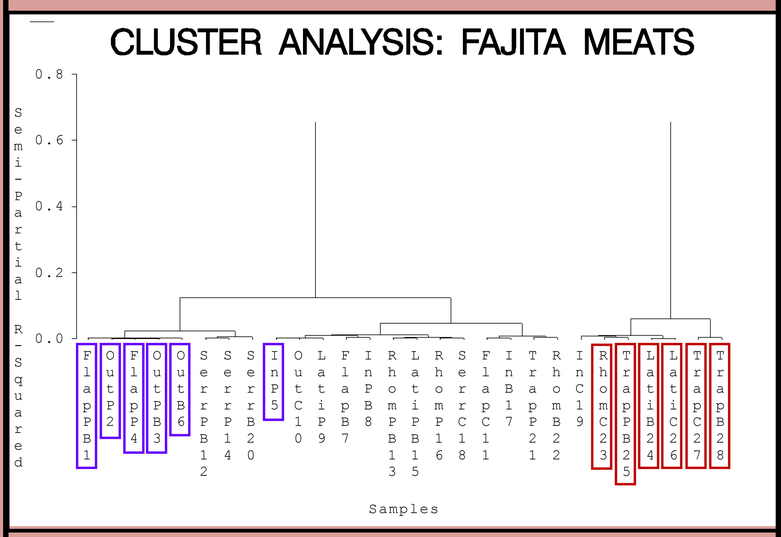
Cluster Analysis was performed using juiciness, overall tenderness, muscle fiber tenderness, connective tissue tenderness, cooked beef lean flavor , and overall acceptability data. All analyses were carried out on SAS® (9.1.3)

RESULTS



In general, the muscles treated with papain, or a combination of papain and blade tenderization were juicy and tender, except for Trap and In muscles.

It was noted that Out and Serr muscles were very tender (>6.5) irrespective of the treatment applied.



Four of five most acceptable samples were in the 1st cluster, and they were from Flap and Out muscles that underwent papain or papain + blade tenderization treatments.

The Out muscles were a little less juicier as compared to the Flap muscles indicating that for fajita meat, consumers may prefer meat that retains some degree of dryness and chewiness while still being tender, acceptably juicy and having higher cooked beef lean flavor.