

Physicochemical Characteristics that influence the meat pork quality in Supermarkets in the Central Highlands of Mexico

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Abstract: *Introduction:* Twenty-two supermarkets in the Central Highlands of Mexico were sampled in order to classify them and to compare their pork meat quality based on its physicochemical characteristics. The supermarkets were classified in three types in accordance with socioeconomic status of buyers as low, medium, and high. *Methods:* Samples were obtained from the *Longissimus dorsi* muscle from 10th to 12th ribs. *Results:* Objective color was L* 46.97, a* 6.22 and b* 5.1. Subjective color indicated that it was red with a value of 3.06, subjective marbling was 2.8 %, and objective value was 2.9 %. Moisture varied from 690 to 739.3 g/kg, protein varied from 205.5 g/kg to 229.6 g/kg and shear force (SF) was 2.87 kg/cm². There were no significant differences (P≥0.05) between the variables besides subjective marbling. Tukey's test indicated that the lowest average included low and medium socioeconomic status supermarkets, which means that the fat content found in the chop eye is less than in meat in high socioeconomic level supermarkets. *Conclusions and recommendations:* According to the results, pork sold in the supermarkets in the Central Highlands of Mexico was a tender meat with reddish pink color, firm texture and little exudation and with an appropriate protein and intramuscular fat contents.

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Key words: pig, shear force, meat quality, marbling.

1. Introduction

Supermarkets in the Central Highlands of Mexico are demanding a product with certain desirable characteristics for the consumer. It has to be edible, nutritious and healthy, among others. Then, meat has to combine a number of characteristics that allows producing the most satisfactory quality with the best yield too. Meat quality includes many factors, some linked to human senses, health, safety and technological (Verbeke *et al.*, 2010; Hui, 2007; Grunert *et al.*, 2004; Resenfeld and Andersen, 2003; AMSA 2000). In Mexico, one of the most pork meats producing is the Estado de México. Mexicans annually consume more than 1.7 million tons of pork meat, which 34.0 % are acquired abroad, mainly from United States markets.

One of the principal factors that affects domestic pig production performance is the rising cost of the grains used in livestock feed. In contrast to technically advanced and integrated producers who has an appropriation of marketing, value added and livestock processing. The complicated situation of world economy and the rising cost of the grains used in livestock feed, are two of the main factors that impact on domestic pig production performance (SAGARPA, 2009).

Mexican supermarkets are great pork meat buyers, which are characterized to sell fine cuts meat with suitable hygienic conditions. Even when at the beginning its market linkage corresponded to offer a wide range of products to the consumers. Now days, one of the most dynamic sections within the supermarkets is meat. They have had a positive impact in the Mexican society because they generate a wide supply of products (variety, quality, brands and prices), but mainly a constant supply throughout the year. Then, it is also recognized that the market systems modernization has allowed the proliferation of small supermarkets, letting to extend the points of sale in order to make the constant supply. Nevertheless, meat quality changes among the supermarkets, originating different prices (meat/kilo) for the same cut because of the supermarket kind.

In summary, this study proposes supermarkets classification based mainly on the socioeconomic status of the consumers. Although a previous classification does not determine the meat quality sold in each one of these supermarkets. Furthermore, the present research proposes to apply a methodology in order to determine the meat quality (Physicochemical parameters) from an objective and subjective perspective.

2. Materials and Methods

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Resilient and Responsible Smart Cities Eduardo L. Krüger, Hirushie Pramuditha Karunathilake, Tanweer Alam, 2023-03-30

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Hampton, Salman Azhar, Amelia D. Saul, 2020-12-21 This book gathers papers presented at the 11th International Conference on Construction in the 21st Century held in London in 2019 Bringing together a diverse group of government agencies academics professionals and students the book addresses issues related to construction safety innovative technologies lean and sustainable construction international construction improving quality and productivity and innovative materials in the construction industry In addition it highlights international collaborations between various disciplines in the areas of construction engineering management and technology The book demonstrates that as the industry moves forward in an ever complex global economy multi national collaboration is crucial and its future growth will undoubtedly depend on international teamwork and alliances

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