Abstract

Characterization of dry-cured hams with appropriate texture for mechanical slicing and acceptable for consumers

The tendency to increase the distribution of sliced and packaged dry cured ham, along with the increasing demand on the part of the consumers for a decrease in the content of salt in cured meat products, has increased the problem of hams with excessively soft and sticky texture. The technological modifications made to cover this demand for the product (sliced dry cured ham with a low salt content) can affect other sensory characteristics and, thereby, the acceptability of the consumers. On the basis of the above the present study was to quantify the combined effect of meat quality characteristics and processing conditions on the final texture, and also to define the texture characteristics that are critical for correct mechanical slicing and sensory characteristics acceptable to the consumer. Accordingly, six studies were raised and developed. In the first study the beliefs and attitudes of consumers and butchers towards soft and pasty texture problems, focusing on ascertaining the perceptions of participants towards texture problems were evaluated. In the second study the instrumental method for evaluating the pastiness and softness texture problems in dry-cured ham was defined. In the third study the effect of meat quality characteristics (pH and Intramuscular fat) and some processing conditions (NaCl content, water content, ageing temperature) on the softness of dry-cured muscles were quantified. In the fourth study the temperature and time combined effect on the texture of pieces of dry-cured ham were evaluated. In the fifth study the texture measured instrumentally, sensory characteristics and the aptitude for mechanical slicing of dry-cured ham at final of the process with different pH levels, salt contents and ageing temperatures were related. Finally, in the sixth study was evaluated consumer expectations and preferences of drycured ham with different pH levels and salt contents. The main results observed in these studies were: The texture problems in dry-cured ham (softness and pastiness) were considered important by butchers because complicate mechanical slicing and decrease its acceptability. For the consumer, the sensory attributes were considered more important than extrinsic characteristics when purchasing dry-cured ham. The instrumental texture tests and the assay conditions that detect defective textures better depend on the muscle considered. For the BF muscle, in the present study is proposed using the SR test at 4 ºC and at 1 mm/s crosshead speed, whereas for SM muscle, the TPA test at 10 mm/s and either at 4 °C or 20 ºC. In dry-cured meat products with short processing raw matter with pH > 6.0 increase softness incidence. On the other hand, in dry–cured ham of longer dry–cured process, raw matter with pH between 5,7 and 5,9 is obtained an appropriate texture to slice and to satisfy consumer preferences. A positive relationship between softness and moisture content in dry–cured biceps femoris muscles has been found. This relationship depended on the Ageing temperature applied at the end of drying. The thermal treatment at 30 ºC for 168 h on both dry–cured ham muscle dices and dry–cured ham sections decreased softness in BF muscle, without increasing hardness in SM muscle or affecting physicochemical analyses. To reduce softness incidence in dry–cured ham caused by a reduction in the NaCl content, raw matter with pH >5.7 have to be used and also a thermal treatment of 30ºC at the last 10 days of ageing have to be applied. Colour, marbling and presence/absence of white film influenced consumer expectations. Differences between expected and experienced acceptability were found, which indicates that the visual evaluation of hams by consumers does not allow them to make the best purchase decision. In conjoint
analysis, the consumer preferred Medium texture and long processing time (18 months). Bitter and metallic flavour and excessive saltiness and piquantness affected negatively consumer preferences of dry-cured ham.