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Tuesday, April 29, 2008

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Science Improves Quality Assesment for Iberian Meat

SPAIN - Swift identification of animal meat for human consumption a key element when guaranteeing the quality of products for consumers and producers. Now, scientists at the University of Granada's Pathological Anatomy and Chemical Engineering department have developed a new technique that can speed up the process and enhance results.

By combining technologies from different scientific and technical fields, which allow an immediate classification of Iberian pig meat, they can guarantee the quality of these products.

Iberian pig meat is a traditional Spanish product - seen as an exponent of good taste and maximum gastronomic quality. In recent years, a booming economic sector has developed and its popularity has grown outside Spain. The is an expanding market for Iberian ham, and dried meat, cold meats and quality cuts are exported all over the world.

Up to now, producers and processors have been using methods based on traditional processes like tasting and genetic assessment to determine the quality and purity of Iberian pig meat. However, after more than four years of research, by Fernando García del Moral Martín, under the la direction of Drs Francisco O'Valle Ravassa and Leopoldo Martínez Nieto, has produced a new computer application for the classification of Iberian pig meat. The system uses morphometry and spectral reflectance to assess meat quality. The application can automatically quantify the intramuscular connective tissue and the retraction of the muscular fibres from the images it takes.

Combined Techniques

The work has two essential areas.

"First, we have addressed the "histological quantification by artificial vision of six animal species: White pig of the Large White hybrid breed, Iberian pig, lamb, cow of the Galician Blonde breed, Kobe ox and pigeon," García del Moral said.

"Second, the study has developed non-invasive techniques with a high analysis potential, such as spectral reflectance in the visible range and close infrared of the spectrum. They have worked with 30 porcine animals, 15 of white breed and 15 more of pure Iberian breed. They have carried out, in all of them, the quantification of the spectral reflectance on the masseter muscle of the animal's jawbone," he added.

The combination of spectral radiometry and artificial vision techniques conceived in this doctoral thesis, means that the scientists have been able to design computer samples of neuronal networks which correctly classify the meat samples, in all cases, with a success rate over 97 per cent.

Advancing

The research, both the thesis and the scientific papers, have been inserted in the project "Improvement of the Iberian pig meat's gastronomic quality: a textural, physical-chemical, histological and culinary study".

The study is now at a more advanced stage which means the transference of research results to the productive sector. The current objective is to carry out a more advanced study with 66 Iberian pigs applying the above mentioned techniques in order to identify the genetic purity of the Iberian phenotype expressed in animals, as well as to improve the control, security and quality levels in the productive chain according to the 'from the farm to the table' philosophy.

The project has been possible thanks to the support of the Technological Corporation of Andalusia, the Stock Cooperative Society Valle de los Pedroches (COVAP) and Bodegas Campos.











The research has been backed by several articles published in the "Journal of Food Engineering" and a doctoral thesis.

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