Editorial

Technologies in Meat Traceability, Authenticity and Safety

Keywords: Traceability, meat, consumer, communication, DNA, origin denomination, breed, species-specific detection.

Traceability is an indispensible feature of food safety. It allows providing consumers with information concerning the products but also is crucial for surveillance, i.e. in cases of contamination outbreaks could help into the investigation of the possible and causes. Thus the identification of the origin of food, feed ingredients and food sources is of prime importance, particularly when products are found to be faulty [1]. European regulation EC/178/2002 (applied in 2005) defines traceability as the ability to trace and follow food, feed, and ingredients through all stages of production, processing and distribution [2]. In the U.S., the "Bioterrorism Act" of 2002, authorizes the Food and Drug Administration (FDA) to order the detention of any food, if exists "credible evidence or information" exist to indicating that the article "presents a threat of serious adverse health consequences or death to humans or animals" [3]. Since then a variety of animal identification and traceability systems have been quickly developed and being used for livestock, meat and meat products. Even though, it is still common to notice a confusion in the use of the terms ''identification'', "traceability" and "verification". Smith et al. [4] state about the meat industry in US: "it is easy to identify, very difficult to accomplish traceability, and even more difficult to verify identity, traceability and claims about livestock and meat".

The meat chain comprises different stages that should be traced to certify quality and safety of a product from "farm to fork". Diverse methods and technologies have been used for livestock identification like cattle passports, ear tags and RFID systems, and many countries have implemented an identification protocol and traceability program [4-6]. Further animal or meat processes, during and after slaughter, could lead to a mislabeling (intentional or unintentional) of the product. In this sense many biological and inorganic compounds have been used to define a "fingerprinting" of an animal, breed or specie, to be used then to trace the whole meat chain or validate the traceability process. DNA, trace elements, isotopes methods, infra-red spectroscopic techniques, chromatographic methods and nuclear magnetic resonance are some examples of molecules or technologies used/evaluated, for this purpose [7]. Generally, the included information on a food label is only related to compositional and nutrition data. Hence, one of the key aspects about traceability and authenticity is how and when to communicate the information to the consumer, in order to add value to the product.

In this issue, the reader will find three papers describing the developments and the patents, claims in key aspects of the traceability of meat and meat products: the structure of a traceability program and consumers´ communication, specie-specific detection, and value-added product certification. Dr. Lehr clearly explains the constitution and the obstacles of a food traceability program, for further reviewing the progress done over the communication of safety and authenticity to the consumer. Dr. Rogberg-Muñoz *et al*. describe the state of the art and the advances for species-specific identification and composition of raw and processed meat product. Dr. Nicoloso *et al*. deeply illustrate the DNA based traceability at different levels, breed and individual, and its utility for Protected Geographical Status certification of animal products.

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