

Information note:
IDENTIFICATION OF ANIMAL SPECIES ORIGIN IN GELATINE

In the recent years, several public and commercial laboratories published analytical methods for the identification of animal species origin in foodstuffs. Some of these laboratories also focussed on the analysis of gelatine.

This paper describes the current status as to the key existing methods for animal species identification for gelatine. The information provided herein is based on the input of external experts, mainly laboratories and non-GME affiliated companies that performed testing based on samples provided by GME member companies.

Before addressing analytical techniques below, it is good to note that GME-affiliated manufacturers of gelatine can guarantee the origin of their products through documented traceability of raw materials, the process technology and production procedures. To provide additional confirmation that the gelatine produced is derived from either bovine, porcine or other animal source, GME welcomes reliable and reproducible test methods.

PCR

PCR (Polymerase Chain Reaction) methods rely on DNA in a sample to identify the animal species. The fact that the manufacturing process of gelatine intrinsically limits the amount and quality of DNA fragments present in the final product, hampers the use of (even advanced) PCR techniques.

To date, no formally validated PCR method is available to confirm the origin of raw materials used for gelatine production. The European Reference Laboratory for animal proteins in feedstuffs (EURL-AP) commented on this topic as follows:

“The EURL-AP confirms that there is no PCR method validated for the determination of animal species present in gelatines. Due to the specific process of these products, there remains only very few targets that could be amplified by PCR and a LOD would be very complicated to determine. From the results obtained on well-known samples, the PCR does not appear as a method fit for the purpose.”



ELISA

Some ELISA (Enzyme-Linked Immuno Sorbent Assay) methods have been investigated as an alternative to PCR.

Yet none of these methods (PCR and ELISA) have been validated so far. Regarding this topic, EURL-AP added the following phrase to their aforementioned comment on PCR:

“To the best of our knowledge, the situation is identical for ELISA or immunological methods in general.”

LC-MS

LC-MS (Liquid Chromatography – Mass Spectrometry) analysis on protein digests has shown promising results with well characterised samples. It is supported by GME as a possible approach to identify animal species, though the capability of any laboratory applying the method should be carefully verified on an individual basis.

Validation period: until end 2023

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