

## **P.50.- Detection of animal DNA in feedstuffs by Polymerase Chain Reaction compared with the official microscopic method**

*L. Decastelli<sup>1</sup>, C. Modena<sup>1</sup>, J. Lai<sup>1</sup>, M. T. Bottero<sup>2</sup>, A. Ferrari<sup>3</sup>, S. Sant<sup>3</sup>, M. Gorla<sup>3</sup>, S. Squadrone<sup>3</sup>*

<sup>1</sup> Istituto Zooprofilattico Sperimentale del Piemonte, Liguria e Valle d'Aosta - Via Bologna 148, 10154 Torino, Italy, ([lucia.decastelli@izsto.it](mailto:lucia.decastelli@izsto.it))

<sup>2</sup> Dip. Patologia Animale, Univ. degli Studi di Torino - Via L. da Vinci 44, 10095 Grugliasco, Torino, Italy, ([mariateresa.bottero@unito.it](mailto:mariateresa.bottero@unito.it))

<sup>3</sup> Ist. Zoop. Sperimentale del Piemonte, Liguria e Valle d'Aosta - Via Bologna 148, 10154 Torino, Italy, ([stefania.squadrone@izsto.it](mailto:stefania.squadrone@izsto.it))

EU regulations (98/88/EC and 2003/126/EC) established the official control to evaluate the presence of animal-derived constituents in feedstuffs by a microscopic examination. However, the need of alternative analytical approaches is largely highlighted.

In the last years many studies extensively investigated the application of molecular techniques (PCR) to such analysis.

The aim of this study is to compare the official microscopic method with a multiplex PCR method to detect animal materials in feedstuffs. 201 feed samples from the routinely official controls resulted negative for the presence of constituents of animal origin by microscopic method.

The same samples were then investigated for vertebrates specific DNA (16S rRNA gene) by PCR (Bottero et al. J. Food Prot. 2003: 66, vol. 12) and the presence of animal-derived constituents was detected in 45 samples. For the simultaneous detection of ruminant, pork, fish and poultry DNA a multiplex PCR (Dalmaso et al. Mol. Cell. Probes 2004, 18 (2) was performed; 16 samples resulted positive for ruminant DNA, 5 for poultry and 1 for pork.

The PCR analytical method seems to be sensitive and it also seems to overcome the resolution efficiency of the official microscopic method. Therefore, because of high sensitivity of PCR in detecting animal DNA in feeds, it would be difficult to discriminate between fraud and non intentional contamination of animal origin. PCR analysis can detect as well the presence of animal constituents, as blood, that are impossible to discriminate by the official microscopic method. On the other hand the presence of not banned animal-derived products (EU Regulation 2003/1234/EC) could mask the presence of not allowed animal materials.

In conclusion PCR analysis could be a useful tool to confirm positive samples and also to identify the species of animal constituents in feeds but it cannot be used as the only screening method. Select the field and type or paste the text.

### **Keywords**

*Feedstuffs, microscopic method, PCR*