MATERIALS AND METHOD:

The method is validated and is currently accredited by ENAC for analysis of Nicarbazin, Robenidine, Diclazuril and Sulfaquinoxaline in egg and muscle matrices of sheep, pigs, goats, bovine, rabbits and poultry (quail and chicken). Values of the limit of decision (LOD) are established in RD 1749/1998). If they are classified by their origin there are two groups, the polyether ionophoric anticoccidial, such as salinomycin, monensin, narasin and maduramicin, and the organic synthetic anticoccidial like diclazuril, sulfaquinoxaline, nicarbazin and robenidine.

Coccidiostats comprise a chemically heterogeneous group whose only common point is their activity against coccidia (erythrocytic cellular organisms). The anticoccidials are in the group B (veterinary drugs and contaminants established in RD 1749/1998). If they are classified by their origin there are two groups, the polyether ionophoric anticoccidial, such as salinomycin, monensin, narasin and maduramicin, and the organic synthetic anticoccidial like diclazuril, sulfaquinoxaline, nicarbazin and robenidine.

The sulfaquinoxaline is a broad spectrum antimicrobial (sulfonamide) that also works against coccidia and therefore has been considered anticoxidial. Ideally, these drugs should not have adverse effects in growth, feed intake and conversion, and should not leave residues in meat. However it has been found that cross-contamination of feed can cause the appearance of animal origin residues in food.

There was no legislation for these compounds until the coming into effect in February 2009 of the Commission Regulation (EC) No. 1249/2009 that sets the maximum levels for the presence of coccidiostats or hastronostats in food resulting from the unavoidable carry-over of these substances in non-target feed.

RESULTS:

A review of the samples analyzed during the period 2006-2010 has been made, considering the different matrices in which you can find these residues. The total number of samples was 1133, and in 285 of them were detected the presence of anticoxidials.

The samples with coccidiostats were distributed in 20 % of the total number of egg samples analyzed, 25 % of muscle samples from different matrices (poultry, rabbits, sheep and goats) and 49 % of feed samples.

In both, egg and feed, the most commonly compound found was nicarbazin, concentrations ranging from 0,1 to 40 g/kg and between 1 and 108 g/kg respectively. In muscle was diclazuril and their concentrations were between 0.1 and 20 g/kg.

DISCUSSION:

The positive results do not mean that the sample breaks the legal limits, it just points out that they are above the limit of quantification of the method.

The legislation that established the coccidiostats content in food has evolved from total absence, to the actual state, in which a tolerable maximum has been established, depending on compound and matrix. These limits have been modified several times and it is likely that the regulations in this regard will continue to update based on the results observed. Analysis of anticoxidial is important for the correct control of suppression periods of these products before human consumption and for check cross-contamination in the feed used. The method by HPLC-MS/MS is sensitive and selective for the simultaneous determination of theses compounds. It is a confirmatory method validated according to EU criteria of the Commission Decision 2002/657/EC.