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STUDY REGARDING THE USE OF TETRACYCLINES IN THE TREATMENT OF CHICKENS AND THE IMPLICATIONS OF ACTIVE SUBSTANCE IN FOOD SAFETY

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Abstract
The correlation between food and the population health, they have led to an increasing demand for the chicken and chicken products, as a possible successfully alternative to the dissatisfactions offered by other food categories. In this study, the samples were collected from chicken, which were administered various veterinary products based on antibiotics, as a treatment of different diseases. The chickens they were slaughtered after the waiting period mentioned by the manufacturer in the leaflet. The samples were represented by muscles, liver, kidney and gastrointestinal mass and they were analyzed for levels of oxytetracycline, chlortetracycline and tetracycline. After the results integration, the samples analysis has not revealed the presence of these compounds. The study confirmed the need to use the antibiotics only for therapeutic purposes and to having the obligation to complying the time waiting to remove the active substance from the chicken body.

Key words: *antibiotics, chicken, food safety, residues, tetracyclines.*

INTRODUCTION

The use of antibiotics should not be a first reflex for people when they get sick. The same principle should be applied to the farm animals, which some breeders they "treated" with antibiotics, even if they do not suffer from any illness, the justification of these antibiotics use is considered a preventive measure (Van Eeckhout, 2001).

If antibiotics are prescribed to humans to treat serious infections, in animals, drugs such as penicillin and tetracycline they were added constantly to their food as a cheap way to make them grow faster (Fuoco, 2012).

These practices endanger the animal health, developing their immunity to antibiotics, immunity which can be transmitted to humans from eating meat and other products derived from these animals.

The use of antibiotics for growth promotion was banned in the EU since 2006, animals are administered antibiotics only to treat the illness.

Even if there are advantages of using these antibiotics, translated by increasing production and improving the quality of food production, there is also concern about the cumulative effects of antibiotics or their excess.

As a result of consumption of food containing residues of tetracyclines in small or large quantities, their absorption is partial, some remaining in the intestines. Once in the blood, tetracyclines form complexes with plasma proteins. The high absorption has tetracycline, oxytetracycline and followed lastly by chlortetracycline (Marie, 2000). The tetracycline diffusion in tissue is uneven. In gall bladder were found concentrations 10 times higher than in the blood. A part of the active substance arrived in gall bladder, is intestinal resorbed, which helps to maintain for a longer period of time in elevated plasma levels.

Since the main elimination pathways of tetracyclines in the body are the digestive and renal pathways, at these levels appear and develop specific symptoms following incorrect administration of these drugs, translated by changing the intestinal flora and marked renal insufficiency (Corneci, 2009). Malfunction of these organs, increases the concentrations of these active substances in the body (Adriana Catarig, 2012).

After treatment with antibiotics, producers should expect a waiting period before slaughter birds, because the body can metabolize and eliminate completely the active substance (Al-Ghamdi, 2000).

MATERIALS AND METHODS

Samples were collected during 2014 from chicken, which were administered various veterinary products based on antibiotics, as a treatment of different

diseases. Were collected five samples batches, each batch including muscles, liver, kidney and gastrointestinal mass, total 60 samples. Samples were subjected to a qualitative and quantitative levels of oxytetracycline, chlortetracycline and tetracycline using the Charm II or radioimmunoassays (RIA). RIA is a highly sensitive and specific test method which is based on the principle of antigen-antibody reaction using the interaction of a radio-labeled compound and the unlabeled compounds, which are required to determine their concentration. The method is very fast and enables screening for different types of residues of antibiotics likely to be present in the sample.

Samples were collected in containers represented by plastic bags or sterile collection tubes and refrigerated thermally conditioned at 0-4^{o}C. The tissues were then cleaned of fat and weighed by 10 g, placed in a centrifuge tube, above which was added 30 ml MSU extraction buffer. The tubes were homogenized and heated to 80°C for 30 minutes, cooled 10 minutes over a water bath with ice flakes and then centrifuged at 15.000 rpm. for 10 minutes. The supernatant was further exposed to measurements following the procedures outlined in the kit protocols for use of each test that consisted in incubation of the binding agent, reincubare after the addition of the marker, and then testing.

RESULTS AND DISCUSSIONS

Throughout the period of study, none of the 60 samples collected and analyzed for the residues of oxytetracycline, chlortetracycline and tetracycline, has not revealed the presence of these compounds.

CONCLUSIONS

The presence of antibiotic residues in foods of animal origin may be reduced by educating everyone involved in the food chain from farmer to producer and processor. They should be aware of the potential hazards associated with the presence of antibiotic residues in food, health hazards for both consumers and financial loss as a result of such refusal marketing inadequate food.

Some antibiotics are eliminated from the body, while others have an affinity for certain organs (liver, kidneys, lungs, brain), where they accumulate, which imposes a stricter control of medical treatments administered to animals on compliance protocols of administration, dosage and waiting times, and testing of foodstuffs for human consumption to detect this threat to public health.

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