Determination of veterinary drug elimination time from table eggs obtained from bacterial infected poultry flocks

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In poultry industry veterinary drugs are used for the infection prevention during incubation of eggs. Almost all pathogens can be transferred with the eggs, part of them transovarial, most of them contaminate egg shell and get into the egg (Fotina, 2001a; Park, 2002). If the level of contamination is high or disinfection is not good pathogens and conditionally pathogenic microflora can get under shell and proliferate there. After consuming of such an egg one can get infected. So today egg quality and use of safe disinfectants is very important task. Besides for the preventive measure we use veterinary drugs from the 1st day of chick life and then during all life and residues of drugs also dangerous for the consumer (Fotina, 2001b).

So the aim of our research was to determine egg quality and time of drugs elimination from the table eggs obtained from the infected poultry flocks.

Materials and methods

We analyzed eggs from infected flocks where veterinary drugs were used for treatment of poultry. Eggs were collected every day. Samples were analyzed during 20 days after last use of drugs. Preparations were used on the farm were cefotoxin, enrofloxacin, sulfaminometoxin, levomicetin and furazolidon. At the poultry houses 1, 2 and 6 complex probiotic “Bioflor” in dose of 0,1 ml per hen with the drinking water was used during 5 day with 10 days interval three times.

The level of medicines in samples was determined by use of high performance liquid chromatography on the Spectra-Physics Analytical, Spectra system P100 (USA) using detector (Spectra – 200, США).

Results and discussion

It was established that the poultry houses where the probiotic “Bioflor” was used mortality was decreased by 0.8% (p<0.05)in the comparison with other houses. No residues of probiotic were found in the poultry products beginning from the first day of our research.

It was established that during use of other antibacterial preparations positive results were also observed. Clinical signs of diseases were not observed. But residues of medicine were found in samples during 20 days of our analyzing.

Accumulation of drugs was observed in the egg white. The highest levels of nitrofuranes, furazolidon were found in eggs. On the 1st day after last treatment its concentration in egg was 315,00±1,0mcg/g, on the 10th day - 3,89±1,1mcg/g, 20th day - 2,16±0,8мкг/г. Enrofloxacin and sulfametoxin were also accumulated in the eggs: 1st day - 5,12±1,8 and 5,17±1,8 mcg/g, correspondently, 20th day - 0,02±0,01 - 2,57±1,12 mcg/g.

Cefotoxin on the 1st day was found in concentration 1,12±0,6 mcg/g. On the 20th day - 0,01±0,002 mcg/g. even with this small amount of drug left after 20day still consumption of such egg is not safe for the consumer. Levomecetin was found in concentration of 2,41±0,8 mcg/g on the 1st day and 0,04±0,1mcg/g on the 20th day.

Brovafom – new was found in eggs on the 1st day - 2,07±1,6 mcg/g, on the 10th day - 0,05±0,5 mcg/g, on the 20th day no residues were found (Table 1).

It is necessary to control table eggs quality due to the veterinary drugs residues.
Table 1. Drug elimination time from table eggs.

<table>
<thead>
<tr>
<th>Drugs</th>
<th>1st day</th>
<th>20th day</th>
</tr>
</thead>
<tbody>
<tr>
<td>enrofloxacin</td>
<td>5.12±1.8</td>
<td>0.02±0.01</td>
</tr>
<tr>
<td>sulfaminometaxin</td>
<td>5.17±1.8</td>
<td>2.57±1.12</td>
</tr>
<tr>
<td>cefatoxin</td>
<td>1.12±0.6</td>
<td>0.01±0.002</td>
</tr>
<tr>
<td>levomicetin</td>
<td>2.41±0.8</td>
<td>0.04</td>
</tr>
<tr>
<td>furazolidon</td>
<td>315.00±1.0</td>
<td>2.16±0.8</td>
</tr>
<tr>
<td>Brocafort-new</td>
<td>2.07±1.6</td>
<td>-</td>
</tr>
</tbody>
</table>

Conclusion
Eggs from infected poultry are dangerous for the consumers, it can be the source of toxicoinfections, toxicosis and also can have veterinary drugs residues.

Reference