

OBSERVATIONS UPON THE DEVELOPMENT OF A PSEUDOMONOSIS EPISODE IN A BROILER FARM

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Summary

Pseudomonas aeruginosa is the representative of the genus with the highest importance in aviary pathology, causing systemic and localized infections. The epidemiological examination has revealed the following aspects: broilers were bred on soil and the forage was quantitatively and qualitatively concordant with their age; hygiene conditions within shelters were bad (lateral walls with condense). We have not performed determinations concerning the microclimatic parameters.

During the whole exploitation period, within the three sheds we have recorded a cumulative mortality of 39.67%^{H1}, 24.36%^{H2} and 24.17%^{H3}.

The anatomic-pathological examination has revealed the following data: catarrhal enteritis, splenic hypertrophy, pneumonia, green coloration in the content of the glandular and muscular stomach, intestines.

From 9 inseminations performed with the samples taken from the three sheds, we have isolated from bone and liver 7 strains of *Pseudomonas aeruginosa*, which had the following characteristics: only glucose has fermented, under anaerobic conditions the reaction was positive for ADH.

The tests of sensibility to antibiotics have proved that the strains of *Pseudomonas aeruginosa* have ranged as sensibility to antibiotics, but most of them proved to be sensible to gentamycine.

Pseudomonas aeruginosa is the representative of the genus with the highest importance in aviary pathology, causing systemic and localized infections. It causes usually diseases in the immune-compromised individuals or in the individuals influenced by negative factors. The young is more sensible to the infection with *Pseudomonas* than the adults (1, 3).

Materials and methods

Our observations have been performed in a farm from Hunedoara, consisted of 16 sheds populated with broilers (the hybrid Ross 308), taken from its own incubation station; in three of these sheds, we have noticed significant losses caused by mortality.

We have performed epidemiological, anatomic-pathological and bacteriological examinations. Within the epidemiological examination, the main parameter supervised was represented by cumulative death. The anatomic-pathological examination consisted of the necropsy of 82 chicken corpses, with

special regards to the present lesions. Within the bacteriological examination, we have performed inseminations with samples of liver and long bone.

The characterization of the isolated bacterial strains was carried out with the identification system API 20E, which allows concomitant quick examinations upon 20 biochemical characters. Successive to bacteria isolation, on nutritive agar, we have taken a single colony from this surface and introduced it into a phial with medium suspension, with the help of a bacteriological instrument. Then we have inseminated the loops and created anaerobe conditions for the following tests: ADH, LDC, ODC, H₂S and URE with the help of the mineral oil. Over the loops, we have applied a lid and incubated them at 37°C. After 18-24 hours of incubation, we have read and interpreted the biochemical reactions, with the help of an identification table (2, 5).

For the *P. aeruginosa* strains, we have testes their behavior towards antibiotics.

Results and discussions

The epidemiological examination has revealed the following aspects: broilers were bred on soil and the forage was quantitatively and qualitatively concordant with their age; hygiene conditions within shelters were bad (lateral walls with condense). We have not performed determinations concerning the microclimatic parameters.

As a result of the septicemic evolution of pseudomonosis in the three sheds studied, we have recorded the losses presented in Table 1.

Table 1

The cumulative mortality in the broiler

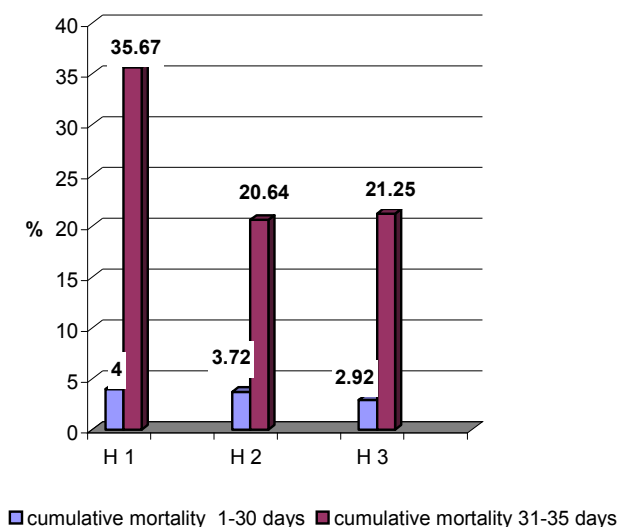
Cumulative mortality 1- 30 days		H 1		H2		H 3	
		13 300 chicken		13 200 chicken		14 300 chicken	
			%		%		%
		532	4	491	3.72	418	2.92
Losses in 31- 35 days	Day 31	125	0.94	110	0.83	120	0.84
	32	370	2.78	150	1.14	152	1.06
	33	812	6.11	370	2.80	439	3.07
	34	1030	7.74	676	5.12	1020	7.13
	35	2407	18.10	1419	10.75	1308	9.15
Cumulative mortality 31- 35 days		4744	35.67	2725	20.64	3039	21.25
Cumulative mortality Total perioade		5276	39.67	3216	24.36	3457	24.17

The data presented in Table 1 lead to the conclusion that the losses have been below 4% during the 30 days of life, in the three shelters.

Between the days 31 and 35, we have recorded significant daily losses: 35.67% H1, 20.64% H2 and 21.25% H3, according to the Graphic 1.

Graphic 1

The evolution cumulative mortality in the broiler



After this age, losses have not been measured anyway because we have decided to kill the entire livestock. During the whole exploitation period, within the three sheds we have recorded a cumulative mortality of 39.67% H1, 24.36% H2 and 24.17% H3.

Although pseudomonosis as primary disease in broilers may be scarcely observed, in this situation it has caused significantly increased losses, maybe due to the fact that some immune-suppressive viruses have circulated through this livestock (we have not carried out any investigations in order to elucidate this aspect) correlated to the improper drinking water (major nitrites overtaking), or maybe all these together have participated to the development of pseudomonosis with the significant losses recorded.

The anatomic-pathological examination has revealed the following data: catarrhal enteritis, splenic hypertrophy, pneumonia, green coloration in the content of the glandular and muscular stomach, intestines.

Bacteriological examination. Under anaerobic conditions, at 37°C on nutritive agar, we have observed mucoid colonies, which had produced pigment and colored the environment in green-blue. The isolated cultures of *Pseudomonas aeruginosa* have emitted a flavored characteristic smell. On nutritive agar with ram

blood defibrinated 5% we have observed the hemolytic property of the isolated strains. From 9 inseminations performed with the samples taken from the three sheds, we have isolated from bone and liver 7 strains of *Pseudomonas aeruginosa*, which had the following characteristics: only glucose has fermented, under anaerobic conditions the reaction was positive for ADH (1, 4).

The tests of sensibility to antibiotics have proved that the strains of *Pseudomonas aeruginosa* have ranged as sensibility to antibiotics, but most of them proved to be sensible to gentamycine.

Conclusions

We have diagnosed pseudomonosis in a broiler farm, in three sheds, at chicken age of 30 days;

For a 5 day- period, the total losses caused by the septicemic pseudomonosis were between 20.64% and 35.67%;

The cumulative mortality at the end of this observation period was between 24.17% and 39.67%.

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