

## **CAMPYLOBACTER SPECIES IN THE LAYING HENS WITH AND WITHOUT DIARRHOEA**

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### **INTRODUCTION**

The presence of the bacteria from the species of *Campylobacter* in the organisms of animals and people, as well as their presence in different places in nature, is a reason why this bacteria is a subject of many investigations. Former investigation has shown that the presence of *Campylobacter* in the organisms of the hosts may cause a disturbance in health condition. At the same time in quite a big number of findings, it is either noticed that there are nonclinical symptoms, although *Campylobacter* is isolated from certain materials, or the relation between bacteriological, present isolated species of *Campylobacter* and the clinical symptoms cannot be proved. The findings of *Campylobacter* kinds in poultry material and recognizing the importance of their presence is significant from the standpoint of protecting health condition of animal, as well as from the standpoint of protecting health condition of people, because it causes zoonosis.

The subject of our investigation was bacteriological flora of the digestive tract in the laying hens. The importance of the laying hens in the production cycles made us decide to choose these animals and to research the potential possibilities of transmitting *Campylobacter* on people.

The aim of the work was to isolate and determine *Campylobacter* in digestive tract of laying hens. We wanted to see if there were differences caused by their presence and if there existed different kinds of *Campylobacters* in two already mentioned groups of laying hens.

### **MATERIAL AND METHODS**

In the work two groups of laying hens were analyzed. In the first group was the one in which the presence of diarrhoea was stated after clinical research and the second where were the ones without such symptoms. For the bacteriological investigation we used cloacal swabs of the laying hens from both above-mentioned groups. Swabs were directly streaked on ready nutrient culture medium. For that purpose was used Columbia agar with 5% defibrinated ovine blood where the antibiotic medium *Campyloesel* was added. In this was prepared plates we incubated in anaerobic jars (McIntosh) where gas sacks of Gener box microaer was added. In such a way necessary microaerofil conditions were provided. Identification of the isolated bacterias was performed by using API Strips and software for their analyzing.

## THE RESULTS OF THE INVESTIGATION AND DISCUSSION

A total of 60 cloacal swabs were examined (36 from the first group and 24 from the second group).

In the Table 1 we find the results obtained by the bacteriological examination. They present the findings of the isolated *Campylobacter* in both groups of laying hens.

*Table 1. The results of the isolated Campylobacter*

Group		Total of the examined	Positive find	% of the positive findings
1	Laying hens with diarrhoea	36	32	88,00%
2	Laying hens without diarrhoea	24	8	30,00%

In Table 1 we clearly see that the positive findings of *Campylobacter* in the laying hens with diarrhoea was 88,00% or 32 chicks out of 36 examined, and the percentage of the positive samples of the hens without diarrhoea was 30,00% or 8 out of 24 observed.

In the works of the authors who investigated these problems was written about such results in the poultry material. Findings of *Campylobacter* in different materials, among which is also poultry, write Smibert, R.M. (1978), Smibert, R.M. (1981) Skirrow, M.B. and Benjamin, J. (1980). They describe the importance of the presence of these bacterias in animals and people. In his work Jacobs-Reitsma, F.W. (1994) presented the results of findings of *Campylobacter jejuni* in the breeding flock and the importance of their presence. They specially point out the presence of *Campylobacter* in this category of poultry because there is a possibility of vertical transmission of these bacterias on the chicks. About the presence of *Campylobacter jejuni* and *Campylobacter coli* was written in the work of Glunder, G. (1995) who isolated these bacterias from poultry material.

In Table 2 are given the results of the findings of some kinds of *Campylobacter* in both observed groups of the laying hens.

*Table 2. The results of the isolated Campylobacter*

Group		Total of the examined chicks	Positive findings	<i>Campylobacter jejuni</i>	%	<i>Campylobacter coli</i>	%
1	Laying hens with diarrhoea	36	32	32	100%	1	3,12%
	Laying hens without diarrhoea	24	8	—	—	8	100%



In the Table 2 one can see that the presence of *Campylobacter jejuni* subsp. *jejuni* in the first group was 100% from the total of 32 positive material, but in one case it was a mixed infection with *Campylobacter coli*, what represented 3,12% of the total number of the findings. In the same way, one can see that when talking about the second group of the observed samples of *Campylobacter jejuni* subsp. *jejuni* was not isolated in any sample. Findings of *Campylobacter coli*, as it has already been mentioned in the first group, was a part of the mixed infection with the *Campylobacter jejuni* subsp. *jejuni*, and in the second group *Campylobacter coli* was isolated in 100% of the total number of positive findings.

The findings of *Campylobacter* kind in the poultry, especially on their trunks, is stated in the work of Ivanovič, Snežana (1990) where were reported some facts about *Campylobacter jejuni* subsp. *jejuni* and *Campylobacter coli* on the corpse of the slaughtered poultry. Presence of these bacterias is very important from the standpoint of the potential infection of people having in mind that we speak about zoonoses. Finding *Campylobacter* species on the farms of poultry is also mentioned in the work of Stern, N.J. and coworkers (1995).

In the available literature we have not found any information that discussion about the importance of some species of *Campylobacter* and their influence on the appearance of diarrhoea in the poultry. We have not found information that would give us more precise answer whether the presence of *Campylobacter jejuni* subsp. *jejuni* causes some clinical symptoms, which we found and had taken them as our starting point of the research. We also have not found that on the samples without clinical symptoms of diarrhoea is found only *Campylobacter coli*.

## CONCLUSION

·In the research we used the methodology, which was used by other authors as well, so the received results, comparing them to the experience of the previous investigation, can represent valid findings.

·After 36 checked samples of the laying hens with diarrhoea, 32 were positive on the presence of *Campylobacter* kind what makes 88,88% out of the total of the research material.

·After 24 checked samples of the laying hens without diarrhoea, 8 were positive on the presence of *Campylobacter* kind what makes 30,00% of the total number of the researched material.

·In the laying hens with diarrhoea *Campylobacter jejuni* subsp. *jejuni* was isolated in all the positive samples (100% of the total of 32 positive samples), while *Campylobacter coli* was isolated in one case (what makes 3,12% from 32 positive findings) as a mixed bacterial flora together with the above mentioned *Campylobacter*.

·In the laying hens without diarrhoea *Campylobacter coli* was isolated in 100% cases, while *Campylobacter jejuni* was not found.

·The findings of different *Campylobacter* of the two observed groups shows that there is a possibility of pathogen appearing of these bacterias and this is a good reason for further investigation. This is even more the case because we speak about zoonoses that can in direct or indirect way cause the infection of people.

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## КАМПИЛОБАКТЕР ВРСТИ КАЈ КОКОШКИТЕ НЕСИЛКИ СО И БЕЗ ДИЈАРЕА

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Присуството на бактерии од родот на *Campylobacter* во организмот на луѓето и животните, како и нивното присуство на различни места во природата, се причина за големиот број истражувања на оваа бактерија. Пронаоѓањето на бактерии од родот *Campylobacter* кај живината и согледувањето на нивната важност во здравствената заштита на живината како и на луѓето, имајќи во предвид дека се работи за зооноза, е многу значајно.

Предмет на нашата студија беше бактериолошко испитување на дигестивниот тракт на кокошки несилки. Испитавме две групи на кокошки несилки. Во првата група беа оние кај кои по клиничкото испитување констатиравме присуство на дијареа, во втората група беа три примероци каде такви симптоми не беа најдени. Важноста на кокошките несилки во производниот циклус во живинарството не поттикна да го истражуваме овој вид на животни како потенцијален извор за пренесување на кампилобактер на луѓето. Цел на нашата работа беше да се обидеме да изолираме и идентифицираме *Campylobacter* во дигестивниот тракт на кокошките несилки, и да видиме дали постојат разлики во застапеноста и во врстите меѓу двете гореспоменати групи несилки.

За бактериолошко испитување користевме клоакални брисеви од несилки од споменатите две групи. За изолација на кампилобактер користевме Columbia agar + Campylosell како и Genex box microaer да обезбедиме микро-аерофилна средина. Идентификацијата на изолираните бактерии беше направена со помош на АПИ стрипови и софтвер за нивно прочитување.

Вкупно беа испитани 60 клоакални брисеви (36 од првата и 24 од втората група). Присуството на кампилобактер беше докажано кај 32 несилки од првата група (88,88%), а во втората имаше 8 позитивни несилки (30%). Кај сите позитивни несилки од првата група (32 од 36) беше изолирана *C. jejuni* subsp. *jejuni* а во еден случај имаше и мешана инфекција со *E. coli*. Кај осумте позитивни несилки од втората група беше изолирана *E. coli*.

Резултатите го истакнуваат големото присуство на *Campylobacter* врската кај болните несилки како и кај различните видови дијареа, што секако мора понатаму да биде истражувано.

**Клучни зборови:** кокошки несилки, дијареа, *Campylobacter* sp.