

ENDOPARASITES OF FARM-REARED PHEASANTS (*Phasianus colchicus* L.) IN SERBIA

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Summary: Endoparasites have an important place in the pathology of farm-reared pheasants. During 2007-2011 we examined a total of 1893 pheasant poults between 4-14 weeks of age and 1432 above 14 weeks. Examination was performed at several pheasantries in Serbia. The following species of genus *Eimeria* were found: *Eimeria colchici*, *Eimeria phasiani* and *Eimeria duodenalis*. The following helminth species were found: *Syngamus trachea*, *Ascaridia galli*, *Ascaridia columbae*, *Heterakis gallinarum*, *Heterakis isolonche*, *Capillaria caudinflata*, *Capillaria annulata*, *Capillaria obsignata*, *Capillaria phasianina*, *Acuaria haemulosa*, *Raillietina tetragona*, *Raillietina echinobothrida* and *Davainea proglottina*. The intensity of infection in total was not high, except in case of infection with ascaridia and gapeworms, and depends on the age of examined birds.

Key words: *Phasianus colchicus*, coccidia, helminths, phaesantries

Introduction

Parasitoses caused by coccidia and helminths present serious health problems in free-living and farm-reared pheasants. The largest part of the worldwide researches is related to parasitic fauna in free-living pheasants with emphasis of these infections in pathology of pheasants [5, 6, 10, 12, 13, 22, 23, 27, 41, 43]. Similar examinations were done in farm-reared pheasants and revealed that helminths normally occur in farm-reared pheasants and have important place in the pathology of these birds [7, 14]. However, this parasite has not been frequently examined in Serbia. Several examinations were performed by Nevenić and Pavlović et al. [26, 32, 39].

Material and Methods

The study of parasitic infection in farm-reared pheasants was carried in 12 pheasantries in Serbia in period 2007-2011.

During the examination we have examined samples of faeces and died pheasants. Samples of faeces were collected monthly from birds flock. Total of 288 samples from birds 4.14 weeks of age and 576 samples from birds above 14 weeks of age were collected and examined using sedimentation and flotation concentration technique, described by Euseby [11]. A total of 1893 pheasants up to 14 weeks of age, and 1432 above 14 weeks were examined by pathological necropsy.

Identification of eggs and adult forms of helminths was performed according to Soulsby [44], and of oocysts of *Eimeria* according to Pellerdy [28].

Results and Discussion

The following species of genus *Eimeria* were found: *Eimeria colchici*, *Eimeria phasiani* and *Eimeria duodenalis*. Infections were found in 37.03% (701/1893) of examined birds up to 14 weeks of age. *Eimeria duodenalis* was most abundant species (37.03%), followed by *Eimeria colchici* (12.98%) and *Eimeria phasiani* (9.53%) (Figure 1). Coccidia and coccidiosis was not detected in pheasants above 14 weeks of age.

Coccidiosis in pheasants is responsible for substantial losses of farm-reared pheasants and free living birds all around the world. Coccidiosis should be regarded as ubiquitous in pheasant management. Infection with a single species of *Eimeria* is rare in natural conditions, with mixed infections being the most common. The clinical signs depend on the number of oocysts digested by individual bird. If the environmental hygiene is poor, this number may be very large because all coccidia have a high biotic potential. Oocysts require moisture and warmth for sporulation and survive best in shade.

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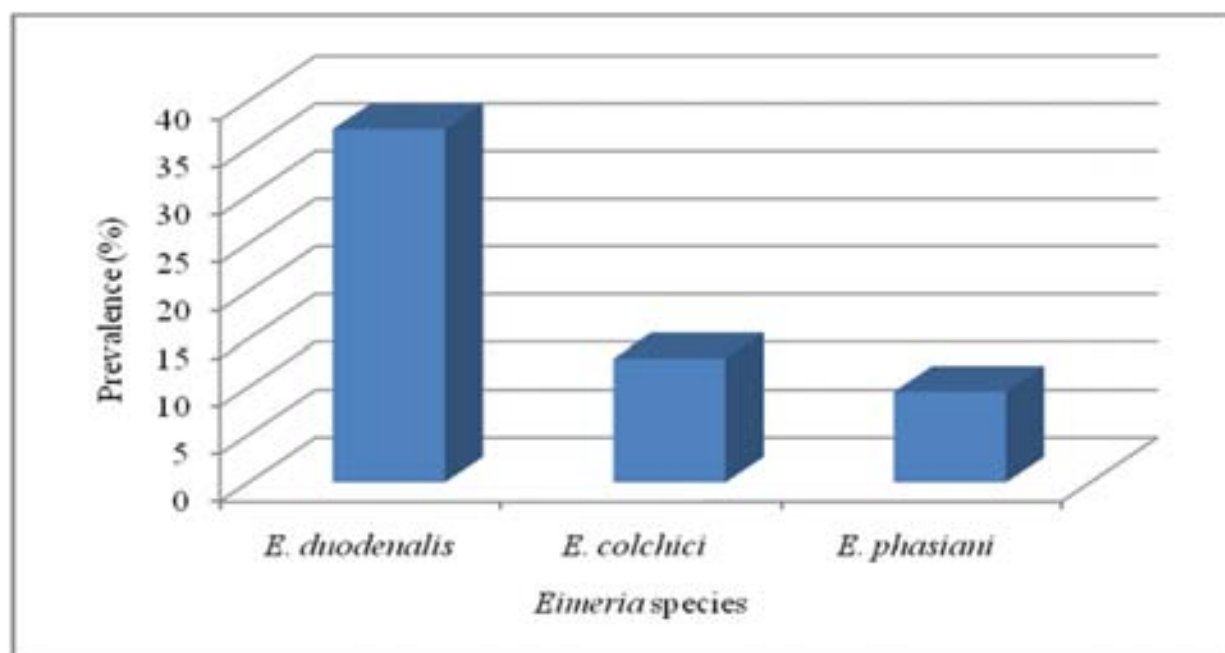


Figure 1. Prevalence (%) of *Eimeria* species in pheasants up to 14 weeks of age..

Therefore, the adequate anticoccidial measures are improvement of hygiene in the environment, regular control and preventive use of anticoccidial drugs.

The infections with helminths were found only in pheasants above 6 weeks of age. Prevalence of infection was 41.84% (792/1893) in pheasants 6 - 14 weeks of age, while in pheasants above 14 weeks prevalence of infection was 33.03% (473/1432).

The following nematode species were found: *Syngamus trachea*, *Ascaridia galli*, *Ascaridia columbae*, *Heterakis gallinarum*, *Heterakis isolonche*, *Capillaria caudinflata*, *Capillaria annulata*, *Capillaria obsignata*, *Capillaria phasianina* and *Acuaria haemulosa*.

In pheasants up to 14 weeks of age the most prevalent parasite was *Syngamus trachea* (37.19%), followed by *Heterakis isolonche* (27.97), *Ascaridia galli* (12.98%), *Heterakis gallinarum* (11.14%), *Capillaria caudinflata* (10.28%), *Capillaria obsignata* (9.53%), *Ascaridia columbae* (9.53%) and *Capillaria annulata* (7.71%) (Figure 2).

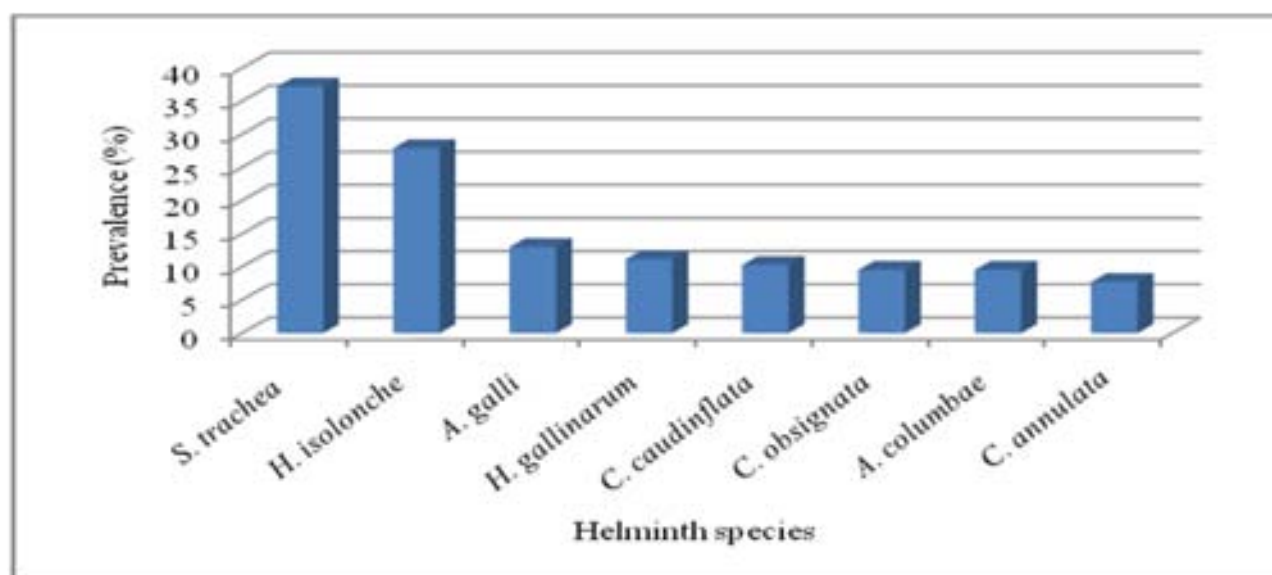


Figure 2. Prevalence (%) of helminth species in pheasants up to 14 weeks of age.

In young pheasants, especially when the infection had strong intensity, we usually found clinical signs of disease. The birds with intestinal nematodes had diarrhea and were markedly emaciated and generally weak. For gapeworm infection the characteristic signs were dyspnoea and asphyxia. The birds shook and tossed their heads about and might have been caught, or they were extending the neck, opened the beak and performed gaping movements. With serious infection the mortality reached 15%. Pathological changes are similar to those described by Cvetajeva, Cotofan et al., Pavlović et al., Florestean et al., and Ivetić et al. [7, 8, 15, 24, 32].

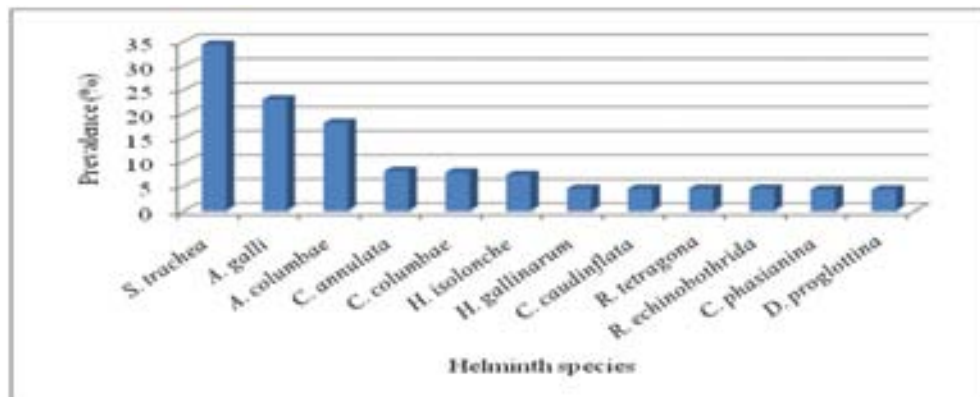


Figure 3. Prevalence (%) of helminth species in pheasants above 14 weeks of age..

Pheasants above 14 weeks of age were infected with the same parasite species, but the intensity of infection (except with *Syngamus trachea* and *Ascaridia galli*) was not sufficient to induce clinical signs of disease. *Syngamus trachea* was the most abundant species (34.45%), followed by *Ascaridia galli* (23.06%) and *Ascaridia columbae* (18.19%), *Capillaria annulata* (8.23%), *Capillaria columbae* (7.92%), *Heterakis isolonche* (7.41%), *Heterakis gallinarum* (4.57%), *Capillaria caudinflata* (4.57%) and *Capillaria phasianina* (4.36%).

During our examination, *Acuaria haemulosa* (4.36%) was found at one pheasantry in Vojvodina in birds above 14 weeks of age [32].

Raillietina tetragona and *Raillietina echinobothrida* occurred in 4.57%, and *Davainea proglottina* in 4.36% (Figure 3). Tapeworm infections occurred only in pheasants above 14 weeks of age and pathological changes were similar to those described by Cotofan et al., Ivetić et al., or Pavlović et al. [8, 24, 36].

Polyparasitism with two or more parasite species was found in 341 pheasants up to 14 weeks of age, and in 343 pheasants above 14 weeks (Figure 4).

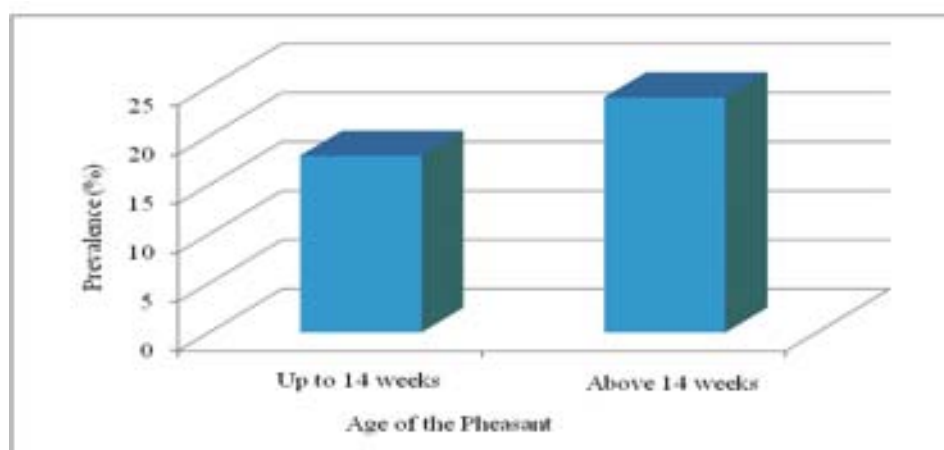


Figure 4. Polyparasitism (%) with two or more parasite species in pheasants

Comparing the obtained results with the results of other similar examination carried out by Bickford and Gaffar, Gilbertson and Huggins, Frank, Pence et al., Pence et al., Ghitokhopoulos and Florestean and Pavlović, we concluded that found parasite species have worldwide distribution with similar infection rate [4, 13, 18, 19, 20, 29, 41]. Found parasites have wide range of distribution among bird population, being found in pigeons, fowls and other free living and breeding bird species [3, 15, 27]. Many intermediate hosts (arthropods) and free-living birds infected with these helminth species enable transmission to the population of farm-reared pheasants [3, 32].

Reference

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