

**THE FIRST OCCURRENCE OF *THOMINX CYANOPICAE* (Lopez-Neyra,1947) IN PHEASANTS
(*Phasianus colchicus* L.)**

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Parasitoses caused by helminths of the family Capillaridae (Neuve-Lemaire, 1936) take an important place within the parasitic fauna of pheasants (Phasianus colchicus L.). The investigations were carried out on a pheasant farm in Romania during the period 1999-2001. The necroscopic examination revealed the presence of Capillaria sp. in 38.09% (48/84) of the adult pheasants and 43.85% (79/114) of the young pheasants. During our examination we identified 7 species of the family Capillaridae: Capillaria annulata, C.bursata, C.columbae, C.contorta, C.gallinae, C.phasianina and Thominx cyanopicae.

This was the first recorded occurrence of Thominx cyanopicae (Lopez-Neyra,1947) infection in pheasants.

Key words: Capillaridae, pheasants, Thominx cyanopicae

INTRODUCTION

Helminthoses, especially involving nematode species, are the most frequent parasitic infection in pheasants (*Phasianus colchicus* L.). Numerous papers have reported helminthoses in free living pheasants, and most of those examinations were performed in Europe. Pav and Zajček (1968) and later Bejšovec (1970, 1971) examined pheasant helminth fauna in Czechoslovakia. Arnasteikskene *et al.* (1970) investigated these parasites in pheasants in Lithuania. The occurrence of nematodes in pheasants was reported by Okulewitz and Modrezejavska (1980) in Poland, Githkopoulos (1984 a) in Greece, Pavlović *et al.* (1995) in Yugoslavia and Hospes (1996) in Germany.

Similar examinations were made in artificially raised pheasants and revealed that helminthoses normally occur in farm bred birds and have a significant place in the pathology of pheasants (Fagasinski, 1964; Bickford and Gaafar, 1966; Bejšovec, 1968; Cvetajeva, 1971; Cosoaraba and Ciolofan, 1985; Chroust, 1990; Pavlović, 1990, 1991; Pavlović *et al.* 1990, 1992, 1996; Schricke, 1991).

In our paper we give an outline of the helminthic fauna of breeding pheasants in Romania with special emphases on *Capillaria* species pointing out the first occurrence of a new species – *Thominx cyanopicae*.

MATERIAL AND METHODS

The helminthic fauna in pheasants were studied in a pheasant farm near Iasi (Romania) in the period 1999-2001. A total of 84 adult pheasants and 114 young pheasants were examined by parasitological necropsy. Parasites found were fixed in 10% formalin and either mounted in lactophenol for identification, or mounted in Canada balsam. They were identified using keys given by Skrjabin *et al.* (1957), Soulsby (1977) and Euzeby (1981). Samples of intestine from the pheasants with helminth infections were fixed with 10% formalin, embedded in paraffin, sectioned at 6 micrometers and stained by hematoxylin – eosin (HEA).

RESULTS

Investigations infection with nematodes was found in 57.14 (48/84) of the adult pheasants and 69.29% (79/114) of the young pheasants. Helminths of the family *Capillaridae* were found in 32 (38.09%) adult pheasants and 50 (43.85%) young pheasants. Seven species were identified: *Capillaria annulata*, *C. bursata*, *C. columbae* (syn. *C. obsignata*), *C. contorta*, *C. gallinae* (syn. *C. caudinflata*), *C. phasianina* and *Thominx cyanopicae*. The most frequent species in adult and young pheasants were *C. contorta* and *C. gallinae*.

Infection with *Thominx cyanopicae* was detected in two adult pheasants (2.38%). In the cecal lumen of these two birds were found four parasites (3 males and 1 female), which were identified as *Thominx cyanopicae*. Males had the following morphological characteristics: 12-17 mm long and 59.4-67 micrometers wide; a threadlike body, anteriorly and posteriorly attenuated; an esophagus 6.39-7.57 mm long (fig. 1); a spicule 2.103-2.117 mm long and 9.39-10.9 micrometers

Figure 1. Esophagus of *Thominx cyanopicae* (x 400)

wide with a spicule sheet covered with spines, which measured 53.6-73.7x20-20.1 micrometers (fig. 2). The female was 17.6 mm long and 87.6 micrometers wide (fig. 3); the esophagus was 6.7 mm long.

Figure 2. Spiculae and spicule sheet of *Thominx cyanopicae*
(x 100)

Figure 3. *Thominx cyanopicae* – female body /with eggs/ (x 200)

Histological examinations revealed the presence of *Thominx* embedded between the villi and in the cecal lumen and cellular infiltration in to the mucosa (fig.

4). A few sections of those capillarids were found in the submucosa and mucosa (fig. 5 and 6).

Figure 4. Section of *T.cyanopicae* in the cecal lumen. Cellular infiltration in the mucosa. HEA (x 200)

Figure 5. Necrosis in the cecal epithelium and the glandular crypts. HEA (x 400)

Figure 6. Section of *T.cyanopicae* in submucosa (x 200)

DISCUSSION

Helminths from the family Capillariidae usually occur in pheasants. Studies performed by Bickford and Gaafar (1966), Cosoaraba and Ciolofan (1979), Githkopoulos (1984 a), Pavlović et al. (1990, 1992, 1995), Hospes (1996) and Florestean et al. (2001), showed that *Capillariidae* were found in free living and farm breeding pheasants. During those examinations the following species were found: *Capillaria annulata* (Mollin, 1858), *C.bursata* (Freitas & Almeida, 1934), *C.gallinae* /syn.*C.caudinflata*/ (Kowalevski, 1859), *C.columbae* /syn.*C.obsignata*/ (Rudolphi, 1819), *C.contorta* (Creplin, 1839), *C.phasianina* (Kotlan, 1940), *C.re-tusa* (Railliet, 1893) and *C.uropapillata* (Freitas & Almeida, 1935). The most frequent species in Europe, the Far East of Russia and America were *C.annulata*, *C.columbae* /syn.*C.obsignata*/, *C.gallinae* /syn.*C.caudinflata*/ and *C.bursata* (Skrjabin et al., 1957; Bickford and Gaafar, 1966; Bejšovec 1970/1971; Kellogg and Pestwood, 1972; Githkopoulos, 1984 a; Pavlović, 1991; Pavlović et al., 1996; Hospes, 1996).

In our investigations, *C.contorta* and *C.gallinae* were the most frequent species but *T.cyanopicae* was found for the first time in pheasants.

Thominx cyanopicae belongs to the order *Trichocephalida* (Skrjabin and Schultz, 1928, Spassky, 1954), suborder *Trichurata* (Neveu-Lemaire, 1936) (syn. *Trichocephalata*, Skrjabin & Schultz, 1928), family *Capillariidae* (Neveu-Lemaire, 1936) and genus *Thominx* (Dujardin, 1845). *Thominx cyanopicae* (syn.*Echinoco-leus cyanopicae*) was detected for the first time in the cecum of *Cyanopicae cy-anus*, by Lopez-Neyra (1947), in Spain. Parasites were slender from both sides, especially the anterior. The cuticle was smooth, without strips. The male was 9.5-12.5 mm long and 65-80 micrometers wide. The spicule was 1.18-1.285 mm long

and 80-100 micrometers wide. The spicule sheet measured 100-120 x 25-40 micrometers. The female was 17-18.8 mm long and 80-100 micrometers wide. Dorsal and ventral bacillar lines were noticed (Lopez-Neyra, 1947; Skrjabin *et al.* 1957).

In our case, the male was 12-17 mm long. The spicule was 2.103-2.117 mm long and the spicule sheath measured 53.6-73.3 x 20-20.1 micrometers.

Infection with *T.cyanopicae* was found in 2.38% of the adult pheasants examined. Its presence in pheasants or other birds, except for *Cyanopica cyanus* (Skrjabin *et al.*, 1957) was not reported in the available literature. The presence of adult nematodes, male and female, in the cecum opens the possibility of adaptation of *Thominx cyanopicae* to parasitism in a new host – pheasants. This is not unique, because Raysky (1964) found *Brachylaemus fuscatus* and *Plagiorchis megalorchis* in pheasants in Scotland. During examination of pheasants in Nebraska Greiner (1972) detected *Zygocotyle lunata* in 1.6% of the examined birds. Isakova (1973) described pheasants as a new host to the trematode *Brachylectium americanum*, and Pavlović *et al.* (1990) found infection with *Ornithostrongylus quadriradiatus* in pheasants in the Belgrade zoo.

Our histological findings in the cecum revealed the pathological effect of *Thominx cyanopicae* in the new host, the pheasant, and its full adaptation to it.

The first occurrence of *Thominx cyanopicae* in pheasants has epizootiological importance and indicates the necessity for continuous parasitological examination of this bird species.

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PRVI NALAZ *THOMINX CYANOPICAE* (Lopez-Neyra, 1947) KOD FAZANA (*Phasianus colchicus* L.)

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SADRŽAJ

Parazitoze uzrokovane helmintima iz roda *Capillariidae* zauzimaju značajno mesto u patologiji fazanske divljači. Ovo je potvrđeno i tokom istraživanja vršenih u Rumuniji kada je putem parazitološke sekcije kapilarioza ustanovljena kod 38,05% (32/84) odraslih fazana i 43,85% (50/114) mladih fazana. Pri tome su ustanovljene sledeće vrste kapilarija: *Capillaria annulata*, *C.bursata*, *C.columbae*, *C.contorta*, *C.gallinae*, *C.phasianina* i *Thominx cyanopica*.

Thominx cyanopica je do sada jedino nađena kod vrste ptica *Cyanopica cyanus* i nije zabeležena kod drugih ptičijih vrsta, tako da je ovo prvi nalaz *T.cyanopicae* kod fazana.