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# A RESEARCH STATUS OF LIBYOSTRONGYLUS GENUS IN OSTRICHES (*STRUTHIO CAMELUS*): A REVIEW

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**Abstract:** This paper outlines the current state of research regarding three nematode species belonging to the genus Libyostrongylus.
**Keywords:** Libyostrongylus douglassii, Libyostrongylus dentatus, Libyostrongylus magnus, distribution.

**Annotatsiya:** Ushbu tezisda Libyostrongylus avlodiga mansub 3 ta turdagi nematoda haqida olimlar tomonidan o‘rganilganlik holati bayon etilgan.
**Kalit so‘zlar:** Libyostrongylus douglassii, Libyostrongylus dentatus, Libyostrongylus magnus, tarqalish.

**Аннотация:** В данной статье представлен обзор современного состояния исследований трех видов нематод, относящихся к роду Libyostrongylus.
**Ключевые слова:** Libyostrongylus douglassii, Libyostrongylus dentatus, Libyostrongylus magnus, распространение.

According to the data given by Ederli N. B. some ostrich-specific nematodes were determined for the first time by Arthur Douglass who gathered small nematodes from a proventriculus of an ostrich in South Africa in 1880 and these nematodes were sent to Cobbold who determined the worms and called this new species as *Strongylus douglassii* in the honor of their collector and announced this in the paper published under the name “New entozoon from the ostriches” in 1882. Later, Lane laid the foundation of the Libyostrongylus genus for some African Trichostrongylidae, where *Libyostrongylus douglassii* is the type species from ostriches, and *Libyostrongylus hebrenicutus* (Lane, 1923), is the type species for gorillas [3].

Gilbert described a new species *Libyostrongylus magnus*, being defined solely in ostriches in the African continent, without recent reports in the world. Ortlepp established the genus Paralibyostrongylus; being *Paralibyostrongylus vondwei* Ortlepp, 1939, the type species and *Paralibyostrongylus hebrenicutus*, and *Paralibyostrongylus nigeriae* Baylis, 1928 included in this new genus. Hoberg E.P. et al. reported a third species, called *Libyostrongylus dentatus* (Hoberg, Lloyd, and Omar, 1995), because of the existence of prominent esophageal teeth [3,4]. The original geographical distribution of Libyostrongylus sp. is Africa; however, *Libyostrongylus douglassii* and *Libyostrongylus dentatus* have been documented from several non-African countries, thus having been introduced with ostriches imported for farming [1,2,3]. In ostriches, the trichostrongylid nematodes *Libyostrongylus douglassii* (most common), *Libyostrongylus dentatus*, and *Libyostrongylus magnus* are found in the openings of the deep proventricular glands and under the koilin layer of the proventriculus and the gizzard [3]. All of these can infect the proventriculus of ostriches [3]. The most usual species is *Libyostrongylus douglassii*, which has been recorded by Reinecke (1983) [3], Fockema et al. (1985) [3], Pintori et al. (2000) in Italy; Paliy A.P. et al. (2020) in Ukraine [3]. *Libyostrongylus dentatus* was recorded by Hoberg E.P. et al. (1995) in North America [4], Bonadimon et al. (2006) in Brazil [3], Ederli, N.B. and Oliveira, F.C.R. (2015) in

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Brazil [69], Andrade J.G. et al. (2013, 2018) in Ethiopia [2]. *Libyostrongylus magnus* was reported only in South Africa [3], *Libyostrongylus magnus* was described in the Ukraine in ostriches originating from Ethiopia [1]. Hoberg et al. (1995) [4] were able to re-examine some specimens deposited in the International Institute of Parasitology which was previously identified as *Libyostrongylus douglassii* in 1933 in Ethiopia. They identified those nematodes as *Libyostrongylus magnus*. *Libyostrongylus magnus* (Gilbert, 1937) [1] was described as having long ovejector, but it can be distinguished from *Libyostrongylus dentatus* by the larger number of eggs inside. Based on the data by Reinecke (1983), Libyostrongylus spp. is considered the most pathogenic nematode, responsible for 50% of the mortality of juvenile birds and occasionally killing adults [5]. Differentiation of these species has become possible because of studies conducted by Ederli et al., which describe the infective larvae of these nematodes. According to the data by Ederli, N.B.; Oliveira, F.C.R, *Libyostrongylus douglassii* is distributed worldwide and has been found in several countries on five continents, excluding Asia and Antarctica nematodes [3]. Fockema A. et al. (1985) determined *Libyostrongylus douglassii* ($L_4$ larvae of the nematode) in the proventriculus of ostriches in South Africa in the year of 1985 and treated ostriches with Fenbendazole at dosage rate of 15 mg/kg [3,4]. Hoberg E.P. et al. (1995) gathered specimens of Libyostrongylus sp. at the time of the necropsy from 2 adult ostriches on farms in North Carolina and Texas and made comparisons. During the necropsy of the ostriches, two species of Libyostrongylus sp. were defined; one of them was gravid female specimens of *Libyostrongylus douglassii* [4]. Sotiraki S.T. et al. (2001) recorded nematode eggs looking like strongylid-type eggs that were characterized as *L. douglassii* or *C. struthionis* in fecal samples in Greece, researchers informed that it was not possible to differentiate them at this stage and larval cultures were not performed [3]. Ponce G. F. et al. (2002) also determined the eggs of Libyostrongylus sp. in the feces of ostriches from the Spanish, Netherlands, Belgium and Portuguese. According to the scholar, eggs found in the feces were similar to those of *Codiostomum struthionis*, a non-pathogenic roundworm. According to the data offered by Cork S.C. (2005), it was not clear how Libyostrongylus spp. arrived in New Zealand, and it was probably entered with live ostrich imports in the 1990s. The nematode, *Libyostrongylus douglassii* was determined in samples from debilitated ostriches on the North Island farm in May 2004 using in-vitro larval culture and examination of adult parasite morphology [3,4]. British researchers, Ederli N.B. et al. (2008, 2015), examined the proventriculus of 10 ostriches too, and there were both species of Libyostrongylus sp. in all analyzed proventriculus [3]. In 2013, Andrade J.G. et al. focused on investigating the genetic characterization supporting a different evolutionary history of blood-sucking nematodes, including *Libyostrongylus douglassii* and *Libyostrongylus dentatus*, for the first time in Brazil [2]. After several years, fecal samples were gathered from wild ostriches (*Struthio molybdophanes*) in Ethiopia by Andrade J.G. et al. (2018) to verify Libyostrongylus spp. infections. To perform this duty, researchers did a coproculture, and to identify infective larvae, general morphology and morphometry were done [1].

## References

1. Andrade J.G., Kumsa B., Ayana D., Vieira R.A.M., Santos C.P., Iñiguez A.M., DaMatta R.A. First record of the nematode Libyostrongylus dentatus Hoberg, Lloyd & Omar, 1995 (Trichostrongylidae) in ostriches (Struthio camelus) outside the Americas. Parasites & Vectors. 2018;11:243.
2. Andrade J.G., Iñiguez A.M., Souza A.N., Marques V.C.L., Souza Filho G.A., Santos C.P., DaMatta R.A. Genetic characterization of the blood-sucking nematodes Libyostrongylus dentatus and Libyostrongylus douglassii supports their different evolutionary history. Veterinary Parasitology.
3. Ederli N.B., Oliveira F.C.R. Gastrointestinal nematodes in ostriches (*Struthio camelus*) in different regions of Rio de Janeiro State, Brazil. *Brazilian Journal of Veterinary Parasitology*. 2015;24(2):168-173. https://doi.org/10.1590/S1984-29612015052

4. Hoberg E.P., Lloyd S., Omar H. Libyostrongylus dentatus sp. nov. (Nematoda: Trichostrongylidae) from ostriches in North America, with comments on the genera Libyostrongylus and Paralibyostrongylus. Journal of Parasitology. 1995;81(1).
5. Reinecke R.K. Veterinary Helminthology. Durban: Butterworth Publishers; 1983.