Georgiev, D. & Yancheva, V. (Eds.)
Fauna of Sakar Mts, Part 1
ZooNotes, Supplement 15, 2024

Review of cestodes (Platyhelminthes: Cestoda) recorded from birds in Sakar Mountains

MARGARITA H. MARINOVA

Trakia University, Faculty of Agriculture, Department of Biological Sciences, Student Campus, 6000 Stara Zagora, Bulgaria; e-mail: mmarinova_@abv.bg

Abstract. A review of cestodes (Platyhelminthes: Cestoda) recorded from birds in Sakar Mountains is presented. A total of 31 species were reported as two of them has been identified at the generic level only. They belong to 21 genera and 4 families of the order Cyclophyllidea. As hosts, 39 species of bird from 19 families were reported. A host-parasite list is presented. The cyclophyllidean cestode species from birds recorded in the Sakar Mountains represent 13.6% of the cestode species recorded in Bulgaria.

Key words: Cestoda, birds, review, Sakar Mts, Bulgaria.

Introduction

Until now, the cestodes from birds of the Sakar Mts have not been in the scope of any specialized study. Scattered data about the distribution of cestode species from birds at this study area can be found as faunistic records (Yanchev & Bozhkov 1959; Paspalewa & Woidowa 1969; Petrova 1978; Kornyushin *et al.* 1984) and in a PhD thesis of the cestodes of the family Dilepididae from passeriform birds in Bulgaria (Georgiev 1991).

The aim of the present review is to summarise the information about cestode parasites of birds, which have been recorded in Sakar Mts. until 2024.

Materials and Methods

The present review includes the cestode species from birds recorded from Sakar Mts. until 2024.

The species list is arranged according to the latest cestode classification as presented by the Global Cestode Database (Caira *et al.* 2012) and the latest list of valid genera in Cyclophyllidea (Mariaux *et al.* 2017). Each taxonomic category of the order Cyclophyllidea (family, genus and cestode species) is presented in alphabetical order. For each cestode species listed, the following information is provided: current scientific name, synonyms (used in the Bulgarian helminthological literature only), reports, updated scientific name of host species, with original host record name in parentheses (when changed), distribution in Bulgaria, general distribution, and remarks. The nomenclature of birds follows Avibase (Lepage 2024). A host-parasite list is presented. The hosts are listed in the orders, families, genera and species in alphabetical order, followed by their cestode parasites.

Results

List of cestode species from birds and mammals in the Sakar Mountains

Phylum Platyhelminthes

Class Cestoda van Beneden, 1848

Order Cyclophyllidea van Beneden in Braun, 1900

Family Davaineidae Braun, 1900

Genus *Davainea* Blanchard, 1891

(1) *Davainea andrei* Fuhrmann, 1933

Report: Petrova (1978).

Hosts: *Alectoris graeca* (Meisner), *Perdix perdix* (L.).

Locality: Topolovgrad.

General distribution: Palaearctic (Schmidt 1986; Movsesyan 2003b).

Genus *Fernandezia* Lopez-Neyra, 1936

(2) *Fernandezia indicus* (Singh, 1964) Artyukh, 1966

Report: Petrova (1978).

Host: *Turdus merula* L.

Locality: Harmanli, Topolovgrad.

General distribution: Indomalaya (India), Bulgaria (Petrova 1978; Schmidt 1986; Movsesyan 2003b).

Genus *Fuhrmannetta* Stiles & Orleman, 1926

(3) *Fuhrmannetta pluriuncinata* (Crety, 1890) Movsesyan, 1966

Synonym: *Raillietina* (*Fuhrmannetta*) *pluriuncinata* (Crety, 1890) Sliles & Orleman, 1926.

Report: Petrova (1978).

Host: *Coturnix coturnix* (L.)

Locality: Harmanli, Topolovgrad

General distribution: Palaearctic, Afrotropic (Yamaguti 1959; Schmidt 1986; Movsesyan 2003a; Dimitrova *et al.* 2023).

Genus *Paroniella* Fuhrmann, 1920

(4) *Paroniella compacta* (Clerc, 1906) Movsesyan, 1966

Synonym: *Raillietina* (*Paroniella*) *compacta* (Clerc, 1906) Fuhrmann, 1920.

Report: Petrova (1978).

Hosts: *Parus major* L., *Cyanistes caeruleus* (L.) (=*Parus caeruleus*).

Locality: Harmanli.

General distribution: Palaearctic, Indomalaya and Afrotropic (Yamaguti 1959; Schmidt 1986; Kornyushin 1989; Movsesyan 2003a; Dimitrova *et al.* 2023).

Genus *Paspalia* Spasskaya & Spasskii, 1971

(5) *Paspalia macracanthos* (Paspalewa & Woidowa, 1969) Spasskaya & Spasskii, 1971

Synonym: *Raillietina macracanthos* Paspalewa & Woidowa, 1969 [1, 2].

Report: [1] Paspalewa & Waidowa (1969); (2] Petrova (1978).

Hosts: *Picus viridis* L. [1], *Picus canus* Gmelin, 1788 [2]

Locality: Svilengrad [1]; Harmanli [2].

General distribution: Palaearctic (Schmidt 1986; Movsesyan 2003a).

Genus *Raillietina* Fuhrmann, 1920

(6) *Raillietina frontina* (Dujardin, 1845) Fuhrmann, 1932

Synonym: *Raillietina* (*Raillietina*) *frontina* (Dujardin, 1845).

Report: Petrova (1978).

Hosts: *Sturnus vulgaris* L., *Passer hispaniolensis* (Temminck), *Picus viridis*, *Picus canus*, *Dendrocopos syriacus* (Hemprich & Ehrenberg) (=*Dryobates syriacus*).

Locality: Harmanli.

General distribution: Palaearctic, Neotropical and Afrotropic (Yamaguti 1959; Schmidt 1986; Kornyushin 1989; Movsesyan 2003a).

(7) *Raillietina graeca* Davies & Evans, 1938

Synonym: *Raillietina* (*R.*) *graeca* Davies & Evans, 1938.

Report: Petrova (1978).

Host: *Alectoris graeca.*

Locality: Harmanli.

General distribution: Palaearctic, Indomalaya (India) (Yamaguti 1959; Schmidt 1986; Movsesyan 2003a).

(8) *Raillietina sp.*

Report: Yanchev & Bozhkov (1959).

Host: *Alectoris chukar cypriotes* Hartert (=*Alectoris graeca cypriotes*).

Locality: Svilengrad, Topolovgrad.

Genus *Skrjabinia* Fuhrmann, 1920

(9) *Skrjabinia circumvallata* (Krabbe, 1869) Baer, 1925

Synonym: *Raillietina* (*Skrjabinia*) *circumvallata* (Krabbe, 1869) Baer, 1925.

Report: Petrova (1978).

Host: *Alectoris graeca*, *Coturnix coturnix.*

Locality: Harmanli.

General distribution: Palaearctic, Indomalaya (India), Afrotropic (Schmidt 1986; Movsesyan 2003a).

Family Dilepididae Fufrmann, 1907

Genus *Anomotaenia* Cohn, 1900

(10) *Anomotaenia citrus* (Krabbe, 1869) Fuhrmann, 1908

Report: [1] Petrova (1978).

Host: *Charadrius dubius* Scopoli [1].

Locality: Harmanli [1].

General distribution: Palaearctic, Neotropical and Afrotropic (Matevosyan 1963; Spasskaya & Spasskii 1978; Schmidt 1986; Dimitrova *et al.* 2023).

Genus *Angularella* Strand, 1928

(11) *Angularella beema* (Clerc, 1906) Strand, 1928

Synonym: *Angularella urbica* Spasskaya, 1971 of Petrova (1978) [1, 2].

Reports: [1] Petrova (1978); [2] Georgiev (1991).

Host: *Hirundo rustica* L.

Locality: Harmanli.

General distribution: Palaearctic, Neotropical and Afrotropic (Spasskaya & Spasskii 1977; Schmidt 1986; Georgiev 1991; Dimitrova *et al.* 2023).

Remarks: Petrova (1978) recorded the specimens from *Hirundo rustica* from Harmanli as „*Angularella urbica* Spasskaya, 1971". These cestodes have been re-examined and further recognized by Georgiev (1991) as belonging to another species, i. e. *Angularella beema*.

Genus *Choanotaenia* Railliet, 1896

(12) *Choanotaenia* sp.

Synonym: *Icterotaenia constricta* (Molin, 1858) Spasskii, 1966 of Petrova (1978) in part [1, 2].

Reports: [1] Petrova (1978); [2] Georgiev (1991).

Host: *Pica pica* (L.)

Locality: Harmanli.

Remarks: Petrova (1978) recorded the species "*Icterotaenia constricta* (Molin, 1858)" from passeriform birds in various localities in Bulgaria. These specimens have been re-examined by Georgiev (1991) who recognized the specimens from *Pica pica* from Harmanli as belonging to another species, i.e. *Choanotaenia* sp., which is possibly a new species pending further investigations.

Genus *Dilepis* Weinland, 1858

(13) *Dilepis undula* (Schrank, 1788) Weinland, 1858

Report: Petrova (1978).

Hosts: *Turdus philomelos* Brehm, 1831 (=*Turdus ericetorum*), *Turdus merula, Sturnus vulgaris*, *Oriolus oriolus* (L.).

Locality: Harmanli.

General distribution: Holarctic, parts of Indomalaya and Afrotropic (Matevosyan 1963; Spasskaya & Spasskii 1977; Schmidt 1986; Georgiev 1991; Dimitrova *et al.* 2023).

Genus *Hirundinicola* Birová-Volosinovicová, 1969

(14) *Hirundinicola chelidonariae* (Spasskaya, 1957) Malega & Kornyushin, 1990

Synonym: *Angularella chelidonariae* (Spasskaya, 1957) Spasskii & Spasskaya, 1966.

Report: Petrova (1978).

Hosts: *Tachymarptis melba* (L.) (=*Apus melba*), *Hirundo rustica*, *Delichon urbicum* (L.) (= *Delichon urbica*).

Locality: Harmanli.

General distribution: Palaearctic (Schmidt 1986; Georgiev 1991).

Remarks: The synonymy of *Angularella chelidonariae* and *Hirundinicola chelidonariae* has been proposed by Malega & Kornyushin (1990).

(15) *Hirundinicola parvirostris* (Krabbe, 1869) Malega & Kornyushin, 1990

Synonym: *Angularella parachelidonariae* (Jaron, 1967) Spasskaya & Spasskii, 1971.

Report: Petrova (1978).

Hosts: *Hirundo rustica*, *Delichon urbicum*.

Locality: Harmanli.

General distribution: Palaearctic and Afrotropic (Spasskaya & Spasskii 1977; Schmidt 1986; Dimitrova *et al.* 2023).

Remarks: The synonymy of *Angularella parachelidonariae* and *Hirundinicola parvirostris* has been proposed by Malega & Kornyushin (1990).

Genus *Monopylidium* Fuhrmann, 1899

(16) *Monopylidium borealis* (Krabbe, 1869) Spasskaya & Spasskii, 1977

Report: Georgiev (1991).

Host: *Luscinia megarhynchos* Brehm, 1831.

Locality: Harmanli.

General distribution: Holarctic (Matevosyan, 1963; Spasskaya & Spasskii 1977; Schmidt 1986; Georgiev 1991).

Remarks: Petrova (1978) recorded the species „*Pseudanomotaenia trigonocephala* (Krabbe, 1869) Matevosyan, 1963“ from *Luscinia megarhynchos* and *Cinclus cinclus* from Harmanli, Stara Zagora and Elchovo. These specimens have been re-examined and the cestodes from *Luscinia megarhynchos* from Harmanli has been recognized by Georgiev (1991) as belonging to another species, i. e. *Monopylidium borealis*.

(17) *Monopylidium galbulae* (Gmelin, 1790) Skrjabin, 1914

Synonym: *Icterotaenia galbulae* (Gmelin, 1790) Railliet & Henry, 1909.

Report: Petrova (1978).

Host: *Oriolus oriolus.*

Locality: Harmanli.

General distribution: Palaearctic, Indomalaya (India) (Spasskaya & Spasskii 1977; Schmidt 1986).

(18) *Monopylidium cf. parinum* (Dujardin, 1845) Spasskaya & Spasskii, 1977

Synonym: *Icterotaenia parina* (Dujardin, 1845) Baer, 1925 [1, 2].

Reports: [1] Petrova (1978); [2] Georgiev (1991).

Host: *Cyanistes caeruleus* [1, 2].

Locality: Harmanli [1, 2].

Remarks: Petrova (1978) recorded the species „*Icterotaenia parina* (Dujardin, 1845)“ from *Sturnus vulgaris*, *Cyanistes caeruleus* and *Parus major*, from various localities in Bulgaria. The specimens from *Parus caeruleus* from Harmanli has been re-identified as belonging to *Monopylidium cf. parinum* (see Georgiev 1991).

(19) *Monopylidium cf. passerinum* Fuhrmann, 1907 (I)

Synonym: *Icterotaenia passerina* (Fuhrmann, 1907) of Petrova (1978) in part [1, 2].

Reports: [1] Petrova (1978); [2] Georgiev (1991).

Host: *Passer domesticus* (L.) [1, 2].

Locality: Harmanli [1, 2].

Remarks: Petrova (1978) recorded the species „*Icterotaenia passerina* (Fuhrmann, 1907)“ from passeriform birds, from various localities in Bulgaria. Subsequently, these specimens are re-examined and the some specimens from *Passer domesticus* from Harmanli are re-identified as *Monopylidium cf. passerinum* (I) by Georgiev (1991).

(20) *Monopylidium cf. passerinum* Fuhrmann, 1907 (II)

Synonym: *Icterotaenia parina* (Dujardin, 1845) Baer, 1925 of Petrova (1978) in part [1, 2].

Reports: [1] Petrova (1978); [2] Georgiev (1991).

Host: *Parus major* [1, 2].

Locality: Harmanli.

Remarks: Petrova (1978) recorded the species „*Icterotaenia parina* (Dujardin, 1845)“ from passeriform birds, from various localities in Bulgaria. Subsequently, these specimens are re-examined and the specimens from *Parus major* from Harmanli are reidentified as *Monopylidium cf. passerinum* (II) by Georgiev (1991).

(21) *Monopylidium cf. passerinum* Fuhrmann, 1907 (III)

Synonym: *Icterotaenia passerina* of Petrova (1978) in part [1, 2].

Reports: [1] Petrova (1978); [2] Georgiev (1991).

Host: *Passer domesticus* [1, 2].

Locality: Harmanli, Topolovgrad,

Remarks: Part of the specimens from *Passer domesticus* from Harmanli (Petrova 1978) have been re-examined and re-identified by Georgiev (1991) as *Monopylidium cf. passerinum* (III).

Genus *Sobolevitaenia* Spasskaya & Makarenko, 1965

(22) *Sobolevitaenia unicoronata* (Fuhrmann, 1908) Spasskaya & Spasskii, 1977

Synonyms: *Choanotaenia unicoronata* (Fuhrmann, 1908) Fuhrmann, 1932 [1]; *Icterotaenia constricta* (Molin, 1858) Spasskii, 1966 of Petrova (1978) in part [1, 2].

Reports: [1] Petrova (1978); [2] Georgiev (1991).

Hosts: *Turdus merula* [1, 2]; *Sturnus vulgaris* [2].

Locality: Harmanli [1, 2], Topolovgrad [1, 2].

General distribution: Palaearctic (Spasskaya & Spasskii 1977; Schmidt 1986; Georgiev 1991).

Remarks: Petrova (1978) recorded the species "*Icterotaenia constricta* (Molin, 1858)" from passeriform birds, from various localities in Bulgaria. These specimens have been re-examined and further Georgiev (1991) recognized the specimens from *Turdus* spp. as belonging to another species, i.e. *Sobolevitaenia unicoronata.*

Genus *Vittaburtia* Sałamatin, 2019

(23) *Vittaburtia rustica* (Neslobinsky, 1911) Salamatin, 2019

Synonym: *Pseudanomotaenia rustica* (Neslobinsky, 1911) Mathevossian, 1963.

Report: Petrova (1978).

Host: *Delichon urbicum.*

Locality: Harmanli.

General distribution: Palaearctic, Nearctic and Afrotropic (Spasskaya & Spasskii 1977; Schmidt 1986; Georgiev, 1991; Dimitrova *et al.* 2023).

Family Hymenolepididae Perrier, 1897

Genus *Diploposthe* Jacobi, 1896

(24) *Diploposthe laevis* (Bloch, 1782) Jacobi, 1897.

Report: Petrova (1978).

Hosts: *Aythya ferina* (L.), *Aythya nyroca* (Güldenstädt).

Locality: Topolovgrad.

General distribution: Cosmopolitan (Singh 1959; Spasskaya 1966; McLaughlin & Burt 1979; Schmidt 1986; Nguyễn Thi Ky 1986; Maksimova 1989; Alexander & McLaughlin 1997; Silveira & Amato 2008).

Genus *Passerilepis* Spasskii & Spasskaya, 1954

(25) *Passerilepis crenata* (Goeze, 1782) Sultanov & Spasskaya, 1959

Report: Petrova (1978).

Hosts: *Dendrocopos syriacus* (= *Dryobates syriacus*), *Turdus merula*, *Sturnus vulgaris*, *Pica pica*, *Coturnix coturnix*.

Locality: Harmanli, Topolovgrad.

General distribution: Sub-cosmopolitan: Holarctic, Afrotropic, Indomalaya and Australian (Yamaguti 1959; Spasskaya 1966; Schmidt 1986; Dimitrova *et al.* 2023).

(26) *Passerilepis passeris* (Gmelin, 1790) Spasskii & Spasskaya, 1954

Report: Petrova (1978).

Hosts: *Coracias garrulus* L., *Hirundo rustica*, *Lanius collurio* L., *Muscicapa striata* (Pallas), *Oenanthe hispanica* (L.), *Passer domesticus*, *Passer montanus* (L.), *Parus major*.

Locality: Harmanli.

General distribution: Palaearctic, Indomalaya and Afrotropic (Spasskaya 1966; Schmidt 1986; Mariaux 1994; Dimitrova *et al.* 2023).

(27) *Passerilepis stylosa* (Rudolphi, 1809) Spasskii & Spasskaya, 1954

Report: Petrova (1978).

Hosts: *Coloeus monedula* (L.), *Garrulus glandarius* (L.), *Pica pica*.

Locality: Harmanli, Topolovgrad.

General distribution: Palaearctic, Nearctic and Afrotropic (Spasskaya 1966; Schmidt 1986; Dimitrova *et al.* 2023).

Genus *Staphylepis* Spasskii & Oschmarin, 1954

(28) *Staphylepis cantaniana* (Polonio, 1860) Spasskii & Oschmarin, 1954

Reports: [1] Petrova (1978); [2] Kornyushin *et al.* (1984).

Hosts: *Perdix perdix* [1, 2]; *Alectoris graeca* [2].

Locality: Harmanli [1, 2].

General distribution: Cosmopolitan (Yamaguti 1959; Spasskaya 1966; Schmidt 1986; Dimitrova *et al.* 2023).

Genus *Variolepis* Spasskii & Spasskaya, 1954

(29) *Variolepis farciminosa* (Goeze, 1782) Spasskii & Spasskaya, 1954

Report: Petrova (1978).

Hosts: *Sturnus vulgaris*, *Oriolus oriolus*, *Garrulus glandarius, Phoenicurus phoenicurus* (L.).

Locality: Harmanli.

General distribution: Sub-cosmopolitan: Holarctic, Indomalaya, Afrotropic and Neotropical (Spasskaya 1966; Schmidt 1986; Dimitrova *et al.* 2023).

Family Paruterinidae Fuhrmann, 1907

Genus *Anonchotaenia* Cohn, 1900

(30) *Anonchotaenia globata* (von Linstow, 1879) Fuhrmann, 1908

Report: Petrova (1978).

Hosts: *Passer montanus*, *Motacilla flava* L., *Motacilla alba* L., *Galerida cristata* (L.), *Tachymarptis melba* (=*Apus melba*), *Emberiza hortulana* L., *Anthus trivialis* (L.), *Anthus cervinus rufogularis* Brehm, 1824 (= *Anthus rufogularis*), *Delichon urbicum*, *Parus major.*

Locality: Harmanli, Topolovgrad

General distribution: Cosmopolitan (Matevosyan 1969; Schmidt 1986).

Genus *Biuterina* Fuhrmann, 1902

(31) *Biuterina triangula* (Krabbe, 1869) Fuhrmann, 1908

Report: Petrova (1978).

Hosts: *Acrocephalus arundinaceus* (L.), *Anthus trivialis*, *Luscinia megarhynchos, Erithacus rubecula* (L.).

Locality: Harmanli.

General distribution: Palearctic and Afrotropic (Matevosyan 1969; Schmidt 1986; Dimitrova *et al.* 2023).

Host-parasite checklist

Class Aves

Order Apodiformes
Family Apodidae
Tachymarptis melba (L.)
Hirundinicola chelidonariae
Anonchotaenia globata

Order Anseriformes
Family Anatidae
Aythya ferina (L.)
Diploposthe laevis
Aythya nyroca (Güldenstädt)
Diploposthe laevis

Order Charadriiformes
Family Charadriidae
Charadrius dubius Scopoli
Anomotaenia citrus
Family Phasianidae
Coturnix coturnix (L.)
Fuhrmannetta pluriuncinata
Passerilepis crenata
Skrjabinia circumvallata
Alectoris chukar cypriotes Hartert
Raillietina sp.
Alectoris graeca (Meisner)
Davainea andrei
Raillietina graeca
Skrjabinia circumvallata
Staphylepis cantaniana
Perdix perdix (L.)
Davainea andrei
Staphylepis cantaniana

Order Passeriformes
Family Acrocephalidae
Acrocephalus arundinaceus (L.)
Biuterina triangula
Family Alaudidae
Galerida cristata (L.)
Anonchotaenia globata
Family Coraciidae
Coracias garrulus L.
Passerilepis passeris
Family Corvidae
Coloeus monedula (L.)
Passerilepis stylosa
Garrulus glandarius (L.)
Passerilepis stylosa
Variolepis farciminosa
Pica pica (L.)
Passerilepis crenata

Passerilepis stylosa
Choanotaenia sp.

Family Emberizidae

Emberiza hortulana L.
Anonchotaenia globata

Family Hirundinidae

Hirundo rustica L.
Angularella bema
Hirundinicola chelidonariae
Hirundinicola parvirostris
Passerilepis passeris

Delichon urbicum (L.)
Hirundinicola chelidonariae
Hirundinicola parvirostris
Anonchotaenia globata
Vittaburtia rustica

Family Laniidae

Lanius collurio L.
Passerilepis passeris

Family Motacillidae

Anthus cervinus rufogularis Brehm, 1824
Anonchotaenia globata

Anthus trivialis (L.)
Anonchotaenia globata
Biuterina triangula

Motacilla alba L.
Anonchotaenia globata

Motacilla flava L.
Anonchotaenia globata

Family Muscicapidae

Erithacus rubecula (L.)
Biuterina triangula

Luscinia megarhynchos Brehm, 1831
Biuterina triangula
Monopylidium borealis

Muscicapa striata (Pallas)
Passerilepis passeris

Oenanthe hispanica (L.)
Passerilepis passeris

Phoenicurus phoenicurus (L.)
Variolepis farciminosa

Family Oriolidae

Oriolus oriolus (L.)
Dilepis undula
Monopylidium galbulae
Variolepis farciminosa

Family Paridae

Cyanistes caeruleus (L.)
Monopylidium cf. parinum
Paroniella compacta

Parus major L.
Anonchotaenia globata
Monopylidium cf. passerinum (II)
Paroniella compacta

Passerilepis passeris

Family Passeridae

Passer domesticus (L.)

Monopylidium cf. passerinum (I)

Monopylidium cf. passerinum (III)

Passerilepis passeris

Passer hispaniolensis (Temminck)

Raillietina frontina

Passer montanus (L.)

Anonchotaenia globata

Passerilepis passeris

Family Sturnidae

Sturnus vulgaris L.

Dilepis undula

Passerilepis crenata

Raillietina frontina

Sobolevitaenia unicoronata

Variolepis farciminosa

Family Turdidae

Turdus merula L.

Dilepis undula

Fernandezia indicus

Passerilepis crenata

Sobolevitaenia unicoronata

Turdus philomelos Brehm, 1831

Dilepis undula

Order Piciformes

Family Picidae

Dendrocopos syriacus (Hemprich & Ehrenberg)

Passerilepis crenata

Raillietina frontina

Picus canus Gmelin

Paspalia macracanthos

Raillietina frontina

Picus viridis L.

Paspalia macracanthos

Raillietina frontina

Discussion

As seen from the above survey, 31 cestode species were recorded from the Sakar Mts. The cestodes recorded belong to 21 genera and 4 families of the order Cyclophyllidea. As definitive hosts, 39 bird species have been recorded. They belong to 5 orders and 19 families.

According to Nikolov *et al.* (2010), Marinova *et al.* (2013; 2015), Marinova (2016; 2017), Marinova & Vasileva (2021; 2022) and Vasileva *et al.* (2022) 228 cyclophyllidean cestodes from birds were recorded for the fauna of Bulgaria. The cestodes species recorded in the Sakar Mountains represent about 13.6% of the cestode fauna in Bulgaria. Due to the high avian diversity and the large number of avian cestodes reported so far in Bulgaria, it could be expected probably much higher cestode diversity in birds from Sakar Mts. Further studies are needed especially on the non-investigated groups of birds.

The majority of the species recorded in Sakar Mountains (80.6%) are characterised by large geographical distribution (Palaearctic, Holarctic, Palaearctic-Oriental, Palaearctic-

Paleotropical, Palaearctic-Afrotropical, Palaearctic-Afrotropical-Neotropical, Holarctic-Afrotropical, Holarctic-Paleotropical, sub-cosmopolitan and cosmopolitan) which is probably due to the biological features of their final hosts, their diversity, migrations and large breeding and migration areals.

Acknowledgements. I am grateful to Prof. Gergana Vasileva (Institute of Biodiversity and Ecosystem Research (IBER), BAS, Sofia) for the useful comments during the preparation of the manuscript. This study was supported by the project CEBDER (National Science Fund of the Republic of Bulgaria, Grant DOO2-15/17.02.2009) and the Bulgarian Ministry of Education and Science under the National Research Programme "Young Scientists and Postdoctoral Students", approved by the DCM 577/17.08.2018 within the framework of the project.

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