

## РЕЗЮМЕТА НА НАУЧНИТЕ ТРУДОВЕ НА ДОЦ. Д-Р ДИЯН ГЕОРГИЕВ

Представени в конкурс за заемане на академична длъжност „Професор“ по научна специалност „Екология и опазване на екосистемите“, научно направление 4.3. Биологически науки, научна област, 4. Природни науки, математика и информатика, в АФ при Тракийски университет.

Raichev E., H. Tsunoda, C. Newman, R. Masuda, **D. Georgiev**, Y. Kaneko, (2013). The Reliance of the Golden Jackal (*Canis aureus*) on Anthropogenic Foods in winter in Central Bulgaria, *Mammal Study* 38:19-27, **IF = 0.667**; (SJR 2013= 0.253) ISSN: 1343-4152; eISSN: 1348-6160; DOI: 10.3106/041.038.0102 - **Q3**

**Abstract:** Wild canid foraging behaviour and regional abundance are often affected by the availability of anthropogenic food, supplementing natural diet. The feeding habitats of the golden jackal (*Canis aureus*) were compared between two populations in central Bulgaria, for which food availability and the extent of anthropogenic-modified habitat differed. Stomach contents were collected from hunting bags during winters from 1997 to 2009 and compared between an agricultural hilly region (Region 1) and a forested-mountainous region (Region 2). Although mammalian prey predominated in the jackal's diet in the two regions, diets differed significantly between the regions: in Region 1 the main foods were domestic animals (30.2%), while in Region 2 wild ungulates proved to be the dominant food type (47.9%). We propose that although regional differences in jackal foraging habits were apparent between the two regions, foods originating from human activities were important in both regions. In Bulgaria, the golden jackal is regarded as a nuisance pest, requiring population control. Managing the availability of anthropogenic food sources to jackals, e.g., carcasses of wild and domestic animals, may implicitly reduce jackal abundance and/or discourage jackals from foraging around sites occupied by people.

**Key words:** anthropogenic foods, Bulgaria, *Canis aureus*, foraging habits, scavenging.

Zhelyazkov, G., **Georgiev, D.**, Dospatliev, L., Staykov, I. (2014). Determination of Heavy Metals in Roach (*Rutilus rutilus*) and Bleak (*Alburnus alburnus*) in Zhrebchevo Dam Lake. *Ecologia Balkanica*, Vol. 5, Special Edition April 2014 pp. 15-20. (SJR 2016 = 0.123) ISSN:1314-0213; eISSN:1313-9940 - **Q4**

**Abstract.** The aim of this study was to examine the concentration of iron (Fe), nickel (Ni), lead (Pb), manganese (Mn), copper (Cu), chromium (Cr), cadmium (Cd) and zinc (Zn) in roach (*Rutilus rutilus*) and bleak (*Alburnus alburnus*) as species for human consumption. Two fresh water fish species, roach and bleak were caught from Zhrebchevo Dam Lake in Bulgaria. Determination of heavy metals (Fe, Cu, Ni, Pb, Zn, Mn, Cr and Cd) in muscle samples were performed with electro thermal atomic absorption spectrometry (ETAAS). The heavy metal content in the meat of roach and bleak were found to be 0.59±0.032 - 0.69±0.128 mg kg<sup>-1</sup> for Cu, 6.59±0.224 - 7.34±0.142 mg kg<sup>-1</sup> for Fe, 0.03±0.025 - 0.04±0.012 mg kg<sup>-1</sup> for Ni, 0.06±0.044 - 0.07±0.031 mg kg<sup>-1</sup> for Pb, 4.05±0.263 - 5.46±0.388 mg kg<sup>-1</sup> for Zn, 0.49±0.060 - 0.72±0.080 mg kg<sup>-1</sup> for Mn, 0.09±0.036 - 0.1±0.045 mg kg<sup>-1</sup> for Cr, 0.01±0.002 - 0.01±0.003 mg kg<sup>-1</sup> for Cd. The data show that the differences between the content of Fe, Cu, Mn, Zn, Cr and Ni in roach and bleak are significant, while these ones of Pb and Cd are not significant. The significant

differences in the content of heavy metals in muscles of roach and bleak are as a result of multiple factors, including season, food, chemical properties of water or sediment. The data established during the investigation show that the edible part of fish do not carry heavy metals loads and concentrations are below the legal value for fish and fish products established by the Food and Agriculture Organization and national legislation. This paper is helpful to consumers and academics concerning the mineral of body composition of roach (*Rutilus rutilus*), and bleak (*Alburnus alburnus*).

**Key words:** Fish, roach, bleak, *Rutilus rutilus*, *Alburnus alburnus*, heavy metals, ETAAS.

Zapryanova, D., Rusenova, N., Beev, G., Parvanov, P., Mircheva, T., Denev, S., **Georgiev, D.** (2014). Changes in the Activity of Aspartate - and Alanine Aminotransferase in Dogs with Experimentally Induced *Staphylococcus aureus* Infection. *Kafkas Univ. Vet. Fak Derg* 20 (4): 621-624 **IF 2014 = 0,258**; (SJR 2014 = 0.247) DOI: 10.9775/kvfd.2013.10617 ISSN: 1300-6045 - **Q3**

**Summary:** The main purpose of this study was to evaluate the aspartate aminotransferase (AST) and alanine aminotransferase (ALT) plasma concentrations in dogs with experimentally-induced *Staphylococcus aureus* infection. Correlations between AST, ALT and Respiratory Rate (RR), Pulse Rate (PR) and Internal Body Temperature (IBT) were also calculated. Bacterial suspension with density of  $3.1 \times 10^9$  cfu/mL was subcutaneously injected to 9 mongrel 2 years old male dogs whereas 6 other dogs served as negative controls. The concentrations were determined using commercial kits before application (0 h), 6, 24, 48, 72 h and 7, 14, 21 days after. The aminotransferase concentrations were higher in infected dogs than in the controls - AST peaked on days 7 and 14, and ALT - at the 72nd h. Strong positive correlations were recorded between ALT and AST concentrations and between RR and IBT. It was observed that the transaminases activities were slightly affected by the experimentally induced staphylococcal infection in dogs.

**Keywords:** *Staphylococcus aureus*, AST, ALT, Clinical signs, Dogs

Hisano M., E. Raichev, S. Peeva, **D. Georgiev**, H. Tsunoda, R. Masuda, Y. Kaneko, (2014) Notes on autumn-winter stomach contents of the stone marten (*Martes foina*) in the Balkan mountains, Central Bulgaria. *Zoo Notes* 56: 1-6; ZOOR15207044697; ISSN 1313-9916; **Web of Science**

**Abstract.** We studied autumn-winter food (November-February, 1997-2003) of the Stone Marten in the Balkan Mountains, Central Bulgaria. A total of 26 stomachs (18 of males and eight of females) were examined, of which contents was expressed as the number of occurrence and relative frequency of occurrence. The result clearly showed that rodents are primary prey for the Stone Marten. Birds and insects were the following categories consumed. The edible dormouse was detected as a prey for the first time in Bulgaria. Besides, wild ungulates and domestic animals were occasionally scavenged, while neither fruits nor artificial materials were detected in the marten stomachs. Thus, our study showed that the Stone Marten in the Balkan Mountains tended to be more carnivorous in winter.

**Key words:** *Balkan Mountains, food habits, Glis glis, stomach contents, Martes foina*

Kalcheva, S., Georgiev, D., **Georgiev, D.** (2015) Malacofauna (Gastropoda and Bivalvia) of the “Pomoriysko ezero” protected area: preliminary results. *Journal of Bio Science and Biotechnology* SE/ONLINE: 281-283, ISSN: 1314-6246; **Web of Science**

**Abstract:** The “Pomoriysko ezero” Lake is a hipersaline lagoon with natural origin, situated close to the town of Pomorie. The lake has 80 years of history with hydrobiological studies. The malacology studies of the terrestrial, freshwater, and brackish molluscs in the adjacent territory of the lake, as well as of the molluscs in the lagoons and at most of the Bulgarian Black Sea coast are pretty scarce as a whole. For the purpose of the present study some qualitative and quantitative samples of the coast, fresh water and benthos were collected from the "Pomoriysko ezero" lake. A total of 26 marine and brackish species from 23 families and two classes - *Bivalvia* (16 species) *Gastropoda* (10 species); 2 freshwater species from 2 families (*Physidae*; *Planorbidae*), from the class *Gastropoda*; and 11 terrestrial species from same class, representatives of four families (*Hygromiidae*; *Helicidae*; *Enidae*; *Orculidae*) were established.

**Key words:** protected area, Bulgaria, malacofauna, Pomoriysko ezero

**Georgiev, D.**, G. Zhelyazkov, K. Georgieva, (2015) Sex and Size Structure of Roach (*Rutilus rutilus*) and Bleak (*Alburnus alburnus*) Populations in Zhrebchevo Dam. *Ecologia Balkanica* Vol. 7, (2), pp. 51-56. (SJR 2016 – 0.123) ISSN:1314-0213; eISSN:1313-9940 - **Q4**

**Abstract:** The purpose of the present study is to analyze the sex and size structure of roach (*Rutilus rutilus*) and bleak (*Alburnus alburnus*) populations from carp family (Cyprinidae) in Zhrebchevo Dam. The survey was conducted in February 2013. The main task of the Dam visit was to collect representatives of all fish species active in the season and caught by the fishermen. In order to obtain a representative samples of fish, was taken specimen of each species, fishermen had caught. Were got 26 sexually mature roach (7♂ and 19♀) and 27 sexually mature bleak (12♂ and 15♀). A specific feature of roach sex structure is the bigger number of females (73.08%) than males (26.92%) in the population. In the bleak (*Alburnus alburnus*) population the number of males and females is almost equal with a small predominance of the females (55.55%) over the males (44.45%). The analysis of the size structure of roach and bleak populations inhabiting Zhrebchevo Dam indicates that males are relatively smaller than females and these differences apply with accuracy of ( $P \leq 0.001$ ) for the total body length and with accuracy of ( $P \leq 0.01$ ) for the live weight of the examined fish species. The trend is the same within the bleak population where the differences apply with accuracy of ( $P \leq 0.01$ ) for the total body length and with accuracy of ( $P \leq 0.001$ ) for the live weight. Bleak's yield is 88% which is higher than the one of the roach - 16%.

**Key words:** population structure, roach, bleak, *Rutilus rutilus*, *Alburnus alburnus*.

**Georgiev, D.**, Kalcheva, S., Georgiev, D., Dedov., I. (2015) New Information on the Snail Fauna of “Sinite Kamani” Nature Park (Stara Planina Mountains, Bulgaria). *Ecologia Balkanica* Vol. 7, (2) pp. 87-90. (SJR 2016 – 0.123) ISSN:1314-0213; eISSN:1313-9940 - **Q4**

**Abstract.** The malacofauna in the Bulgarian nature parks situated in Stara Planina Mts. is poorly known. So far only one research in the area of Nature Park “Sinite kamani” was carried out in 2008. A total of 23 species of terrestrial snails were discovered and some data on their habitats were presented, but no freshwater snails were found. The author has suggested that many other species could be found in case of future studies. In the present paper we present some new terrestrial and aquatic species discovered on the territory of the park.

**Key words:** protected area, Bulgaria, malacofauna

Hisano M., E. Raichev, S. Peeva, H. Tsunoda, C. Newman, R. Masuda, **D. Georgiev**, Y. Kaneko. (2016) Comparing the summer diet of stone marten (*Martes foina*) in urban and natural habitats in Central Bulgaria. *Ethology, Ecology and Evolution*, 28, 295-311, **IF = 1.582**; (SJR 2016 – 0.486) DOI: 10.1080/03949370.2015.1048829; ISSN: 0394-9370; eISSN: 1828-7131 - **Q2**

**Abstract.** Understanding whether and how carnivores can adapt to urbanised environments is becoming increasingly important, as human populations grow and undeveloped landscape is lost. The stone marten (*Martes foina*) is often found in urban habitats across continental Europe, due to its flexible foraging behaviour. We compare the utilisation of food types for martens living in villages in a more populated region with that of martens living in a less populated mountainous forest region, over the summer fruiting season (May–July) of 2013, inferred from the analysis of 310 faecal samples. Fruits were the primary food for martens in both regions, but comprised a significantly greater proportion of the diet in villages. Invertebrates and rodents were utilised significantly more in the natural habitat. Garbage and domestic animals were rarely exploited in either region; however, village-dwelling martens appeared to rely heavily on being subsidised by cultivated fruits grown in gardens and orchards, and along the streets. We conclude that the stone marten is able to succeed in urbanised regions of Central Bulgaria by exploiting cultivated food resources, attributable to its flexible and adaptable generalist diet.

**Key words:** cultivated fruits, faecal analysis, food habits, urban adaptation, *Martes foina*.

Tsunoda H., E. Raichev, C. Newman, R. Masuda, **D. Georgiev**, Y. Kaneko, (2017) Food niche segregation between sympatric golden jackals and red foxes in Central Bulgaria. *Journal of Zoology*, vol. 303, issue 1, p. 64-71. **IF =1.582** (SJR2017–1.077) DOI: 10.1016/j.zool.2020.125801; ISSN: 0944-2006 - **Q1**

**Abstract:** In Europe, the range of the golden jackal (*Canis aureus*) has expanded since the mid-twentieth century, but little is known about how it interacts with other sympatric carnivores. Among European countries, Bulgaria has the largest population of golden jackals and jackal numbers have increased around two-fold during the past two decades, particularly in lowland habitats. Larger canids often competitively exclude, or even kill, smaller sympatric ones, especially when guild dynamics are in flux due to population re-establishment. We therefore investigate whether trophic niche segregation occurs between golden jackals and red foxes (*Vulpes vulpes*) in central Bulgaria, where both species are sympatric. Because jackals are more abundant in lowland than in upland Bulgaria, we further investigate whether habitat elevation affects the strength of trophic competition. From the analysis of stomach contents of both species, collected from lowland and upland areas during hunting seasons between 1997 and 2009, we found no significant food niche overlap, and no effect of elevation on trophic interactions. In lowland habitat, golden jackals mainly scavenged carcasses of domestic animals, whereas in upland habitat they consumed mostly carcasses of wild ungulates. In contrast, red foxes predominantly and consistently preyed on rodents in both habitats. This suggests that trophic segregation facilitates the coexistence of these canids under these prevailing population conditions. Nevertheless, we stress that as golden jackals colonize Eastern Europe, impacts on red foxes, and consequences for ecological communities, should be monitored carefully, especially in regions with less carrion available to support jackals

Raichev E., S. Peeva, R. Masuda, Y. Kaneko, H. Tsunoda, **D. Georgiev**, D. Georgiev, (2017) Sexual dimorphism in body parameters of the golden jackal *Canis aureus* L., 1758 (Carnivora, Canidae) in the Sarnena Sredna Gora Mountain and Thracian plain (Bulgaria). *Trakia Journal of Sciences*, № 2, pp. 135-140. ISSN:1312-1723; **Web of Science**

**Abstract:** The study was conducted in the area of the Sarnena Sredna Gora Mountain and the Thracian Plain in period 1996-2014. On a total of 262 golden jackals (*Canis aureus* L., 1758) (119 males and 143 females) thirteen somatometric parameters were measured. The comparison of the linear body parameters and the weights between males and females showed apparent sexual dimorphism in the jackals with a high level of reliability, with an exception of the length of the tail. The index of body compactness and the weight index were calculated and compared. The index of body compactness did not differ between sexes. The body weight (10,994.24 g for males and 9,776.02 g for females in average) showed clear sexual dimorphism – male-female ratio was 11.08%. Our findings indicated that the sexual size dimorphism in golden jackal was weaker and lower than those in red fox and wolf.

**Key words:** body mass, circumference, linear parameters, weight index

**Georgiev, D.,** E. Raichev, L. Dospatliev, M. Ivanova, S. Peeva, S. Kalcheva and K. Georgieva (2018) Heavy metals concentrations in organs of red foxes (*Vulpes vulpes* Linnaeus, 1758) and golden jackals (*Canis aureus* Linnaeus, 1758) inhabiting the “Sarnena Sredna gora” mountain in Bulgaria. *Bulgarian Journal of Agricultural Science*, 24, pp. 119-124 (SJR 2018 = 0.261) ISSN: 1310-0351 - **Q3**

**Abstract:** The purpose of the study is to determine the concentrations of the heavy metals lead (Pb), cadmium (Cd), nickel (Ni), cobalt (Co), copper (Cu) and zinc (Zn) in the muscles, kidneys and liver samples taken from red foxes (n = 9) and jackals (n = 17) inhabiting the “Sarnena Sredna gora” mountain in Bulgaria and to compare the respective results. It was established that concentrations of heavy metals (mg/kg dry weight) in the muscles, kidneys and liver samples are as follows: in the red foxes’ muscles: Pb – 0.170, Cd – 0.089, Ni – 2.312, Co – 0.074, Cu – 2.565, Zn – 41.382; in the red foxes’ kidneys: Pb – 0.761, Cd – 15.522, Ni – 2.834, Co – 2.033, Cu – 8.470, Zn – 30.157; in the red foxes’ livers: Pb – 0.953, Cd – 0.628, Ni – 2.480, Co – 1.664, Cu – 15.121, Zn – 30.106; in the jackal’s muscles: Pb – 1.126, Cd – 1.742, Ni – 7.416, Co – 1.798, Cu – 6.466, Zn – 66.804; in the jackal’s kidneys: Pb – 8.419, Cd – 11.185, Ni – 7.710, Co – 5.039, Cu – 33.861, Zn – 61.576; in the jackal’s livers: Pb – 8.879, Cd – 11.569, Ni – 7.342, Co – 4.963, Cu – 56.319, Zn – 63.618. The red fox (*Vulpes vulpes* Linnaeus, 1758) and the jackal (*Canis aureus* Linnaeus, 1758), could be used as an effective biomarker for the assessment of the environmental pollution in their natural habitats.

**Key words:** golden jackal; red fox; heavy metals; muscles; kidneys; liver.

Georgi I. Zhelyazkov, **Dian M. Georgiev**, Stanislava P. Peeva, Silvia E. Kalcheva, Kremena Y. Georgieva, (2018) Chemical Composition and Levels of Heavy Metals in Fish Meat of the Cyprinidae Family from Zhrebchevo Dam, Central Bulgaria. *Ecologia Balkanica* – 2018, vol. 10, issue 2 pp. 133-140 (SJR 2018= 0.103); ISSN:1314-0213; eISSN:1313-9940 - **Q4**

**Abstract.** The aim of the study was to determine the chemical composition and for the first time – the content of cadmium (Cd), nickel (Ni), lead (Pb) and zinc (Zn) in the meat of bream (*Abramis brama* Linnaeus, 1758), Prussian carp (*Carassius gibelio* Bloch, 1782), vimba (*Vimba vimba* Linnaeus, 1758) and chub (*Leuciscus cephalus* Linnaeus, 1758) in one of the most popular for angling dams in Central Bulgaria in order to evaluate the risk for human health. Chemical composition of fish from Zhrebchevo dam showed the highest moisture content in the meat of Prussian carp – 82.13±0.04%, and the lowest in that of vimba – 78.51±0.07%. The amount of protein and lipids was highest in vimba meat 18.41±0.23% and 1.88±0.09%, and lowest in the Prussian carp - 16.49±0.01% and 0.25±0.05%. The content of Cd, Ni and Pb in the meat of vimba was the lowest - 0.033±0.001 mg.kg-1, 0.330±0.001 mg.kg-1 and 0.135±0.001 mg.kg-1 and the highest in bream, 0.045±0.004 mg.kg-1, 0.457±0.018 mg.kg-1 and 0.177±0.013 mg.kg-1 respectively. The highest content of Zn was observed in the Prussian carp - 20.170±0.266 mg.kg-1, and lowest in bream - 15.903±0.593 mg.kg-1. The obtained values for the four studied heavy metals were below the maximum permissible level according to the European legislation.

**Keywords:** *Abramis brama*, *Carassius gibelio*, *Leuciscus cephalus*, *Vimba vimba*, human health risk.

Yanko G. Yankov, **Dian M. Georgiev** (2018) Terrestrial Snails (Mollusca: Gastropoda) as Intermediate Hosts of Protostrongylid Nematodes in Balkan Chamois in the Regions of Western Rhodopes Mts. and Pirin Mts., Bulgaria: Preliminary Data. *Ecologia Balkanica* – 2018, vol. 10, issue 2 pp. 249-253 (SJR 2018 = 0.103); ISSN: 1314-0213; eISSN: 1313-9940 - **Q4**

**Abstract:** The nematodes from family Protostrongylidae Leiper, 1926 parasitize in the lungs of wild and domestic ruminants and rabbits. Five meadows from the region of Western Rhodopes Mts and Pirin Mts used from the Balkan chamois (*Rupicapra rupicapra balcanica*) were studied for terrestrial gastropods as a potential intermediate hosts of protostrongylids, during the summer of 2018. A total of 28 specimens of *Cattania haberhaueri*, *Xerolenta macedonica* and *Helix pomatia* in the Pirin Mts and 161 specimens of *Zebrina detrita*, *Chondrus zebra tantalus*, *Xerolenta* sp., *Cattania rumelica*, *Cepaea vindobonensis* and *Euomphalia strigella* in the Western Rhodopes Mts were collected. The highest levels of infestation with protostrongylids were detected in *Xerolenta macedonica* and *Xerolenta* sp. for the meadows of Pirin Mts and Western Rhodopes Mts, respectively.

**Key words:** *Protostrongylidae*, natural invasion, gastropods, larvae

**Dian Georgiev**<sup>1</sup>, Dilian Georgiev<sup>2</sup> (2018) Herpetofauna of Stara Zagora, Southern Bulgaria: Species composition and distribution along the natural habitat - urban areas gradient. *Trakia Journal of Sciences*, No 4, pp 270-274, ISSN:1312-1723, Web of Science

**Abstract:** Herpetofauna of Stara Zagora city is characterized by exceptional species richness. In the this urban area and its adjacent territories, twenty-nine species from 13 families and four orders of class Amphibia and class Reptilia were found. From all species encountered in the studied region, 21 were established in suburban zones.

Ten species were registered in residential areas and their adjacent territories, and 18 species – in city parks. An obvious increase in number of species and their spread to the peripheral and central city areas was observed. The least number of species (5 sp.) was observed in construction areas, areas of intensive crop farming (6 sp.) and around administrative buildings (6 sp.).

**Key words:** Herpetofauna, Stara Zagora, Amphibia, Reptilia

Georgieva, K., Zhelyazkov, G., Staykov, Y., Georgiev, D. (2019) Effect of dietary phytoextracts supplementation on chemical composition of common carp (*Cyprinus carpio* L.), cultivated in recirculating system. *Bulgarian Journal of Agricultural Science*, 25 pp. 178-181, 2019 (SJR 2019 = 0.191); ISSN: 1310-0351 - **Q3**

**Abstract:** This study was conducted to investigate the effects of the dietary phytoextracts supplementation on the chemical composition in the meat of common carp (*Cyprinus carpio* L.). The fish were divided into 6 groups: one control (C) and five experimental groups whose feed was supplemented with 1g of curcumin (EC), paprika (EP), thyme (ET), oregano (EO) and garlic (EG). Significant influence was found on the water content and dry matter in EO group. The addition of phytoextracts to the diet of carp did not change significantly the protein, lipid and ash contents ( $P > 0.05$ ).

**Keywords:** common carp; phytoextracts; chemical composition

Georgieva K, G. Zhelyazkov, D. Georgiev (2020) Effect of dietary phytoextracts supplementation on biochemical blood parameters of common carp (*Cyprinus carpio* L.) cultivated in a recirculation system. *Bulgarian Journal of Agricultural Science*, 26, pp. 186-191 (SJR 2020 = 0.248) ISSN: 1310-0351 - Q3

**Abstract.** The present research aimed to examine the effect of dietary phytoextracts supplementation on the biochemical blood parameters (glucose, urea, creatinine, total protein, albumin, ASAT, ALAT) of common carp (*Cyprinus carpio* L.), cultivated in a recirculation system. The fish were divided into 6 groups: one control (C) and five experimental groups in whose food was added phytoextracts of curcumin (EC), paprika (EP), thyme (ET), oregano (EO) and garlic (EG). The addition of phytoextracts had significant influence on total protein content of fish from the experimental groups (EC -  $P \leq 0.01$ ), EP -  $P \leq 0.05$ , ET -  $P \leq 0.05$  and EG -  $P \leq 0.05$ ) compared to control group (C).

**Keywords:** curcumin; paprika; thyme; oregano; garlic

Silvia Kalcheva \*, Dian Georgiev, Yanko Yankov (2020) Morphometric studies of third stage Protostrongylidae's larvae sampled from *Helicella obvia* inhabiting sheep and goats pastures in the region of Stara Zagora, South Bulgaria. *Bulgarian Journal of Agricultural Science*, 26, pp. 133 – 140 (SJR 2020 = 0.248) ISSN: 1310-0351 - Q3

**Abstract:** Kalcheva, S., Georgiev, D. & Yankov, Y. (2020) Morphometric studies of Protostrongylidae's third stage larvae (Nematoda: Protostrongylidae) found in *Helicella obvia* in the pastures of Central South Bulgaria.

The purpose of the current study was to investigate the morphometric characteristics of L3 protostrongylids, found commonly in intermediate hosts in Central South Bulgaria and to reveal the most common intermediate host in the studied region. Three terrestrial snails species: *Helicella obvia*, *Zebrina detrita* and *Monacha cartusiana* were collected from pastures primarily used by sheep and goats in the region of Stara Zagora city during the period from March to June and from September to November in 2017. *Helicella obvia* was the most widely distributed in all studied pastures. The highest general parameters of invasion with protostrongylids were observed in *Helicella obvia*. A total of 150 larvae of protostrongylids were identified, belonging to the following species: *Mullerius capillaris*, *Neostrongylus linearis* and *Cystocaulus ocreatus*. The established morphometric parameters on L3 of these species were as follows: *M. capillaris* - average body length 0.624 mm and average length of the tail (the distance between the anal orifice and the tail tip) - 0.038 mm; *N. linearis* - 0.577 mm and 0.030 mm, respectively; *C. ocreatus* were 0.676 mm and 0.032 mm, respectively. The seasonal dynamics of the protostrongylids showed that the biggest invasion observed in all investigated pastures was during autumn and spring. The abundance of the nematode's populations through different sites was low. The most common protostrongylid species was *M. capillaris*.

**Keywords:** sheep and goats; snails; *M. capillaris*; *N. linearis*; *C. ocreatus*



Neli Grozeva<sup>1\*</sup>, Mariya Zhelyazkova<sup>2</sup>, Mariya Gerdzhikova<sup>3</sup>, Milena Tzanova<sup>4</sup>,Dimitar Pavlov<sup>3</sup>,Svetla na Georgieva<sup>2</sup>, **Dian Georgiev**<sup>1</sup> (2020) Morphological and karyological variability of the Balkan endemics *Moehringiajankae* Griseb. ex Janka and *Moehringiagrisebachii* Janka (Caryophyllaceae) from Eastern Balkan Range. *Bulgarian Journal of Agricultural Science*, 26 pp. 30 - 47 (SJR 2020 = 0.248) ISSN: 1310-0351 - **Q3**

**Abstract:** Seven populations of *Moehringia jankae* and eleven populations of *M. grisebachii* at Eastern Balkan Range – Sinite Kamani Natural Park were morphologically and karyologically tested. The chromosome numbers, the karyotype characteristics and the stomata type of *M. grisebachii* and *M. jankae* were described. Intrapopulation, interpopulation and interspecies variabilities were established. The chromosome number  $2n = 2x = 24$  have been found in all studied populations. The karyotypes of *M. jankae* and *M. grisebachii* consist of metacentric and submetacentric chromosomes, differences in morphology and size of chromosomes have been identified and in the studied populations of *M. grisebachii* were established one pair of chromosomes with satellites. The main source of phenotype variation was intrapopulation variability mainly due to characteristics of habitats of both species and their biological type. More variable in all populations of *M. jankae* and *M. grisebachii* were vegetative traits and the most variable was height of stem. The registered interpopulation variability was affected by the differences in the karyotype, the altitude, the exposure and the type of rock, number and area of population. Indumentum, dimentions of leaves and flowers and morphological features of pollen and seeds had taxonomic significance for distinguishing *M. jankae* from *M. grisebachii*.

**Keywords:** karyology; *Moehringia grisebachii*; *Moehringia jankae*; morphology; population variations

Silvia Kalcheva, Daniela Georgieva-Klisarova, Dimitar Gerdzhikov, **Dian Georgiev** (2021) Phytoplankton study in Pomorie Lake, Black Sea, Bulgaria. *Ecologia Balkanica* – **IN PRESS - Q4**

**Abstract:** Coastal wetlands, such as Pomorie Lake, are among the most dynamic and complex ecosystems in the world and their enviromental safety requires special preservation. The aim of the present paper is to study the phytoplankton composition in Pomorie lake, a protected area in Bulgaria. The development of a total of 49 phytoplankton species distributed in 8 classes was recorded and 6 phytoplankton species were recorded in „bloom” concentrations. The most abundant species were from class Dinophyceae (17 species, 34.69%) and class Bacillariophyceae (9 species, 18.37%). The research found a decrease in the proportion of diatoms (Bacillariophyceae class) and an increase in the number of green and euglena algae. This pilot study contributes to the current characterization of the ecological status of Pomorie lake. According to the established phytoplankton biomass and part of the ecological assessment criteria for “mesotrophic” lake types the ecological status of Pomorie Lake in 2017 is between “moderate” - "good".

**Keywords:** Pomorie Lake; Black Sea; phytoplankton; Dinophyceae; Bacillariophyceae