

A COMPARATIVE ANALYSIS OF THE ORTHOPTERA (INSECTA) FROM THE REPUBLIC OF MOLDOVA AND SOME REGIONS OF PALAEARCTIC

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Abstract. In this work, it is given a comparative analysis of the species belonging to the Orthoptera order (Insecta) from the Republic of Moldova with other regions and countries of the Palaearctic region like: Romania, Ukraine, Slovenia, Czech Republic, Slovak Republic, Bulgaria, Catalonia (Spain), Switzerland, Turkey, Baikal Regions (Russia), and S-W Tajikistan. The highest percentage of similarity between the Orthoptera fauna of the Republic of Moldova and the surrounding countries, proved to be with the Orthoptera fauna from Ukraine and Romania.

Keywords: comparative analysis, Orthoptera, Palaearctic, similarity.

Rezumat. Analiza comparativă a ortopterelor (Insecta) din Republica Moldova și unele regiuni din Palearctica. În lucrare este prezentată analiza comparativă a faunei insectelor ordinului Orthoptera (Insecta) din Republica Moldova cu cea a unor regiuni sau țări din regiunea Palearctică: România, Ucraina, Slovenia, Cehia, Slovacia, Bulgaria, Catalonia (Spania), Elveția, Turcia, Regiunea Baical (Russia) și S-V Tadjikistan. Cel mai înalt procent de similaritate privind fauna ortopterelor Republicii Moldova cu țările și regiunile cercetate, s-a dovedit a fi cu fauna ortopterelor din Ucraina și România.

Cuvinte cheie: analiza comparativă, Orthoptera, Palearctica, similaritate.

INTRODUCTION

The Republic of Moldova is situated in the southeastern part of Europe, at the junction of the great geobotanical regions: Euro-Asiatic, European, and Mediterranean (GHEIDEMAN, 1986). The whole surface of the country is 33,700 km². In accordance with the territorial surface, the republic of Moldova is one of the smallest countries of Europe. But its fauna diversity is higher than in other big countries of Europe, thanks to some particularities like: diversity and structure of the soils, varied relief, climates, thermal regime, rainfall amounts, hydrology and other.

In the Palaearctic region, there are many countries with large surface, but their fauna diversity is smaller in comparison with that of the Republic of Moldova. From this context, it is very interesting how much differ the diversity of Orthoptera insects of the Republic of Moldova from other regions and countries of the Palaearctic using the index of similarity.

The Palaearctic is one of the eight ecozones dividing the Earth's surface. Physically, the Palaearctic is the largest ecozone – including the terrestrial ecoregions of Europe, Northern Asia, northern Africa, and the northern and central parts of the Arabian Peninsula. The Palaearctic ecozone includes mostly boreal and temperate climate ecoregions, which run across Eurasia from Western Europe to the Bering Sea.

In this work, we have studied the following regions of Palaearctic ecozone: Euro-Siberian, Mediterranean Basin, and Central Asia regions.

Euro-Siberian region is the Palaearctic largest biogeographical region, which transits from tundra in the northern reaches of Russia and Scandinavia to the vast taiga, the boreal coniferous forests, which extends across the continent. This vast Euro-Siberian region is characterized by many shared plant and animal species and has many affinities with the temperate and boreal regions of the Nearctic ecoregion.

The Mediterranean Basin comprises the lands around and surrounded by the Mediterranean Sea. The Mediterranean Basin occupies the lands bordering the Mediterranean Sea in southern Europe, North Africa, and western Asia. In this ecoregion, it is present a Mediterranean climate with generally mild, rainy winters and hot, dry summers. The Mediterranean basin's mosaic of Mediterranean forests, woodlands and scrub, is also home to 13,000 endemic species.

The Central Asia region and the Iranian plateau are home to dry steppe grassland and desert basins, with mountain forests, woodlands, and grasslands in the region's high mountains and plateaus. Central Asia is a region of Asia from the Caspian Sea in the west, China in the east, Afghanistan in the south, and Russia in the north.

MATERIALS AND METHODS

The work is based on the research made during 2005-2009 on the territory of the Republic of Moldova. We also used the entomological materials from the Museum of the Institute of Zoology of the Academy of Science of Moldova.

The indexes of similarity of the faunistic complexes were calculated after Sorensen's formula: $S = 2C / A + B$, where C – is the species commune for A and B habitats; A – is the total species of A place and B – is the total species of B place (SHENON 1963; STAN 1995).

All the values of indexes are expressed in procents. The tree diagram for variables was made by the program STATISTICA 6.

The species nomenclature and classification were made according to: The Orthoptera of Europe <http://www.orthour.org/orthoptera/orthoptera/i000241.html>, EADES & OTTE <http://Orthoptera.SpeciesFile.org.>, and Grasshoppers, crickets and katydids *Orthoptera* <http://www.biolib.cz/en/taxon/id84/>.

RESULTS AND DISCUSSIONS

The grasshoppers, especially those from Ensifera suborder are distributed on the whole planet, especially in the tropical and subtropical regions. In the present, in the world fauna, there are known more than 23,000 species. In the Republic of Moldova, there are known 113 species (STAHl & DERJANSCHI, 2009), in Romania – 182 (IORGU et al., 2008), in Ukraine – 174 (Predvaritelinii spisok preamokrilih Ukraini. <http://kotbegemot.livejournal.com/127540.html>), in Slovenia – 146 (<http://biodiversityslovenia.net/listgrasshoppers.htm>), in Czech Republic – 98 and in the Slovak Republic – 121 (KOČÁREK et al., 1999), in Bulgaria – 236 (POPOV, 2007), in Catalonia – 161 (JOSEP MARIA OLMO-VIDAL. http://mediambient.gencat.net/Images/43_64553.pdf), in Switzerland – 103 (Artenliste Schweiz, 1997-2008), in Turkey – 622 (ÜNAL M. <http://www.members.tripod.com/Cesa88/orthr.htm>), in Baikal Region – 105 (BERLOV & BENEDICTOV. <http://tetrax.narod.ru/list.html>), and in S-W Tajikistan respectively 139 species (POKIVAILOV, 2003) (Table 1).

The Orthoptera fauna of the Republic of Moldova is represented by 113 species. From these, 31 belong to subfamily Gomphocerinae, 23 – to Tettigoniinae, 13 to – Oedipodinae, 11 – to Phaneropterinae, 6 – to Tetrigininae, 5 – to Gryllinae, 3 – to Bradyporinae, Calliptaminae and Conocephalinae, by 2 – to Gryllotalpinae, Nemobiinae, Melanoplinae and Saginae, and 1 species – to Gryllomorphae, Meconematinae, Oecanthinae, Myrmecophilinae, Tridactylinae, Catantopinae, and Acridinae (STAHl & DERJANSCHI 2009). The richest in species and genera are the families Acrididae – with 52 species and Tettigoniidae – with 42 (Table 1). The neighbouring countries of the Republic of Moldova (Romania and Ukraine) are richer in Orthoptera fauna. So, the Orthoptera fauna of Romania is represented by 182 species (IORGU et al 2008), 94 belonging to the Ensifera suborder and 88 species to the Caelifera suborder (Table 1). From these 182 species, 8 are endemic to Romania: *Isophya dobrogensis*, *I. harzi*, *Odontopodisma carpathica*, *O. acuminata*, *O. montana*, *Zubovskya banatica*, *Podismopsis transsylvanica* and *Chorthippus acroleucus*. The Orthoptera fauna of Ukraine is composed by 173 species, 91 belonging to Ensifera suborder, and 82 Caelifera (Predvaritelinii spisok preamokrilih Ukraini).

In these 12 regions, there are more than 1,000 species of Orthoptera, which belong to 122 genera from Ensifera suborder and 132 genera from Caelifera. The richest genera in species are *Poecilimon* – with more than 80 species and *Isophya* – more than 55 species. The richest regions in species are those from Turkey – 622 and the poorest are those from the Czech Republic with 98 species and Switzerland, respectively 103.

Table 1. Genera of the Orthoptera order and number of species evidenced in the researched countries and regions.
 Tabel 1. Genurile ordinului Orthoptera și numărul speciilor evidențiate în țările și regiunile cercetate.

No.	Taxon	Number of evidenced species											
	Genus	1	2	3	4	5	6	7	8	9	10	11	12
Suborder ENSIFERA													
1.	<i>Acheta</i>	1	1	1	1	1	1	1	1	1	2	1	-
2.	<i>Acrometopa</i>	-	-	-	1	-	-	-	-	-	2	-	-
3.	<i>Anadolua</i>	-	-	-	-	-	-	-	-	-	4	-	-
4.	<i>Anadrymadusa</i>	-	-	1	-	-	-	-	-	-	8	-	-
5.	<i>Ancistrura</i>	-	1	-	-	-	-	1	-	-	1	-	-
6.	<i>Andreiniimon</i>	-	-	-	-	-	-	-	-	-	-	-	-
7.	<i>Anonconotus</i>	-	-	-	-	-	-	-	-	1	-	-	-
8.	<i>Antaxius</i>	-	-	-	1	-	-	-	2	2	-	-	-
9.	<i>Anterastes</i>	-	-	-	-	-	-	1	-	-	10	-	-
10.	<i>Apholidoptera</i>	-	-	-	-	-	-	-	-	-	2	-	-
11.	<i>Arachnocephalus</i>	-	1	1	1	-	-	1	1	-	1	-	-
12.	<i>Artvinia</i>	-	-	-	-	-	-	-	-	-	1	-	-
13.	<i>Asiotridactylus</i>	-	-	-	-	-	-	-	-	-	1	-	1
14.	<i>Barbitistes</i>	1	3	2	3	2	2	2	2	2	-	-	-
15.	<i>Bolua</i>	-	-	-	-	-	-	-	-	-	1	-	-
16.	<i>Bradyporus</i>	-	1	-	-	-	-	1	-	-	1	-	-
17.	<i>Bruntridactylus</i>	-	1	1	-	-	-	-	-	-	1	1	1
18.	<i>Bucephaloptera</i>	-	1	-	1	-	-	1	-	-	4	-	-
19.	<i>Callimenus</i>	2	2	1	-	-	-	1	-	-	3	-	-
20.	<i>Calopterusa</i>	-	-	-	-	-	-	-	-	-	-	-	1
21.	<i>Ceraeocercus</i>	-	-	-	-	-	-	-	-	-	-	-	1
22.	<i>Conoblemmus</i>	-	-	-	-	-	-	-	-	-	-	-	1
23.	<i>Conocephalus</i>	2	3	2	2	2	2	3	2	2	7	2	2
24.	<i>Ctenodecticus</i>	-	-	-	-	-	-	-	2	-	-	-	-
25.	<i>Cyrtaspis</i>	-	-	-	1	-	-	-	1	-	-	-	-
26.	<i>Decticus</i>	2	2	2	2	1	1	2	2	1	3	2	1
27.	<i>Deracantha</i>	-	-	-	-	-	-	-	-	-	-	3	-

No.	Genus	1	2	3	4	5	6	7	8	9	10	11	12
28.	<i>Dianemobius</i>	-	-	-	-	-	-	-	-	-	-	1	-
29.	<i>Discoptila</i>	-	-	1	-	-	-	1	-	-	3	-	-
30.	<i>Dolichopoda</i>	-	-	-	-	-	-	-	2	-	3	-	-
31.	<i>Drymadusa</i>	-	-	-	-	-	-	-	-	-	3	1	-
32.	<i>Eobiana</i>	-	-	-	-	-	-	-	-	-	-	-	-
33.	<i>Ephippiger</i>	1	1	2	3	1	1	3	1	1	1	-	-
34.	<i>Ephippigerida</i>	-	-	-	-	-	-	-	3	-	-	-	-
35.	<i>Eugryllodes</i>	-	-	-	-	-	-	-	1	-	-	-	-
36.	<i>Eumodicogryllus</i>	1	1	1	1	1	1	1	1	-	1	-	-
37.	<i>Eupholidoptera</i>	-	1	-	1	-	-	4	-	1	21	-	-
38.	<i>Exopholidoptera</i>	-	-	-	-	-	-	-	-	-	1	-	-
39.	<i>Festella</i>	-	-	-	-	-	-	-	-	-	1	4	-
40.	<i>Gampsocleis</i>	1	2	1	-	1	1	2	-	-	3	-	-
41.	<i>Glandulosa</i>	-	-	-	-	-	-	-	-	-	3	-	-
42.	<i>Glyphonotus</i>	-	-	-	-	-	-	-	-	-	-	-	2
43.	<i>Grylliscus</i>	-	-	-	-	-	-	-	-	-	-	-	1
44.	<i>Gryllodinus</i>	-	-	-	-	-	-	-	-	-	-	-	1
45.	<i>Gryllomorpha</i>	1	-	2	1	-	-	2	2	1	1	-	-
46.	<i>Gryllotalpa</i>	2	2	2	1	1	1	1	1	1	1	-	2
47.	<i>Gryllus</i>	1	1	2	1	1	1	2	2	1	3	-	1
48.	<i>Hellerina</i>	-	-	-	-	-	-	-	-	-	1	-	-
49.	<i>Incertana</i>	-	-	-	-	-	-	-	-	-	-	-	-
50.	<i>Isophya</i>	3	14	8	2	1	6	19	1	1	39	-	-
51.	<i>Koroglus</i>	-	-	-	-	-	-	-	-	-	1	-	-
52.	<i>Kurdia</i>	-	-	-	-	-	-	-	-	-	1	-	-
53.	<i>Leptodusa</i>	-	-	-	-	-	-	-	-	-	3	-	-
54.	<i>Leptophyes</i>	3	5	4	3	3	3	4	1	3	4	-	-
55.	<i>Meconema</i>	1	1	1	1	1	1	2	-	2	1	-	-
56.	<i>Medecticus</i>	-	-	-	-	-	-	-	1	-	1	-	-
57.	<i>Melanogryllus</i>	1	1	1	1	-	1	1	1	-	1	-	1
58.	<i>Metaplastes</i>	-	-	-	-	-	-	-	1	-	-	1	-
59.	<i>Metrioptera</i>	3	7	3	4	3	3	7	4	5	7	-	-
60.	<i>Micrimon</i>	-	-	-	-	-	-	-	-	-	-	-	-
61.	<i>Miramiola</i>	-	-	1	-	-	-	-	-	-	-	-	-
62.	<i>Modestana</i>	-	-	-	-	-	-	-	-	-	-	2	-
63.	<i>Modicogryllus</i>	1	2	1	1	1	1	2	-	1	4	-	4
64.	<i>Mogoplistis</i>	-	-	-	1	-	-	-	1	-	1	-	-
65.	<i>Myrmecophilina</i>	-	-	-	-	-	-	-	-	-	-	-	-
66.	<i>Myrmecophilus</i>	1	1	2	1	1	1	2	1	-	3	-	-
67.	<i>Nemobius</i>	1	1	1	1	1	1	-	1	1	-	-	-
68.	<i>Novadrymadusa</i>	-	-	-	-	-	-	-	-	-	1	-	-
69.	<i>Odontura</i>	-	-	-	-	-	-	-	1	-	-	-	-
70.	<i>Oecanthus</i>	1	1	1	1	1	1	1	1	1	1	-	2
71.	<i>Onconotus</i>	2	1	2	-	-	-	1	-	-	-	-	-
72.	<i>Pachytrachis</i>	1	1	1	3	-	1	2	-	1	1	-	-
73.	<i>Paradrymadusa</i>	-	-	1	-	-	-	-	-	-	3	-	-
74.	<i>Parapholidoptera</i>	-	-	-	-	-	-	1	-	-	18	-	-
75.	<i>Parapoecilimon</i>	-	-	-	-	-	-	-	-	-	1	-	-
76.	<i>Petaloptila</i>	-	-	-	-	-	-	-	2	-	-	-	-
77.	<i>Pezodrymadusa</i>	-	-	-	-	-	-	-	-	-	12	1	-
78.	<i>Phaneroptera</i>	2	3	2	2	1	2	2	2	2	4	-	2
79.	<i>Pholidoptera</i>	2	6	3	6	4	6	13	1	4	6	-	-
80.	<i>Phonocorion</i>	-	-	-	-	-	-	-	-	-	3	-	-
81.	<i>Phytodrymadusa</i>	-	-	-	-	-	-	-	-	-	4	1	-
82.	<i>Platycleis</i>	8	10	11	7	4	4	13	6	1	29	-	5
83.	<i>Platystolus</i>	-	-	-	-	-	-	-	-	-	-	1	-
84.	<i>Poecilimon</i>	2	7	12	6	1	3	23	-	-	74	-	-
85.	<i>Poecilimonella</i>	-	-	-	-	-	-	-	-	-	1	-	-
86.	<i>Polysarcus</i>	-	1	1	1	1	1	1	2	1	2	-	-
87.	<i>Pravdiniana</i>	-	-	-	-	-	-	-	-	-	-	-	1
88.	<i>Pseudomogoplistes</i>	-	-	2	1	-	-	-	-	-	2	-	-
89.	<i>Psorodonotus</i>	-	-	-	1	-	-	1	-	-	7	-	-
90.	<i>Pterolepis</i>	1	1	1	1	-	1	1	-	-	5	1	-
91.	<i>Pteronemobius</i>	1	1	2	1	1	1	2	2	2	1	-	1
92.	<i>Pycnogaster</i>	-	-	-	-	-	-	-	1	-	-	-	-
93.	<i>Rammeola</i>	-	-	-	-	-	-	-	-	-	1	-	-
94.	<i>Ruspolia</i>	1	1	1	1	1	1	1	1	1	1	-	1
95.	<i>Saga</i>	2	2	1	1	1	1	6	1	1	11	-	-

No.	Genus	1	2	3	4	5	6	7	8	9	10	11	12
96.	<i>Schizodactylus</i>	-	-	-	-	-	-	-	-	-	1	-	-
97.	<i>Schulmeisteri</i>	-	-	-	-	-	-	-	-	-	1	-	-
98.	<i>Scotodrymadusa</i>	-	-	-	-	-	-	-	-	-	3	-	-
99.	<i>Semenoviana</i>	-	-	-	-	-	-	-	-	-	-	-	2
100.	<i>Sepiana</i>	-	-	1	1	-	-	1	1	-	-	-	-
101.	<i>Sporadiana</i>	-	-	-	-	-	-	-	-	-	-	-	-
102.	<i>Squamiana</i>	-	-	-	-	-	-	-	-	-	-	-	-
103.	<i>Stenonemobius</i>	-	1	-	-	-	-	1	-	-	1	-	1
104.	<i>Steropleurus</i>	-	-	-	-	-	-	-	-	-	-	-	-
105.	<i>Sureyaella</i>	-	-	-	-	-	-	-	-	-	1	-	-
106.	<i>Synephippus</i>	-	-	-	-	-	-	-	1	-	-	-	-
107.	<i>Tachycines</i>	-	-	1	-	1	1	-	-	-	-	-	-
108.	<i>Tadzhikia</i>	-	-	-	-	-	-	-	-	-	-	-	2
109.	<i>Tartarogryllus</i>	-	-	1	-	-	-	1	-	-	1	-	1
110.	<i>Tettigonia</i>	2	3	3	3	3	3	3	2	3	4	-	2
111.	<i>Thyreonotus</i>	-	-	-	-	-	-	-	1	-	-	-	-
112.	<i>Trigonidium</i>	-	-	-	-	-	-	-	1	-	1	-	-
113.	<i>Troglophilus</i>	-	-	-	2	1	1	1	-	1	3	2	1
114.	<i>Turanogryllus</i>	-	-	-	-	-	-	-	-	-	1	-	1
115.	<i>Tylopsis</i>	-	1	1	1	-	-	1	1	1	1	-	-
116.	<i>Uromenus</i>	-	-	-	-	-	-	-	7	-	-	1	-
117.	<i>Uvarovina</i>	-	-	-	-	-	-	-	-	-	-	-	-
118.	<i>Uvarovistia</i>	-	-	-	-	-	-	-	-	-	2	-	-
119.	<i>Velarificiorus</i>	-	-	-	-	-	-	-	-	-	-	-	1
120.	<i>Xya</i>	1	2	1	1	2	2	2	1	-	2	-	1
121.	<i>Yalvaciana</i>	-	-	-	-	-	-	-	1	-	-	-	-
122.	<i>Yersinella</i>	1	-	-	1	-	-	-	-	1	-	-	-
Suborder CAELIFERA													
123.	<i>Acinipe</i>	-	-	-	-	-	-	-	1	-	-	-	-
124.	<i>Acrida</i>	1	1	1	1	1	1	1	1	-	3	-	1
125.	<i>Aeropedellus</i>	-	-	-	-	-	-	1	-	1	1	2	-
126.	<i>Aiolopus</i>	1	2	2	2	1	2	2	2	2	3	-	3
127.	<i>Anacridium</i>	-	-	1	1	1	1	1	1	-	1	-	1
128.	<i>Angaracris</i>	-	-	-	-	-	-	-	-	-	-	1	-
129.	<i>Arcyptera</i>	1	2	2	3	2	1	2	2	1	5	3	-
130.	<i>Asiotmethis</i>	-	1	1	-	-	-	1	-	-	2	-	-
131.	<i>Asphingoderus</i>	-	-	-	-	-	-	-	-	-	3	-	-
132.	<i>Atrichotmethis</i>	-	-	-	-	-	-	-	-	-	-	-	1
133.	<i>Bienkoa</i>	-	-	-	-	-	-	-	-	-	-	-	1
134.	<i>Bohemanella</i>	-	-	-	-	-	-	1	-	1	-	-	-
135.	<i>Brachycrotaphus</i>	-	-	-	-	-	-	-	1	-	-	-	-
136.	<i>Brunnerella</i>	-	-	-	-	-	-	-	-	-	1	-	-
137.	<i>Bruntridactylus</i>	-	-	-	-	-	-	-	-	-	-	-	-
138.	<i>Bryodema</i>	-	-	-	-	-	-	-	-	-	-	2	-
139.	<i>Bryodemella</i>	1	1	1	-	-	-	-	-	-	-	2	-
140.	<i>Calephorus</i>	-	-	-	-	-	-	-	1	-	-	-	-
141.	<i>Calliptamus</i>	2	2	2	1	1	2	2	3	3	4	2	5
142.	<i>Celes</i>	1	1	1	1	1	1	1	1	-	3	1	-
143.	<i>Charora</i>	-	-	-	-	-	-	-	-	-	1	-	-
144.	<i>Chorthippus</i>	14	16	16	10	12	13	15	11	11	25	17	6
145.	<i>Chrysochraon</i>	1	1	1	1	1	1	1	1	1	-	1	-
146.	<i>Clinomastax</i>	-	-	-	-	-	-	-	-	-	-	-	3
147.	<i>Compsorhipis</i>	-	-	-	-	-	-	-	-	-	-	1	-
148.	<i>Conophyma</i>	-	-	-	-	-	-	-	-	-	-	-	2
149.	<i>Cophopodisma</i>	-	-	-	-	-	-	-	1	-	-	-	-
150.	<i>Cophoprumma</i>	-	-	-	-	-	-	-	-	-	-	1	-
151.	<i>Cophotylus</i>	-	-	-	-	-	-	-	-	-	-	-	1
152.	<i>Dasyhippus</i>	-	-	-	-	-	-	-	-	-	2	1	-
153.	<i>Demirsoyus</i>	-	-	-	-	-	-	-	-	-	1	-	-
154.	<i>Depressotetrix</i>	1	1	1	1	-	-	1	1	1	1	-	-
155.	<i>Dericorys</i>	-	-	-	-	-	-	-	-	-	2	-	3
156.	<i>Diexis</i>	-	-	-	-	-	-	-	-	-	-	-	1
157.	<i>Docioptaurus</i>	2	2	2	3	1	1	5	2	-	7	-	5
158.	<i>Duroniella</i>	-	-	-	-	-	-	1	-	-	2	-	4
159.	<i>Ebnerodes</i>	-	-	-	-	-	-	-	-	-	1	-	-
160.	<i>Epacromius</i>	2	2	1	-	-	1	2	-	-	-	2	1
161.	<i>Eremippus</i>	-	-	1	-	-	-	-	-	-	5	-	1
162.	<i>Eremopeza</i>	-	-	-	-	-	-	-	-	-	4	-	-

No.	Genus	1	2	3	4	5	6	7	8	9	10	11	12
163.	<i>Ergatettix</i>	-	-	-	-	-	-	-	-	-	-	-	1
164.	<i>Euchorhippus</i>	2	2	2	2	2	2	2	3	1	3	-	-
165.	<i>Eunothrotes</i>	-	-	-	-	-	-	-	-	-	1	-	-
166.	<i>Euthystira</i>	1	1	1	1	1	1	1	1	1	1	1	-
167.	<i>Eyprepocnemis</i>	-	-	1	-	-	-	-	1	-	1	-	1
168.	<i>Glyphotmethis</i>	-	-	-	-	-	-	-	-	-	13	-	-
169.	<i>Gomphoceridius</i>	-	-	-	-	-	-	-	1	-	-	-	-
170.	<i>Gomphocerippus</i>	1	1	1	1	1	1	1	-	1	-	1	-
171.	<i>Gomphocerus</i>	-	-	-	1	-	-	1	1	1	4	1	-
172.	<i>Gomphomastax</i>	-	-	-	-	-	-	-	-	-	-	-	1
173.	<i>Gonista</i>	-	-	-	-	-	-	-	-	-	-	-	1
174.	<i>Haplotropis</i>	-	-	-	-	-	-	-	-	-	-	1	-
175.	<i>Heliopteryx</i>	-	-	-	-	-	-	-	-	-	1	-	-
176.	<i>Helioscirtus</i>	-	-	-	-	-	-	-	-	-	-	-	1
177.	<i>Heteracris</i>	-	-	-	-	-	-	-	1	-	2	-	4
178.	<i>Hilethera</i>	-	-	-	-	-	-	-	-	-	-	-	1
179.	<i>Hyalorrhhipis</i>	-	-	-	-	-	-	-	-	-	-	-	1
180.	<i>Kurtharzia</i>	-	-	-	-	-	-	-	1	-	-	-	-
181.	<i>Leptopternis</i>	-	-	-	-	-	-	-	-	-	1	-	1
182.	<i>Locusta</i>	1	1	1	1	-	-	1	1	1	1	1	1
183.	<i>Mecostehus</i>	1	1	1	1	1	1	1	1	1	1	-	1
184.	<i>Megaulacobothrus</i>	-	-	-	-	-	-	-	-	-	-	1	-
185.	<i>Melanoplus</i>	-	-	-	-	-	-	-	1	-	-	-	-
186.	<i>Micropodisma</i>	-	-	-	1	-	-	-	-	-	1	-	-
187.	<i>Mioscirtus</i>	-	-	1	-	-	-	-	1	-	1	-	1
188.	<i>Miramella</i>	-	4	2	1	1	2	1	1	1	-	-	-
189.	<i>Mistshenkotetrix</i>	-	-	-	-	-	-	-	-	-	1	-	-
190.	<i>Mizonocara</i>	-	-	-	-	-	-	-	-	-	-	-	5
191.	<i>Mongolotettix</i>	-	-	-	-	-	-	-	-	-	-	1	-
192.	<i>Morphacris</i>	-	-	-	-	-	-	-	-	-	1	-	-
193.	<i>Myrmeleotettix</i>	1	2	2	1	1	2	1	1	1	1	1	-
194.	<i>Nadigella</i>	-	-	-	-	-	-	-	-	1	-	-	-
195.	<i>Nocaracris</i>	-	-	-	-	-	-	-	-	-	2	-	-
196.	<i>Nocarodes</i>	-	-	-	-	-	-	-	-	-	1	-	-
197.	<i>Notostaurus</i>	-	-	-	-	-	-	1	-	-	-	-	3
198.	<i>Ochrilidia</i>	-	-	-	-	-	-	-	-	-	4	-	2
199.	<i>Ocnerodes</i>	-	-	-	-	-	-	-	1	-	-	-	-
200.	<i>Odontopodisma</i>	2	5	2	3	-	2	3	-	1	-	-	-
201.	<i>Oedaleus</i>	1	1	1	1	1	1	1	1	1	1	2	2
202.	<i>Oedipoda</i>	2	2	1	3	2	1	4	4	2	7	-	4
203.	<i>Ognevia</i>	-	-	-	-	-	-	-	-	-	-	1	-
204.	<i>Omocestus</i>	4	5	5	4	4	4	5	7	3	7	3	-
205.	<i>Orchamus</i>	-	-	-	-	-	-	-	-	-	2	-	-
206.	<i>Oronothrotes</i>	-	-	-	-	-	-	-	-	-	1	-	-
207.	<i>Oxya</i>	-	-	-	-	-	-	-	-	-	-	-	1
208.	<i>Pallasiella</i>	-	-	-	-	-	-	1	-	-	-	-	-
209.	<i>Paracaloptenus</i>	1	1	1	1	-	-	1	1	-	2	-	-
210.	<i>Paracinema</i>	1	1	-	1	-	-	1	1	-	1	-	-
211.	<i>Paranocaracris</i>	-	-	-	-	-	-	1	-	-	16	-	-
212.	<i>Paranocarodes</i>	-	-	-	-	-	-	2	-	-	9	-	-
213.	<i>Paranothrotes</i>	-	-	-	-	-	-	-	-	-	8	-	-
214.	<i>Paratettix</i>	-	1	-	1	-	-	1	1	-	2	-	1
215.	<i>Pezottettix</i>	1	1	1	1	-	1	1	1	1	3	-	-
216.	<i>Platypygius</i>	-	1	1	-	-	-	1	-	-	-	-	-
217.	<i>Podisma</i>	-	1	1	1	1	1	1	1	1	1	1	-
218.	<i>Podismacris</i>	-	-	-	-	-	-	-	-	-	-	-	-
219.	<i>Podismopsis</i>	-	1	-	-	-	-	-	-	1	-	4	-
220.	<i>Prionosthenus</i>	-	-	-	-	-	-	-	-	-	1	-	-
221.	<i>Prionotropis</i>	-	-	-	1	-	-	-	1	-	2	-	-
222.	<i>Prumna</i>	-	-	-	-	-	-	-	-	-	-	2	-
223.	<i>Pseudosphingonotus</i>	-	-	-	-	-	-	-	-	-	-	-	1
224.	<i>Pseudoceles</i>	-	-	-	-	-	-	-	-	-	4	-	-
225.	<i>Pseudopodisma</i>	-	2	1	1	1	2	1	-	-	-	-	-
226.	<i>Pseudosavalania</i>	-	-	-	-	-	-	-	-	-	1	-	-
227.	<i>Psophus</i>	1	1	1	1	1	1	1	1	1	1	1	-
228.	<i>Ptygippus</i>	-	-	-	-	-	-	-	-	-	1	-	-
229.	<i>Pyrgodera</i>	-	-	-	-	-	-	-	-	-	1	-	1
230.	<i>Pyrgomorpha</i>	-	-	-	-	-	-	-	1	-	4	-	1

No.	Genus	1	2	3	4	5	6	7	8	9	10	11	12
231	<i>Pyrgomorphula</i>	-	-	-	-	-	-	-	-	-	-	-	-
232	<i>Ramburiella</i>	-	-	2	-	-	-	-	1	-	2	-	2
233	<i>Rammeihippus</i>	-	-	-	-	-	-	-	-	-	1	-	-
234	<i>Rammepodisma</i>	-	-	-	-	-	-	-	-	-	1	-	-
235	<i>Schistocerca</i>	-	-	-	-	-	-	-	1	-	1	-	-
236	<i>Scintharista</i>	-	-	-	-	-	-	-	-	-	1	-	-
237	<i>Sphenophyma</i>	-	-	-	-	-	-	-	-	-	1	-	-
238	<i>Sphigonotus</i>	-	1	2	1	2	1	1	3	1	12	2	8
239	<i>Sphingoderus</i>	-	-	-	-	-	-	-	-	-	1	-	1
240	<i>Stauroderus</i>	1	1	1	1	-	1	1	1	1	2	1	-
241.	<i>Stenobothrus</i>	3	7	8	5	6	6	7	6	4	15	3	-
242.	<i>Stethophyma</i>	1	1	1	1	1	1	1	1	1	1	2	-
243.	<i>Strumiger</i>	-	-	-	-	-	-	-	-	-	-	-	1
244.	<i>Tarbinskia</i>	-	-	-	-	-	-	-	-	-	-	-	1
245.	<i>Tetrix</i>	4	8	5	5	7	8	6	5	6	5	7	3
246.	<i>Thisiocetrinus</i>	-	-	-	-	-	-	-	-	-	1	-	-
247.	<i>Thrinchus</i>	-	-	-	-	-	-	-	-	-	-	-	2
248.	<i>Tmethis</i>	-	-	-	-	-	-	-	-	-	1	-	-
249.	<i>Tridactylus</i>	-	-	-	-	-	-	-	-	-	-	-	-
250.	<i>Tropidopola</i>	-	-	-	-	-	-	-	-	-	2	1	1
251.	<i>Truxalis</i>	-	-	-	-	-	-	-	1	-	2	-	1
252.	<i>Uvarovitettix</i>	-	1	-	-	-	-	-	-	-	-	-	-
253.	<i>Xerohippus</i>	-	-	-	-	-	-	-	-	-	3	-	-
254.	<i>Zubovskya</i>	-	1	-	-	-	-	-	-	-	-	2	-
Total		113	182	174	146	98	121	236	161	103	622	105	139

Legend: 1 – Republic of Moldova, 2– Romania, 3 – Ukraine, 4 – Slovenia, 5 – Czech Republic, 6 – Slovak Republic, 7 – Bulgaria, 8 – Catalonia, 9 – Switzerland, 10 – Turkey, 11 – Baikal Region, 12 – S-W Tajikistan.

Although, the territorial area of the Republic of Moldova compared to the regions investigated in this work is relatively small, we can mention that it possesses a rich and diverse fauna of Orthoptera species comprising Mediterranean species, Euro Siberian, European etc., due to its location at the junction of three large regions: European, Mediterranean, and Eurasian steppe.

According to the comparative analysis of the diversity of fauna of the Orthoptera species of the Republic of Moldova with 11 countries and regions from Europe and Asia, we have the following similarity index (decreasing): Ukraine (with 78.77), Romania (69.33), Czech (with 65.4), Slovakia (with 64.96), Slovenia (64.87), Switzerland (with 60.19), Bulgaria (52.48), Catalonia (with 52.55), Baikal region (to 30.28), Turkey (22.1), and S-W Tajikistan (respectively with 18.25) (Table 2).

Table 2. Matrix of the similarities of Orthoptera fauna (Insecta, Orthoptera) of the Republic of Moldova with some countries and regions of Palearctic.

Tabel 2. Matricea similarității faunei ortopterelor (Insecta, Orthoptera) din Republica Moldova cu a unor țări și zone din regiunea Palearctică.

Researched countries and regions of Palearctic region	Republic of Moldova	Romania	Ukraine	Slovenia	Czech Republic	Slovak Republic	Bulgaria	Catalonia	Switzerland	Turkey	Baikal Region	S-W Tajikistan
Republic of Moldova	113	104	102	84	69	76	93	72	65	78	33	23
Romania	69,33	187	127	108	88	108	132	79	65	102	37	26
Ukraine	78,77	70,36	174	95	80	99	113	80	70	104	37	29
Slovenia	64,87	64,87	59,38	146	74	83	108	82	72	91	37	29
Czech Republic	65,4	61,75	58,82	60,66	98	90	79	60	68	62	33	17
Slovak Republic	64,96	70,13	67,12	62,17	82,19	121	95	66	69	70	32	19
Bulgaria	52,84	61,97	54,72	56,1	46,88	52,78	239	71	77	118	33	24
Catalonia	52,55	45,4	47,77	53,42	46,33	46,81	35,5	161	67	81	24	20
Switzerland	60,19	44,83	50,54	57,83	67,66	61,61	45,03	50,76	103	56	34	12
Turkey	21,22	25,22	26,13	23,7	17,22	18,84	27,41	20,7	15,45	622	26	38
Baikal Region	30,28	25,26	26,52	29,48	32,51	28,32	19,19	18,05	32,69	7,15	105	9
S-W Tajikistan	18,25	15,95	18,53	20,35	14,35	14,62	12,7	13,33	9,92	9,99	7,38	139

Pursuant, the analysis made clear that the Orthoptera fauna of the Republic of Moldova displays the greatest similarity with that of Ukraine and Romania (similarity index 78.77% and 69.33% respectively). Comparing the Orthoptera fauna of the Republic of Moldova with the one of S-W Tajikistan (18.25% similarity index) and Turkey (21.22% similarity index), the values of the similarity index are the lowest (Table 2).

Therefore, we can draw the following conclusions: the fauna of S-W Tajikistan differs greatly compared with

that of Moldova, which can be explained by the presence of the species with Asian spread, like those from the genera: *Calopterus*, *Ceraecercus*, *Conoblemmus*, *Glyphonotus*, *Grylliscus*, *Gryllodinus*, *Semenoviana*, *Tadzhikia*, *Velarifictorius*, *Atrichotmethis*, *Bienkoa*, *Conophyma*, *Cophotylus*, *Diexis*, *Gonista*, *Helioscirtus*, *Hilethera*, *Hyalorrhapis*, *Mizonocara*, *Oxya*, *Pseudosphingonotus*, *Strumiger*, and *Tarbinskia*.

Although, Moldova and Turkey have 76 common species, the similarity index is low (21.22), so this can be explained by the large number of species present in Turkey – 622, especially from the genera *Isophya*, *Poecilimon*, *Saga*, *Eupholidoptera*, *Paraholidoptera*, *Pezodrymadusa*, *Pholidoptera*, *Platycleis*, *Stenobothrus*, *Sphingonotus*, *Glyphotmethis*, *Paranocaracris*, *Paranocarodes*, and *Paranothrotus*, which have of a large number of endemic species. Also, in Turkey and S-W Tajikistan region, there are common species with Asian spread.

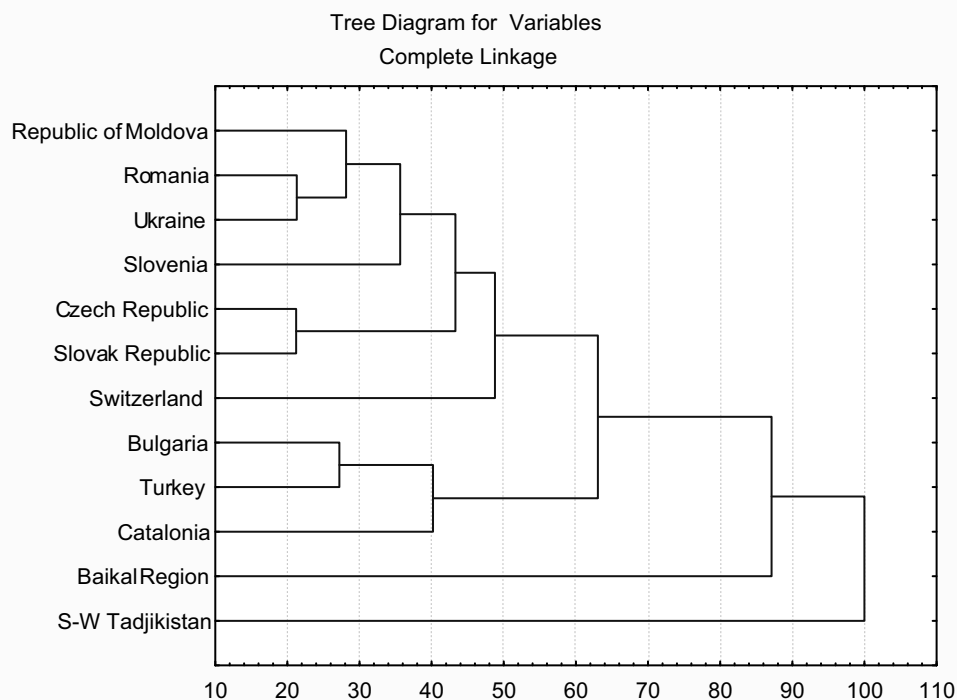


Figure. 1. Dendrogram of differentiation of the Orthoptera faunistic complexes of the Republic of Moldova with other regions and countries of Palearctic.

Figura. 1. Dendograma diferențierii faunei ortoptereleor Republicii Moldova cu cea a unor regiuni și țări din Palearctica.

On the base of the obtained results, a diagram was made to differentiate the Orthoptera fauna from the Republic of Moldova and the other studied regions (Fig. 1). In this diagram, it is obvious that the fauna of grasshoppers from Moldova, Romania, and Ukraine form one cluster. The reason is that these three countries are located in Europe, about at the same latitude and have a specific range with small differences, those regions having characteristic species with European and Euro-Mediterranean origins. Another main point in this similarity is that these countries are neighbours: Republic of Moldova is located between Romania to the West and Ukraine to the North, East and South.

Another subcluster was formed by the wildlife of the Czech Republic and Slovak Republic – these two countries are neighbours. So, the Republic of Moldova, Romania, Ukraine, Slovenia, Switzerland, Czech and Slovak Republics form a big subcluster – this is because these countries belong to the European zone.

The index of similarity of the Orthoptera of the Republic of Moldova with Turkey, Bulgaria and Catalonia region is lower (Table 2) and it forms another subcluster – whereas, these three countries are situated in the Mediterranean zone.

CONCLUSIONS

In the researched regions (Republic of Moldova, Romania, Ukraine, Slovenia, Czech Republic, Slovak Republic, Bulgaria, Catalonia, Switzerland, Turkey, Baikal Region, and S-W Tajikistan), there are more than 1,000 species of Orthoptera, 122 genera belonging to Ensifera suborder and 132 genera to Caelifera.

The fauna of Orthoptera insects of the Republic of Moldova resembles the most to that of Ukraine and Romania (similarity index 78.77% and 69.33% respectively) and the biggest divergence is observed between the wildlife of the Republic of Moldova and S-W Tajikistan (18.25% similarity index) and Turkey (21.22% similarity index).

The Orthoptera fauna of The Republic of Moldova (113 species) is composed by species with Mediterranean and European origins.

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