

## CONTRIBUTIONS TO THE KNOWLEDGE OF RESEARCH ON BEETLE PARASITE FAUNA (INSECTS). NOTE 1.

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**Abstract.** The paper presents a synthesis of the data on the parasite fauna of longhorn beetles taken from papers published between 1959 and 2009 ((CONSTANTINEANU, 1959; PANIN & SĂVULESCU, 1961; BALTHASAR, 1963; TUDOR, 1969; PISICĂ, 2001; PISICĂ & POPESCU, 2009) and abroad, between 1945-1966 (GYORFI, 1945-1947; BALACHOWSKY, 1962-1963; HURPIN 1962 - for parasites and parasitoids species found in species of beetles and GRASSE 1953 and KUDO 1966 - to protozoa (Protozoa, sporozoite Gregarinomorpha) parasitic on beetles). In conclusion, beetles are host species for bacteria, protozoa, fungi, nematodes, mites, Hymenoptera and Diptera. To complete data about parasite fauna beetles still will consult other papers from country and from abroad.

**Keywords:** parasites, parasitoids, beetle-host.

**Rezumat. Contribuții la cunoașterea cercetărilor privind parazitofauna la coleoptere (Insecta).** Lucrarea prezintă o sinteză a datelor referitoare la parazitofauna unor specii de coleoptere preluate din lucrări publicate pentru România între 1959-2009 (CONSTANTINEANU, 1959; PANIN & SĂVULESCU, 1961; BALTHASAR, 1963; TUDOR, 1969; PISICĂ, 2001; PISICĂ & POPESCU, 2009) și pentru străinătate între 1945-1966 (GYORFI, 1945-1947; BALACHOWSKY, 1962-1963; HURPIN 1962 pentru paraziți și parazitoizi găsiți la specii de coleoptere precum și GRASSE 1953 și KUDO 1966, pentru protozoare parazite la diverse specii de coleoptere). În concluzie, gândaci sunt specii gazdă pentru bacterii, protozoare, ciuperci, nematode, acarieni, hymenoptere și diptere. Pentru a avea date cât mai complete despre parazitofauna la coleoptere, în continuare vom consulta și alte lucrări de specialitate din țară cât și din străinătate.

**Cuvinte cheie:** paraziți, parazitoizi, coleoptere.

### INTRODUCTION

As defined by Odum in 1971, "interspecific parasitism is a binding relationship with positive and negative host for the parasite. "This definition applies in all areas of life on Earth, including the relationship between beetles and parasites, parasitoids respectively".

The first records of the species parasitic on beetles in Romania were made in 1959 by CONSTANTINEANU who listed them in volume 9 of Fauna R. P. R.

In 1961, PANIN & SĂVULESCU conducted a further study on the family Cerambycidae, publishing data on Cerambycidae beetles (longhorn beetles). Among other things, the authors noted longhorn beetle species and species of parasites and parasitoids known until that moment in Romania.

After BALTHASAR, scarabeoideae beetles are host species for bacteria, protozoa, nematodes, mites, Hymenoptera and Diptera. Although we have not studied this subject, we consider necessary to introduce data from BALTHASAR (1963) because they miss from the Romanian literature.

CONSTANȚA TUDOR, in 1969, brought a new contribution to the knowledge of the fauna of Chalcidoidea in our country, presenting five species belonging to Eurytomidae, Eupelmidae and Pteromalidae families.

In 2001 and 2009 (in collaboration with Popescu), C. Pisiță made a significant contribution to the knowledge of beetle parasite fauna through catalogues containing specialized information published on ichneumonidele and their hosts (PISICĂ, 2001; PISICĂ & POPESCU, 2009).

Because the parasite fauna of beetles was less studied in Romania and not in Dolj county, the desire to have more complete documentation materials made us consult specialized information published by foreign authors such as GYORFI, 1945-1947; BALACHOWSKY, 1962-1963; HURPIN 1962 - for parasites and parasitoids species found in species of beetles of the families Anobiidae, Cerambycidae, Curculionidae, Melolonthidae, Rutelidae, and Scarabeidae, to GRASSE 1953 and KUDO 1966 - the beetles parasitic protozoa.

Some species of beetles are host species for bacteria, protozoa, fungi, nematodes, mites, hymenoptera and diptera.

### MATERIALS AND METHODES

Because the parasite fauna of beetles was not in Dolj county, the desire to have more complete documentation materials made us consult specialized information published in Romania: CONSTANTINEANU, 1959; PANIN 1957 (parasites family Scarabidae); PANIN & SĂVULESCU 1961 (parasites family Cerambycidae); CONSTANȚA TUDOR 1969 (chalcidoid stray from scoltide and cerambycide); PISICĂ 2001; PISICĂ & POPESCU, 2009 (ichneumonide parasitic on beetles).

In foreign literature, we found authors like GYORFI, 1945-1947; BALACHOWSKY, 1962-1963; HURPIN 1962 - for parasites and parasitoids species found in species of beetles, GRASSE 1953 and KUDO 1966 - protozoa (Protozoa sporozoites, Gregarinomorpha) parasitic on beetles, so that in the future it would be easier to complete with other data from specialized literature.

The taxonomy and nomenclature of the species is in accordance with identified Fauna Europaea Database. The species of parasites are presented in the alphabetical order and within them, in alphabetical order on subfamilies and tribes, in tabular form, which includes host of beetles. Species of beetle hosts (Insecta: Coleoptera) and the subfamilies are arranged also alphabetically.

## RESULTS AND DISCUSSIONS

For Romania, the first mentions of the species parasitic on beetles were made in 1959 by M. Constantineanu who mentioned them in Volume 9 of Fauna (CONSTANTINEANU, 1959) (Table 1).

Later, together with Săvulescu and Panin conducted a further study on the family Cerambycidae, publishing fascicle 5 volume 10 of Fauna where the authors have gathered data about beetles Cerambycidae (longhorn beetles). Among other things, the authors noted longhorn beetle species and species of parasites and parasitoids known until that moment in Romania (PANIN & SĂVULESCU, 1961). They belong to the order Hymenoptera (Insecta), in which the subfamilies containing parasites and parasitoids species from several genera were identified. The subfamilies are cited: Braconinae, Doryctinae and Opiinae (family Braconidae) Calosotinae (Suprafam. Chalcidoidea, family Eupelmidae) Cryptinae, Pimplinae and Poemeniinae (family Ichneumonidae) (Table 3).

After BALTHASAR, scarabeoidae beetles are host species for bacteria, protozoa, worms, nematodes, mites, Hymenoptera and Diptera. Although we have not studied this subject, we consider necessary to introduce data from BALTHASAR (1963) because they miss from the Romanian literature. Looking at the data in this field, we found that a species can be host to various parasites or parasites are species - specific scarabeoide (Table 1).

Table 1. Scarabeoidae beetles parasite species (after BALTHASAR, 1963).

Parasite species		Host species	Author and year	
<b>PROTOZOA, SPOROZOA, GREGARINOMORPHA</b>				
<b>Family Gregarinidae</b>				
1	<i>Gregarina acuta</i> LÉG.	<i>Trox hispidus</i> PONT.	BALTHASAR (1963)	
2	<i>Gregarina cetoniae</i> FOERST.	<i>Osmoderma eremita</i> SC.		
3	<i>Didymophyes sisyphi</i> THÉOD.	<i>Sisyphus schaefferi</i> L.		
4	<i>Didymophyes galliphormis</i> CORD.	<i>Aphodius</i> ILLIG.		
5	<i>Didymophyes paradoxa</i> F. ST.	<i>Geotrupes mutator</i> MRSH., <i>G. stercorarius</i> L., <i>G. spiniger</i> MRSH.		
6	<i>Didymophyes tuzetae</i> THÉOD.	<i>Copris lunaris</i> L.		
<b>Family Actinocephalidae</b>				
7	<i>Stictospora provincialis</i> LÉG. var. <i>anomala</i> THÉOD.	<i>Anomala</i> sp. SAM.	BALTHASAR (1963)	
<b>Phylum: NEMATODA</b>				
<b>Class: Secernentea</b>				
<b>Order: Oxyurida</b>				
<b>Family Thelastomatidae</b>				
8	<i>Thelastoma papilliferum</i> CHRISTIE	Species of the genus <i>Cetonia</i> FABR. and <i>Potosia</i> (MULS.)		
9	<i>Cephalobellus</i> spp.	<i>Oryctes nasicornis</i> L.		
10	<i>Cephalobellus dollfusi</i> THÉOD.	<i>Anomala</i> SAM.		
11	<i>Cephalobellus brevicaudatus cetonicola</i> THÉOD.	Species of the genus <i>Cetonia</i> FABR. and <i>Potosia</i> (MULS.)		
12	<i>Thelastoma cuspidatum</i> RUD.	<i>Anomala</i> SAM.		
13	<i>Thelastoma leuckarti</i> HANS.	<i>Amphimallon</i> sp. BERTH.		
14	<i>Th. brumpti</i> THÉOD.	<i>Onthophagus</i> sp. LATR.		
<b>Family Spirocercidae</b>				
15	<i>Rhabditis tretzeli</i> SACHS. <i>Ascarops strongylina</i> RUDOLPHI 1819)	<i>Onthophagus</i> sp. LATR.		
<b>Family: Thelaziidae</b>				
17	<i>Spirocerca lupi</i> RUDOLPHI 1809	<i>Geotrupes mutator</i> MRSH., <i>G. stercorarius</i> L., <i>G. spiniger</i> MRSH		
<b>Order: Spirurida, Superfamily: Spiruroidea</b>				
<b>Family Gongylonematidae</b>				
18	<i>Gongylonema scutatatum</i> AUCT.	<i>Aphodius</i> sp. ILLIG.		
<b>Class: Adenophorea</b>				
<b>Subclass: Enoplia, Order: Mermithida</b>				
<b>Family Mermithidae</b>				
19	<i>Drilomeris leioderma</i> POINAR & PETERSEN	<i>Cybister</i> sp.	BALTHASAR (1963)	
<b>Phylum: ACANTOCEPHALA</b>				
<b>Class: Archiacantocephala</b>				
<b>Order: Oligacanthorhynchida</b>				
<b>Family: Oligacanthorhynchidae</b>				
20	<i>Macrachanthorhynchus hirudinaceus</i> PALLAS	<i>Scarabeus</i> sp., <i>Melolonta</i> sp., <i>Hydrophylus</i> sp.		

Phylum: ARTHROPODA			
Class: Arachnida			
Subclass: Acari, Order: Mesostigmata, Superfamily: Dermanysoidea			
Familia Laelapidae			
21	<i>Coleolaelaps agrestis</i> (BERL.)	<i>Polyphylla fullo</i> (L.)	BALTHASAR (1963)
22	<i>Sancassania spinatarsus</i> (HERM.)	<i>Rhizotrogus</i> sp. BERTH.	
23	<i>Sancassania chelone</i> OUDM.		
Family Scheloribatidae			
24	<i>Euscheloribates samšiňáki</i> KUNST.	Species of the genus <i>Cetonia</i> FABR. and <i>Potosia</i> (MULS.)	
Family Macrochelidae			
25	<i>Macrocheles punctillatus</i> (WILLM.)	Species of the genus <i>Onthophagus</i> LATR.	
26	<i>Macrocheles plumiventris</i> HULL	<i>Aphodius</i> ILLIG.	
27	<i>Macrocheles glaber</i> MÜLL		
28	<i>Anoetus ferroniarum</i> (DUF.)		
29	<i>Anoetus ferroniarum</i> (DUF.)	Species of the genus <i>Onthophagus</i> LATR.	
30	<i>Anoetus ferroniarum</i> (DUF.)	<i>Geotrupes mutator</i> MRSH., <i>G. stercorarius</i> L., <i>G. spiniger</i> MRSH.	
31	<i>Coleolaelaps integer</i> (BERL.)	<i>Oryctes nasicornis</i> L.	
Class: INSECTA			
Order: Diptera			
Suborder: Brachycera			BALTHASAR (1963)
Family: Tachinidae			
Subfamily: Dexiinae			
32	<i>Billaea pectinata</i> MEIG.	Species of the genus <i>Rhizotrogus</i> BERTH.	BALTHASAR (1963)
33	<i>B. microcera</i> ROND.	<i>Oryctes nasicornis</i> L.	
34	<i>Dexia rustica</i> FABRICIUS 1775	Species of the genus <i>Rhizotrogus</i> BERTH.	
35	<i>Microphthalma disjuncta</i> WIED.	<i>Polyphylla fullo</i> (L.) <i>Melolontha melolontha</i> L.	

In 1969, TUDOR CONSTANȚA brought a new contribution to the knowledge of the fauna of Chalcidoidea in our country, presenting five species belonging to Eurytomidae, Eupelmidae and Pteromalidae families. Hosts from which we obtained these species were collected from Caraș Severin, Mehedinți, Constanța and Tulcea (Table 2). Also, important data are related to the species *Cerocephala trichotus* RATZEBURG, 1848 as parasite larvae of beetles scoltide (*Hylesinus fraxin* CANVAS., *Phloeosinus bicolor* BRULL.) and *Heyden precious* FORSTER species that was found as parasite to some beetles: *Ips acumiatus* GYLL., *Hylesinus fraxin* CANVAS, etc. and to curculionid *Magdalis armigela* GEOFF and buprestid *Melanophila cyanea* F.

Table 2. Chalcidoidea species parasitic to some beetles, after TUDOR, 1969.

No.	Parasites and parasitoids	Host species	Author and year
Class INSECTA, Ord. HYMENOPTERA			
Suborder APOCRITA, Superfamily ICHNEUMONOIDEA			
Family BRACONIDAE			
Subfamily Braconinae			
	<i>Coeloides bostrichorum</i> GIRAUD	<i>Ips typographus</i> (LINNAEUS 1758)	TUDOR, 1969
Subfamily Cenocoeliinae			
	<i>Cenocoelius analis</i> (NEES)	<i>Tetrops praeusta</i> LINNAEUS 1758	TUDOR, 1969
Superfamily CHALCIDOIDEA			
Family EUPELMIDAE			
Subfamily Calosotinae			
Genus <i>Eusandalum</i>			
	<i>Eusandalum inerme</i> (RATZEBURG)	<i>Anthaxia</i> ( <i>Anthaxia</i> ) <i>manca</i> (LINNAEUS 1767) <i>Ernobius longicornis</i> (STURM 1837) <i>Ernobius mollis</i> (LINNAEUS 1758)	TUDOR, 1969 (larva parasites)
Family EURYTOMIDAE			
	<i>Eurytoma</i> ( <i>Eurytoma</i> ) <i>morio</i> BOHEMAN	<i>Hylesinus fraxini</i> (PANZER 1779)	TUDOR, 1969 (larva parasites)
		<i>Hylesinus wachtli orni</i> FUCHS 1906	
		<i>Ips amitinus</i> (EICHHOFF 1871)	
		<i>Pityogenes bidentatus</i> (HERBST 1784)	
		<i>Pityogenes chalcographus</i> (LINNAEUS 1761)	
		<i>Pityogenes quadridens</i> (HARTIG 1834)	
		<i>Phloeosinus thujae</i> (PERRIS 1855)	
		<i>Scolytus rugulosus</i> (MÜLLER 1818)	
		<i>Scolytus intricatus</i> (RATZEBURG 1837)	
		<i>Scolytus mali</i> (BECHSTEIN 1805) <i>Scolytus laevis</i> CHAPUIS 1869	
Family PTEROMALIDAE			
Subfamily Cerocephalinae			

	<i>Cerocephala cornigera</i> WESTWOOD syn. with <i>Cerocephala trichotus</i> (RATZEBURG)	<i>Hylesinus fraxini</i> (PANZER 1779) <i>Phloeosinus aubei</i> (PERRIS 1855) syn. with <i>Phloeosinus bicolor</i> AUCT.	
<b>Subfamily Cleonyminae</b>			
	<i>Heydenia pretiosa</i> FÖRSTER	<i>Blastophagus minor</i> (HARTIG 1834) syn. with <i>Tomicus minor</i> (HARTIG 1834) <i>Ips acuminatus</i> (GYLLENHAL 1827) <i>Ips typographus</i> (LINNAEUS 1758) <i>Hylesinus fraxini</i> (PANZER 1779) <i>Hylesinus toranio</i> (DANTHOINE 1788) syn. with <i>Hylesinus oleiperda</i> FABRICIUS 1792 <i>Magdalis (Odontomagdalis) armigera</i> (GEOFFROY 1785) <i>Phloeotribus scarabaeoides</i> (BERNARD 1788) <i>Pityokteines vorontzowi</i> (JAKOBSON 1895) <i>Scolytus multistriatus</i> (MARSHAM 1802) <i>Scolytus pygmaeus</i> (FABRICIUS 1787) <i>Scolytus ratzeburgii</i> JANSON 1856	TUDOR, 1969 (larva parasites)
<b>Subfamily Pteromalinae</b>			
	<i>Cheirapacus colon</i> (LINNAEUS)	<i>Blastophagus minor</i> (HARTIG 1834) syn. with <i>Tomicus minor</i> (HARTIG 1834) <i>Dryocoetes villosus</i> (FABRICIUS 1792) <i>Ernobius mollis</i> (LINNAEUS 1758) <i>Hylesinus fraxini</i> (PANZER 1779) <i>Hylesinus toranio</i> (DANTHOINE 1788) syn. cu <i>Hylesinus oleiperda</i> FABRICIUS 1792 <i>Hylesinus wachli orni</i> FUCHS 1906 <i>Ips sexdentatus</i> (BÖRNER 1776) <i>Ips amitinus</i> (EICHHOFF 1871) <i>Orthotomicus proximus</i> (EICHHOFF 1867) <i>Phloeotribus scarabaeoides</i> (BERNARD 1788) <i>Pityogenes chalcographus</i> (LINNAEUS 1761) <i>Scolytus mali</i> (BECHSTEIN 1805) <i>Scolytus intricatus</i> (RATZEBURG 1837) <i>Scolytus koenigi</i> SCHEVYREW 1890 <i>Scolytus rugulosus</i> (MÜLLER 1818) <i>Tomicus minor</i> (HARTIG 1834) <i>Tomicus piniperda</i> (LINNAEUS 1758) syn. with <i>Blastophagus piniperda</i> (LINNAEUS 1758) <i>Xyleborus cryptographus</i> (RATZEBURG 1837)	TUDOR, 1969

Table 3. Parasites and parasitoids identified in cerambycidae (after PANIN & SĂVULESCU, 1961; PISICĂ 2001; PISICĂ & POPESCU, 2009).

No.	Taxa (subfamilies, tribes, species)	Cerambycidae species	Authors and year
<b>Family ICHNEUMONIDAE</b>			
<b>Subfamily ACAENITINAE</b>			
<b>Tribe Acaenitini</b>			
1	<i>Arotes albicinctus</i> GRAVENHORST, 1829	<i>Plagionotus arcuatus</i> LINNÉ 1758	PISICĂ, 2001
2	<i>Phaenolobus saltans</i> (GRAVENHORST, 1829)	<i>Oberea (Amaurostoma) erythrocephala</i> (SCHRANK 1776)	
3	<i>Phaenolobus terebrator</i> (SCOPOLI 1763)	<i>O. linearis</i> (LINNAEUS 1761)	
4	<i>Phaenolobus fulvicornis</i> GRAVENHORST, 1829	<i>Phytoecia coerulea</i> (SCOPOLI, 1763)	
<b>Tribe Coleoceatrinini</b>			
5	<i>Coleocentrus caligatus</i> GRAVENHORST 1829	<i>Callidium</i> sp. <i>Phymatodes testaceus</i> LINNÉ 1758 <i>Tetropium castaneum</i> LINNÉ 1758	PISICĂ, 2001 PANIN & SĂVULESCU, 1961 PANIN & SĂVULESCU, 1961
<b>Subfamily BANCHINAE</b>			
<b>Tribe Lissonotini</b>			
6	<i>Lissonota buccator</i> THUNBERG 1822	<i>Tetropium castaneum</i> LINNÉ 1758 <i>T. gabrieli</i> WEISE 1905	PISICĂ, 2001
<b>Tribe Stilbopini</b>			
7	<i>Glypta ephipigera</i> KRIECHBAUMER 1895	<i>Sarpeda populnea</i> LINNÉ 1758	PISICĂ, 2001
8	<i>G. rostrata</i> HOLMGR.	<i>Sarpeda populnea</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
9	<i>G. teres</i> GRAVENHORST 1829	<i>Sarpeda populnea</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961 PISICĂ, 2001 PISICĂ & POPESCU, 2009
<b>Subfamily CRYPTINAE (GELINAE)</b>			
<b>Tribe Acaenitini</b>			

10	<i>Acoenitus dubitator</i> PANZER, 1800	<i>Phymatodes testaceus</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
		<i>Plagionotus arcuatus</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961 PISICĂ, 2001
		<i>Toxotus cursor</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
<b>Tribe Cryptini (Mesostenini)</b>			
11	<i>Cryptus viduatorius</i> FABRICIUS 1804	<i>Sarpeda (Anaerea) carcharias</i> LINNÉ 1758 <i>S. populnea</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
12	<i>Caenocryptus minor</i> (GRAVENHORST, 1829)	<i>Hylotrupes bajulus</i> LINNÉ 1758	
13	<i>Caenocryptus tener</i> THOMPSON 1873	<i>Exocentrus balteatus</i> MEYER 1933	
14	<i>Idiolispa analis</i> GRAV. 1807	<i>Sarpeda populnea</i> LINNÉ 1758	PISICĂ, 2001
15	<i>Mesostenus gladiator</i> (SCOPOLI, 1763)	<i>Monochamus galloprovincialis</i> OLIVIER 1795	PANIN & SĂVULESCU, 1961
		<i>M. galloprovincialis pistor</i> GERMAR 1818	PISICĂ & POPESCU, 2009
16	<i>Nematopodius formosus</i> GRAV.	<i>Leiopus nebulosus</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
17	<i>Stenarella gladiators</i> SCOPOLI 1763	<i>Monochamus galloprovincialis</i> OLIVIER 1795	PISICĂ, 2001
18	<i>Xylophrurus lancifer</i> GRAV.	<i>Hylotrupes bajulus</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
19	<i>Xylophrurus dispar</i> THUNBERG 1822	<i>Sarpeda (Anaerea) carcharias</i> LINNÉ 1758	
		<i>S. populnea</i> LINNÉ 1758	PISICĂ, 2001
<b>Tribe Gellini</b>			
20	<i>Hemiteles pedestri</i> FABRICIUS 1775	<i>Criocephalus (Arhopalus) quinquepunctatus</i> HARR.	PISICĂ, 2001
21	<i>Mastrus annulatus</i> BRISCHKE 1864	<i>Tetrops praeustus</i> (LINNAEUS 1758)	
<b>Tribe Hemigasterini</b>			
22	<i>Demopheles caliginosus</i> (GRAVENHORST, 1829)	<i>Clytus</i> sp.	PISICĂ, 2001
23	<i>Echthrus reluctator</i> L.	<i>Acanthocinus aedilis</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
		<i>Phymatodes testaceus</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
		<i>Plagionotus arcuatus</i> LINNÉ 1758	PISICĂ & POPESCU, 2009
		<i>Rhagium inquisitor</i> LINNÉ 1758	
		<i>Sarpeda populnea</i> LINNÉ 1758	PISICĂ, 2001
<b>Tribe Phygadeuontini</b>			
24	<i>Phygadeon detestator</i> THUMB.	<i>Leiopus nebulosus</i> LINNÉ 1758	
25	<i>Hemiteles melanarius</i> GRAV.	<i>Pogonocherus (Pityphilus) fasciculatus</i> DEGEER 1775	PANIN & SĂVULESCU, 1961 PISICĂ, 2001
<b>Subfamily CAMPOPLEGINAE</b>			
26	<i>Pyracon austriacus</i> TSCHEK.	<i>Aromia moschata moschata</i> LINNÉ 1758	
		<i>Monochamus sutor</i> LINNÉ 1758	
		<i>Tetropium castaneum</i> LINNÉ 1758	
		<i>T. fuscum</i> FABRICIUS 1787	
27	<i>P. lucidus</i> CLEM.	<i>Clytus arietis</i> LINNÉ 1758	
28	<i>P. xoridiformis</i> HOLMGR.	<i>Criocephalus rusticus</i> LINNÉ 1758	
		<i>Leptura rubra</i> LINNÉ 1758	
		<i>Pogonocherus (Pityphilus) fasciculatus</i> DEGEER 1775	PANIN & SĂVULESCU, 1961
		<i>Tetropium fuscum</i> FABRICIUS 1787	
29	<i>P. xoridoideus</i> STROBL.	<i>Callidium violaceum</i> LINNÉ 1758	
		<i>Mesosa (Aphelocnemis) nebulosa</i> FABRICIUS 1781	
		<i>Phyrrhidium sanguineum</i> LINNÉ 1758	
		<i>Tetropium fuscum</i> FABRICIUS 1787	
<b>Tribe Limnerini</b>			
30	<i>Rhimphoctona fulvipes</i> HOLMGREN, 1858	<i>Rhopalopus macropus</i> GERMAR 1824	PISICĂ, 2001
		<i>Sarpeda (Anaerea) carcharias</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
<b>Subfamily DIPLOZONTINAE</b>			
31	<i>Promethes sulcator</i> (GRAVENHORST, 1829)	<i>Adimonia rustica</i> HW.	PISICĂ, 2001
<b>Subfamily ICHNEUMONINAE</b>			
<b>Tribe Ichneumonini</b>			
32	<i>Barichneumon scriptorius</i> THUMB.	<i>Semanotus ruscicus ruscicus</i> FABRICIUS 1776	PANIN & SĂVULESCU, 1961 PISICĂ, 2001
<b>Tribe Phaeogenini</b>			
33	<i>Diadromus subtilicornis</i> (GRAVENHORST, 1829)	<i>Saperda populnea</i> LINNÉ 1758	PISICĂ, 2001
<b>Subfamily LYCORINAE</b>			
34	<i>Lycorina triangulifera</i> HOLMGREN, 1859	<i>Sarpeda populnea</i> LINNÉ 1758	PISICĂ, 2001
<b>Subfamily PIMPLINAE (EPHIALTINAE)</b>			
<b>Tribe Perithoini</b>			
35	<i>Calliclisis hectica</i> GRAV.	<i>Vadonia livida</i> FABRICIUS 1776	
36	<i>Perithous divinator</i> ROSSI	<i>Aromia moschata moschata</i> LINNÉ 1758	
		<i>Leptura quadrifasciata</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
		<i>Monochamus galloprovincialis</i> OLIVIER 1795	PISICĂ, 2001
37	<i>P. mediator</i> FABRICIUS	<i>M. galloprovincialis pistor</i> GERMAR 1818	
		<i>Strangalia quadrifasciata</i> LINNÉ 1758	
<b>Tribe Ephialtini</b>			

38	<i>Clistopyga sauberi</i> BRAUNS 1898	<i>Tetropium gabrieli</i> WEISE 1905	PISICĂ, 2001
39	<i>Dolichomitus aciculatus</i> HELLEN 1915	<i>T. gabrieli</i> WEISE 1905	
40	<i>Dolichomitus cephalotes</i> HOLMGREN 1860	<i>Monochamus rosenmuelleri</i> (CEDERJELM 1798)	PISICĂ, 2001
41	<i>Ephialtes (Dolichomitus) dux</i> TSCHKE.	<i>Rhagium inquisitor</i> LINNAEUS 1758	
42	<i>E. (Dolichomitus) gauronii</i> GREGOR	<i>Tetropium fuscum</i> FABRICIUS 1787	PANIN & SĂVULESCU, 1961
		<i>Gaurotes excellens</i> BRANCSIK 1874	PISICĂ, 2001
		<i>Cerambix cerdo</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
		<i>Clytus tropicus</i> PANZER 1795	
		<i>C. lama</i> MULSANT 1847	
		<i>Hylotrupes bajulus</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
		<i>Oberea oculata</i> LINNÉ 1758	
43	<i>E. manifestator</i> L.	<i>Phymatodes testaceus</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
		<i>Plagionotus arcuatus</i> LINNÉ 1758	PISICĂ, 2001
		<i>Pogonocherus hispidus</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
		<i>P. hispidulus</i> PILLER & MITTERPACHER 1783	PISICĂ, 2001
		<i>P. (Pityphilus) fasciculatus</i> DEGEER 1775	PANIN & SĂVULESCU, 1961
		<i>Sarpeda populnea</i> LINNÉ 1758	PISICĂ, 2001
		<i>Spondylis buprestoides</i> LINNÉ 1758	
		<i>Xylotricus rusticus</i> LINNÉ 1758	
44	<i>E. (Dolichomitus) mesocentrus</i> GRAV.	<i>Acanthocinus aedilis</i> LINNÉ 1758	
		<i>Cerambix scopoli</i> FUESSLY 1775	
		<i>Gaurotes excellens</i> BRANCSIK 1874	
		<i>Phymatodes testaceus</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
		<i>Plagionotus detritus</i> LINNÉ 1758	
		<i>Purpuricenus kaehleri</i> LINNÉ 1758	
45	<i>E. (Dolichomitus) messor</i> GRAV.	<i>Aromia moschata moschata</i> LINNÉ 1758	
		<i>Lamia textor</i> LINNÉ 1758	
		<i>Oberea oculata</i> LINNÉ 1758	
		<i>Sarpeda populnea</i> LINNÉ 1758	
46	<i>E. (Dolichomitus) populneus</i> RTZB.	<i>S. populnea</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
		<i>S. (Anaerea) carcharias</i> LINNÉ 1758	PISICĂ, 2001
		<i>Plagionotus arcuatus</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
		<i>Rhagium inquisitor</i> LINNÉ 1758	PISICĂ, 2001
47	<i>E. (Dolichomitus) tuberculatus</i> FOURCR.	<i>Acanthocinus aedilis</i> LINNÉ 1758	
		<i>Aromia moschata moschata</i> LINNÉ 1758	
		<i>Cerambix cerdo</i> LINNÉ 1758	
		<i>C. scopoli</i> FUESSLY 1775	
		<i>Gaurotes excellens</i> BRANCSIK 1874	
		<i>Monochamus galloprovincialis</i> OLIVIER 1795	
		<i>M. galloprovincialis pistor</i> GERMAR 1818	
		<i>Oplosia fennica</i> PAYKULL 1800	PANIN & SĂVULESCU, 1961
		<i>Phymatodes testaceus</i> LINNÉ 1758	
		<i>Rhagium mordax</i> DEGEER 1775	
48	<i>E. (Dolichomitus) terebrans</i> RATZEBURG	<i>Pogonocherus (Pityphilus) fasciculatus</i> DEGEER 1775	
		<i>P. hispidus</i> LINNÉ 1758	
		<i>Tetropium fuscum</i> FABRICIUS 1787	
49	<i>E. (Townesia) tenuiventris</i> HOLMGR.	<i>Phymatodes testaceus</i> LINNÉ 1758	
		<i>Sarpeda populnea</i> LINNÉ 1758	PISICĂ, 2001
50	<i>E. (Dolichomitus) sagax</i> HARTING	<i>Pogonocherus (Pityphilus) fasciculatus</i> DEGEER 1775	PANIN & SĂVULESCU, 1961
51	<i>E. (Dolichomitus) sericeus</i> HARTIG 1847	<i>Tetropium cinnamopterum</i> KIRBY 1837	
		<i>Tetropium</i> sp.	PISICĂ, 2001
52	<i>E. subglabratus</i> PERK.	<i>Molorchus (Caenoptera) minor</i> LINNÉ 1758	
		<i>Phymatodes testaceus</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
53	<i>Paraperithos gnahtaulax</i> THOMPSON 1877	<i>Achantocinus carinulatus</i> GEBLER 1833	
54	<i>Scambus triangularis</i> VERHOEFF 1890	<i>Oberea linearis</i> (LINNAEUS 1761)	PISICĂ, 2001
55	<i>Townesia tenuiventris</i> HOLMGREN 1860	<i>Sarpeda populnea</i> LINNÉ 1758	
<b>Tribe Theroniini</b>			
56	<i>Atractogaster semisculptus</i> KRIECHBAUMER 1872	<i>Acanthocinus aedilis</i> LINNÉ 1758	PISICĂ, 2001
57	<i>Pseudorhyssa maculicoxis</i> KRIECHBAUMER 1889	<i>Monochamus</i> sp.	PISICĂ, 2001
<b>Subfamily ORTHOCENTRINAE</b>			
58	<i>Orthocentrus fulvipes</i> GRAV.	<i>Leiopus nebulosus</i> LINNÉ 1758	
		<i>Sarpeda scalaris</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
<b>Subfamily PHAEOGINAE</b>			
59	<i>Proscus suspicax</i> WESM.	<i>Sarpeda populnea</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961

<b>Subfamily POEMENIINAE</b>			
<b>Tribe Poemeniini</b>			
60	<i>Neoxorides collaris</i> GRAV.	<i>Acanthocinus aedilis</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
		<i>A. carinulatus</i> GEBLER 1833	PISICĂ, 2001
		<i>Plagionotus arcuatus</i> LINNÉ 1758	
		<i>Rhagium inquisitor</i> LINNÉ 1758	
		<i>Tetropium castaneum</i> LINNÉ 1758	
		<i>T. gabrieli</i> WEISE 1905	PISICĂ, 2001
61	<i>N. nitens</i> var. <i>albicollis</i> CLÉM.	<i>Plagionotus detritus</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961 PISICĂ, 2001
62	<i>N. nitens</i> GRAV.	<i>Asemum striatum</i> LINNÉ 1758	PISICĂ, 2001
		<i>Clytus arietis</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
		<i>Clytus</i> sp.	PISICĂ, 2001
		<i>Phymatodes testaceus</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
		<i>Phyrrhidium sanguineum</i> LINNÉ 1758	PISICĂ, 2001
		<i>Plagionotus arcuatus</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
		<i>P. detritus</i> LINNÉ 1758	
		<i>Sarpeda (Anaerea) carcharias</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
		<i>Tetropium castaneum</i> LINNÉ 1758	PISICĂ, 2001
63	<i>Deuteroxorides albitarsus</i> GRAV.	<i>Callidium aeneum</i> DE GEER 1775	PISICĂ, 2001
		<i>Leiopus nebulosus</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961 PISICĂ, 2001
		<i>L. nebulosus</i> LINNÉ 1758	PISICĂ, 2001
		<i>Prionus coriarius</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961 PISICĂ, 2001
64	<i>Poemia notata</i> HOLMGREN 1859	<i>Nothorhina punctata</i> (DALMAN 1817)	PISICĂ, 2001
65	<i>Podoschistus scutellaris</i> DESVIGNES 1856	<i>Clytus arietis</i> LINNÉ 1758	
		<i>Leiopus nebulosus</i> LINNÉ 1758	
<b>Subfamily RHYSSINAE</b>			
<b>Tribe Rhyssini</b>			
66	<i>Rhyssa amoena</i> GRAV.	<i>Criocephalus rusticus</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
		<i>Cerambix cerdo</i> LINNÉ 1758	PISICĂ, 2001
		<i>Monochamus sutor</i> LINNÉ 1758	
67	<i>R. persuasoria</i> L.	<i>Tetropium fuscum</i> FABRICIUS 1787	PANIN & SĂVULESCU, 1961
		<i>T. gabrieli</i> WEISE 1905	PISICĂ, 2001
		<i>Cerambix cerdo</i> LINNÉ 1758	
		<i>C. scopoli</i> FUESSLY 1775	
		<i>Monochamus sartor</i> FABRICIUS 1787	
		<i>Spondylis buprestoides</i> LINNÉ 1758	
<b>Subfamily XORIDINAE</b>			
68	<i>Sichelia filiformis</i> GRAV.	<i>Acanthocinus aedilis</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
		<i>Callidium aeneum</i> DEGEER 1775	
		<i>Clytus tropicus</i> PANZER 1795	
		<i>Phymatodes testaceus</i> LINNÉ 1758	
		<i>Phyrrhidium sanguineum</i> LINNÉ 1758	
		<i>Plagionotus arcuatus</i> LINNÉ 1758	
		<i>P. detritus</i> LINNÉ 1758	
		<i>Rhagium inquisitor</i> LINNÉ 1758	
69	<i>Xylophrura lancifer</i> GRAV.	<i>Xylotreccus rusticus</i> LINNÉ 1758	
		<i>Sarpeda populnea</i> LINNÉ 1758	
70	<i>Xorides ater</i> GRAVENHORST 1829	<i>Criocephalus rusticus</i> LINNÉ 1758	PISICĂ, 2001
		<i>Tetropium castaneum</i> LINNÉ 1758	
		<i>T. fuscum</i> FABRICIUS 1787	
		<i>T. gabrieli</i> WEISE 1905	
71	<i>Xorides alpestris</i> HABERMEHL 1903	<i>Necydalis major</i> LINNAEUS 1758	
72	<i>Xorides brachyalis</i> KRIECHBAUMER 1889	<i>Tetropium castaneum</i> LINNÉ 1758	PISICĂ, 2001
		<i>T. fuscum</i> FABRICIUS 1787	
		<i>T. gabrieli</i> WEISE 1905	
73	<i>Xorides fuliginator</i> THUMB.	<i>Acanthoderes clavipes</i> SCHRANK 1781	PANIN & SĂVULESCU, 1961
		<i>Criocephalus rusticus</i> LINNÉ 1758	
74	<i>Xorides gracilicornis</i> GRAVENHORST 1829	<i>Molorchus minor</i> LINNÉ 1758	PISICĂ, 2001
75	<i>X. (Xorides) irrigator</i> FABRICIUS 1793	<i>Acanthocinus aedilis</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
		<i>Acanthocinus carinulatus</i> GEBLER 1833	PISICĂ, 2001
		<i>Mesosa (Aphelocnemia) nebulosa</i> FABRICIUS 1781	PANIN & SĂVULESCU, 1961
		<i>Tetropium gabrieli</i> WEISE 1905	PISICĂ, 2001
		<i>Plagionotus arcuatus</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
		<i>Rhagium inquisitor</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961 PISICĂ, 2001

76	<i>X. niger</i> PFEFFER var. <i>bicolor</i> GRAV.	<i>Tetropium castaneum</i> LINNÉ 1758 <i>Molorchus minor</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
77	<i>X. (Gonophonus) propinquus</i> TSCHEK.	<i>M. minor</i> LINNÉ 1758	PISICĂ, 2001
		<i>Niphona picticornis</i> MULSANT 1839	
		<i>Semanotus ruscicus ruscicus</i> FABRICIUS 1776	PANIN & SĂVULESCU, 1961
		<i>Trichoferus griseus</i> FABRICIUS 1792	PISICĂ, 2001
78	<i>X. (Xorides) praecatorius</i> F.	<i>Aromia moschata moschata</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
		<i>Callidium aeneum</i> DEGEER 1775	PISICĂ, 2001
		<i>Gaurotes excellens</i> BRANCSIK 1874	PANIN & SĂVULESCU, 1961
		<i>Tetropium castaneum</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
		<i>Phymatodes testaceus</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
		<i>Phyrrhidium sanguineum</i> LINNÉ 1758	PISICĂ, 2001
		<i>Plagionotus arcuatus</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
		<i>Sarpeda scalaris</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
		<i>Tetropium fuscum</i> FABRICIUS 1787	PISICĂ, 2001
		<i>Callidium violaceum</i> LINNÉ 1758	PISICĂ, 2001
		<i>Leiopus nebulosus</i> LINNÉ 1758	
79	<i>X. (Moerophora) rufipes</i> GRAV.	<i>Rhagium inquisitor</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961 PISICĂ, 2001
80	<i>X. securicornis</i> HOLMGR.	<i>Leiopus nebulosus</i> LINNÉ 1758	PANIN & SĂVULESCU, 1961
		<i>Phymatodes alnis</i> LINNÉ 1758	
		<i>P. (Poecilium) fasciatus</i> VILLERS, 1789	
81	<i>Ischnoceros caligatus</i> GRAVENHORST 1829	<i>Aromia moschata</i> LINNÉ 1758	PISICĂ, 2001
		<i>Criocephalus rusticus</i> LINNÉ 1758	
		<i>Leiopus nebulosus</i> LINNÉ 1758	
		<i>Rhagium bifasciatum</i> FABRICIUS 1775	
		<i>R. inquisitor</i> LINNÉ 1758	
		<i>R. mordax</i> DEGEER 1775	
		<i>Sarpeda carcharias</i> LINNÉ 1758	
82	<i>Ischnoceros caligatus</i> GRAVENHORST 1829	<i>Aromia moschata</i> LINNÉ 1758	
		<i>Rhagium mordax</i> DEGEER 1775	
		<i>R. bifasciatum</i> FABRICIUS 1775	
		<i>Sarpeda carcharias</i> LINNÉ 1758	
83	<i>Odontocolon dentipes</i> GMELIN, 1790	<i>Criocephalus rusticus</i> LINNÉ 1758	
		<i>Spondylis buprestoides</i> LINNÉ 1758	
84	<i>Odontocolon quercinum</i> THOMSON 1877	<i>Monochamus galloprovincialis</i> OLIVIER 1795	
85	<i>Odontocolon spinipes</i> GRAVENHORST 1829	<i>Pogonocheirus hispidulus</i>	
		PILLER & MITTERPACHER 1783 <i>Rhagium</i> sp.	

Because the parasite fauna of beetles was less studied in Romania and not in Dolj county, the desire to have more complete documentation materials, made us consult-specialized information published by foreign authors such as GYORFI, 1945-1947; BALACHOWSKY, 1962-1963; HURPIN 1962 - for parasites and parasitoids species found in species of beetles of the families: Anobiidae, Cerambycidae, Curculionidae, Melolonthidae, Rutelidae, Scarabeidae (Table 4) and GRASSE 1953 and KUDO 1966 - to protozoa (Protozoa, Sporozoite, Gregarinomorpha) parasitic on beetles (Table 5).

Table 4. Species of parasites and parasitoids species of beetles by GYORFI 1945-1947; HURPIN, 1962 and BALACHOWSKY, 1962-1963.

No.	Parasites and parasitoids	Host species	Authors and year
<b>Class INSECTA, Ord. HYMENOPTERA</b>			
<b>Suborder SYMPHYTA, Superfamily TENTHREDINOIDEA, Family DIPRIONIDAE</b>			
1	<i>Diprion similis</i> (HARTIG)	<i>Anthaxia (Melanthaxia) quadripunctata</i> (LINNAEUS 1758)	GYORFI, 1945 - 1947
<b>Suborder APOCRITA, Superfamily ICHNEUMONOIDEA, Family BRACONIDAE</b>			
<b>Subfamily Braconinae</b>			
2	<i>Cyanopterus flavator</i> (FABRICIUS)	<i>Phymatodes testaceus</i> (LINNAEUS 1758)	GYORFI, 1945 - 1947
		<i>Callidium violaceum</i> LINNÉ	
3	<i>Coeloides abdominalis</i> (ZETTERSTEDT 1838)	<i>Achanthocinus aedilis</i> LINNÉ 1758	
<b>Subfamily Doryctinae</b>			
6	<i>Doryctes gallicus</i> REINH.	<i>Pyrrhidium sanguineum</i> LINNÉ	GYORFI, 1945 - 1947
		<i>Plagionotus arcuatus</i> (LINNAEUS 1758)	
		<i>Purpuriceus kaehleri</i> LINNÉ	
7	<i>Doryctes igneus</i> RATZEBURG		
8	<i>Doryctes imperator</i> HAL.	<i>Pogonocheirus fasciculatus</i> DEG.	
		<i>Achantocinus aedilis</i> LINNÉ	
9	<i>Doryctes leucogaster</i> (NEES)	<i>Harpium inquisitor</i> LINNÉ	
		<i>Pyrrhidium sanguineum</i> LINNÉ	
		<i>Hylotrupes bajulus</i> LINNÉ 1758	



	<i>Dorictes leucogaster</i> (NEES)	<i>Plagionotus arcuatus</i> LINNÉ 1758	GYORFI, 1945 - 1947	
		<i>Purpuriceus kaehleri</i> LINNÉ		
		<i>Tetropium castaneum</i> LINNÉ ab. <i>luridum</i> LINNÉ		
		<i>Xilotrechus arvicola</i> OLIV.		
10	<i>Doryctes longicaudis</i> GIR.	<i>Argalia punctata</i> LINNÉ syn. with <i>Saperda punctata</i> (LINNAEUS 1767)	GYORFI, 1945 - 1947	
11	<i>Doryctes mutillator</i> THUMB.	<i>Tetropium castaneum</i> LINNÉ ab. <i>luridum</i> LINNÉ <i>Tetropium fuscum</i> (FABRICIUS 1787)		
12	<i>Doryctes pomarius</i> REINHARD	<i>Liopus nebulosus</i> LINNÉ <i>Pogonochaerus fasciculatus</i> DEG.		
13	<i>Doryctes rex</i> MARSHALL	<i>Agrilus viridis</i> LINNAEUS 1758		
14	<i>Dorictes striatellus</i> (NEES)	<i>Callidostola aeneum</i> syn. with <i>Callidium aeneum</i> (DE GEER 1775) <i>Monochamus sutor</i> LINNÉ 1756		
15	<i>Doryctes undulatus</i> (RATZEBURG)	<i>Pogonocherus fasciculatus</i> DEGEER 1775 <i>Pogonocherus hispidus</i> LINNÉ 1758		
16	<i>Spathius brevicaulis</i> RATZEBURG	<i>Agrilus sexguttatus</i> LINNÉ		
17	<i>Spathius lignarius</i> RATZEBURG	<i>Anthaxia (Melanthaxia) quadripunctata</i> (LINNAEUS 1758)		
	<i>Spathius exarator</i> (LINNAEUS)	<i>Clytus tropicus</i> PANZER 1795 <i>Phymatodes testaceus</i> LINNÉ 1758		
19	<i>Spathius radzayanus</i> RATZEBURG	<i>Rhagium (Megarhagium) sycophanta</i> (SCHRANK 1781)		
<b>Subfamily Helconinae</b>				
20	<i>Helcon dentator</i> F.	<i>Cerambyx scopolii</i> FUESSELY 1775 <i>Callidostola aeneum</i> syn. with <i>Callidium aeneum</i> (DE GEER 1775) <i>Callidium violaceum</i> (LINNAEUS 1758) <i>Plagionotus arcuatus</i> (LINNAEUS 1758) <i>Tetropium castaneum</i> LINNÉ <i>Tetropium castaneum</i> LINNÉ ab. <i>luridum</i> LINNÉ <i>Tetropium fuscum</i> F.	GYORFI, 1945 - 1947	
21	<i>Helcon rusparator</i> LINNÉ	<i>Achantocinus aedilis</i> LINNÉ		
<b>Superfamily CHALCIDOIDEA, Family EUPELMIDAE</b>				
<b>Subfamily Calosotinae</b>				
Genus <i>Calosota</i>				
22	<i>Calosota aestivalis</i> CURTIS	<i>Tetrops praeusta</i> LINNÉ	GYORFI, 1945 - 1947	
Genus <i>Eusandalum</i>				
23	<i>Eusandalum abbreviatum</i> (RATZEBURG)	<i>Anthaxia (Melanthaxia) quadripunctata</i> (LINNAEUS 1758)	GYORFI, 1945 - 1947	
24	<i>Eusandalum inerme</i> (RATZEBURG)	<i>Anthaxia (Anthaxia) manca</i> (LINNAEUS 1767) <i>Exocentrus lusitanicus</i> LINNÉ <i>Lyctus linearis</i> (GOEZE 1777) <i>Ptilinus pectinicornis</i> (LINNAEUS 1758) <i>Sinodendron cylindricum</i> (LINNAEUS 1758)		
<b>Superfamily ICHNEUMONOIDEA, Family ICHNEUMONIDAE</b>				
<b>Subfamily Acaenitinae</b>				
25	<i>Coleocentrus excitator</i> (PODA)	<i>Ergates faber</i> (LINNAEUS 1761)	GYORFI, 1945 - 1947	
<b>Subfamily Campopleginae</b>				
26	<i>Pyracmon austriacus</i> TSCHKE.	<i>Aromia moschata</i> (LINNAEUS 1758)	GYORFI, 1945 - 1947	
27	<i>Pyracmon melanurus</i> HOLMGREN	<i>Haplocnemia nebulosa</i> FABRICIUS <i>Callidium violaceum</i> (LINNAEUS 1758)		
28	<i>Pyracmon xoridiformis</i> HOLMGREN sin. with <i>Rhimphoctona xoridiformis</i> (HOLMGREN)	<i>Criocephalus rusticus</i> LINNÉ syn. with <i>Arhopalus rusticus</i> (LINNAEUS 1758) <i>Leptura rubra</i> syn. with <i>Stictoleptura rubra</i> (LINNAEUS 1758) <i>Pogonochaerus fasciculatus</i> DEG.		
<b>Subfamily Cryptinae</b>				
29	<i>Cryptus viduatorius</i> FABRICIUS	<i>Compsidia populnea</i> LINNÉ syn. with <i>Saperda populnea</i> (LINNAEUS 1758)	GYORFI, 1945 - 1947	
<b>Subfamily Pimplinae</b>				
30	<i>Ephialtes abbreviatus</i> THOMS.	<i>Compsidia populnea</i> LINNÉ syn. with <i>Saperda populnea</i> (LINNAEUS 1758) <i>Saperda carcharias</i> (LINNAEUS 1758)	GYORFI, 1945 - 1947	
31	<i>Ephialtes carbonarius</i> CHRIST.	<i>Pogonochaerus fasciculatus</i> DEG.		
32	<i>Ephialtes dux</i> TSCHKE syn. with <i>Dolichomitus dux</i> (TSCHKE)	<i>Tetropium fuscum</i> (FABRICIUS 1787)		
33	<i>Ephialtes heteropus</i> THOMS.	<i>Lamia textor</i> (LINNAEUS 1758)		
34	<i>Ephialtes krichbaumeri</i> SCHMEIDEKN.	<i>Phymatodes testaceus</i> (LINNAEUS 1758)		
35	<i>Ephialtes manifestator</i> (LINNAEUS)	<i>Agrilus biguttatus</i> (FABRICIUS 1776)		

		<i>Hylotrupes bajulus</i> (LINNAEUS 1758)	
		<i>Plagionotus arcuatus</i> (LINNAEUS 1758)	
36	<i>Ephialtes macrocentrus</i> GRAVENHORST	<i>Plagionotus arcuatus</i> (LINNAEUS 1758)	
37	<i>Ephialtes mesocentrus</i> GRAV. syn. with <i>Dolichomitus mesocentrus</i> (GRAV.)	<i>Lamia textor</i> (LINNAEUS 1758)	
		<i>Phymatodes testaceus</i> (LINNAEUS 1758)	
		<i>Plagionotus detritus</i> (LINNAEUS 1758)	
		<i>Purpuriceus kaehleri</i> LINNÉ	
38	<i>Ephialtes tenuiventris</i> HOLMGREN <i>Townesia tenuiventris</i> (HOLMGREN)	<i>Phymatodes testaceus</i> (LINNAEUS 1758)	
39	<i>Ephialtes tuberculatus</i> FOURC.	<i>Cerambyx cerdo</i> LINNAEUS 1758	
		<i>Lamia textor</i> (LINNAEUS 1758)	
		<i>Phymatodes testaceus</i> (LINNAEUS 1758)	
<b>Subfamily Poemeniinae</b>			
40	<i>Poemenia notata</i> HOLMGREN	<i>Criocephalus rusticus</i> LINNÉ syn. with <i>Arhopalus rusticus</i> (LINNAEUS 1758)	
		<i>Tetropium fuscum</i> (FABRICIUS 1787)	
		<i>Tetropium castaneum</i> (LINNAEUS 1758)	
		<i>Clytus arietis</i> LINNÉ 1758	
41	<i>Neoxorides nitens</i> GRAVENHORST syn. with <i>Xorides nitens</i>	<i>Clytus arietis</i> LINNÉ 1758	GYORFI, 1945 - 1947
		<i>Phymatodes testaceus</i> (LINNAEUS 1758)	
		<i>Plagionotus detritus</i> LINNÉ 1758	
		<i>Plagionotus arcuatus</i> LINNÉ 1758	
		<i>Purpuriceus kaehleri</i> LINNÉ	
		<i>Tetropium castaneum</i> LINNÉ 1758	
		<i>Tetropium castaneum</i> LINNÉ 1758	
		<i>Tetropium castaneum</i> LINNÉ 1758	
<b>Subfamily Xoridinae</b>			
42	<i>Xylonomus ater</i>	<i>Achantocinus aedilis</i> LINNÉ	
		<i>Tetropium castaneum</i> LINNÉ ab. <i>luridum</i> LINNÉ	
43	<i>Xylonomus brachylabris</i> KRIECH.	<i>Tetropium fuscum</i> (FABRICIUS 1787)	
44	<i>Xylonomus filiformis</i> syn. with <i>Xorides (Xorides) filiformis</i> (GRAV.)	<i>Achantocinus aedilis</i> LINNÉ	
		<i>Xilotrechus rusticus</i> LINNÉ	
		<i>Ragium (Hargium) inguisitor</i> LINNE 1758	
		<i>Phymatodes testaceus</i> (LINNAEUS 1758)	
		<i>Plagionotus arcuatus</i> (LINNAEUS 1758)	
		<i>Purpuriceus kaehleri</i> LINNÉ	
45	<i>Xylonomus pilicornis</i> GRAVENHORST	<i>Achantoderes clavipes</i> SCHRANK.	
		<i>Criocephalus rusticus</i> LINNÉ syn. with <i>Arhopalus rusticus</i> (LINNAEUS 1758)	
		<i>Phymatodes testaceus</i> (LINNAEUS 1758)	
46	<i>Xylonomus praecatorius</i> GRAVENHORST	<i>Plagionotus arcuatus</i> (LINNAEUS 1758)	
		<i>Purpuriceus kaehleri</i> LINNÉ	
		<i>Saperda scalaris</i> (LINNAEUS 1758)	
		<i>Tetropium fuscum</i> F.	
		<i>Tetropium castaneum</i> LINNÉ ab. <i>luridum</i> LINNÉ	
47	<i>Xorides collaris</i> GRAVENHORST	<i>Tetropium castaneum</i> (LINNAEUS 1758)	GYORFI, 1945 - 1947
		<i>Tetropium fuscum</i> (FABRICIUS 1787)	
48	<i>Xorides (Xorides) irrigator</i> (FABRICIUS)	<i>Achanthocinus aedilis</i> LINNÉ 1758	
		<i>Mesosa (Aphelocnemia) nebulosa</i> FABRICIUS 1781	
		<i>Plagionotus arcuatus</i> LINNÉ 1758	
		<i>Ragium (Hargium) inguisitor</i> LINNE 1758	
49	<i>Xylonomus irrigator</i> F.	<i>Achantocinus aedilis</i> LINNÉ	
		<i>Plagionotus arcuatus</i> (LINNAEUS 1758)	
		<i>Haplocnemia nebulosa</i> F.	
		<i>Ragium (Hargium) inguisitor</i> LINNE 1758	
50	<i>Xorides (Moerophora) rufipes</i> (GRAVENHORST)	<i>Ragium (Hargium) inguisitor</i> LINNE 1758	
51	<i>Xorides wahlbergi</i> HOLMGREN	<i>Prionus coriarius</i>	GYORFI, 1945 - 1947
		<i>Saperda carcharias</i> (LINNAEUS 1758)	
<b>Superfamily VESPOIDEA</b>			
<b>Family SCOLIIDAE</b>			
52	<i>Scolia (Scolia) sexmaculata sexmaculata</i> (O. F. MÜLLER)	<i>Anisoplia (Autanisoplia) austriaca</i> (HERBST 1783)	HURPIN, 1962
<b>Family TIPHIIDAE</b>			
53	<i>Tiphia popilliavora</i> ROHM.	<i>Popillia japonica</i> NEWMAN 1838	
54	<i>Tiphia vernalis</i> ROHM.	<i>Popillia japonica</i> NEWMAN 1838	HURPIN, 1962
55	<i>Tiphia (Tiphia) femorata</i> FABRICIUS	<i>Anisoplia (Autanisoplia) austriaca</i> (HERBST 1783)	
		<i>Melolontha melolontha</i> (LINNAEUS 1758)	BALACHOWSKY, 1962-1963
		<i>Serica brunnea</i> (LINNAEUS 1758)	
<b>Class: INSECTA, Order: Diptera, Suborder: Brachycera</b>			
<b>Family TACHINIDAE</b>			

Subfamily Dexiinae			
56	<i>Dexia rustica</i> (FABRICIUS)	<i>Amphimallon majale</i> (RAZOUWOWSKY 1789)	BALACHOWSKY, 1962-1963
		<i>Amphimallon solstitiale</i> (LINNAEUS 1758)	HURPIN, 1962
		<i>Serica brunnea</i> (LINNAEUS 1758)	BALACHOWSKY, 1962-1963
57	<i>Dexia vacua</i> (FALLÉN)	<i>Amphimallon majale</i> (RAZOUWOWSKY 1789)	BALACHOWSKY, 1962-1963
		<i>Amphimallon solstitiale</i> (LINNAEUS 1758)	HURPIN, 1962
Subfamily Tachininae			
58	<i>Dexiosoma caninum</i> (FABRICIUS)	<i>Melolontha melolontha</i> (LINNAEUS 1758)	BALACHOWSKY, 1962-1963
59	<i>Microphthalma disjuncta</i> WILD		
60	<i>Microphthalma europaea</i> EGGER		

Table 5. Protozoare (Protozoa, Sporozoa, Gregarinomorpha) parasitic on beetles, after GRASSE (1953) and KUDO (1966).

No.	Parasites species	Host species	Authors and year
PROTOZOA, SPOROZOA, GREGARINOMORPHA			
Fam. Didymophiidae			
1	<i>Didymophies gigantea</i>	the gut of larvae of <i>Oryctes nasicornis</i> , <i>O. sp.</i>	GRASSE, 1953 KUDO, 1966
		<i>Phyllognathus</i> sp.	
		<i>Geotrupes</i> sp.	
		<i>Aphodius</i> sp.	
Fam. Gregarinidae			
2	<i>Gregarina</i> spp.	Tenebrionidae, Carabidae	GRASSE, 1953 KUDO, 1966
3	<i>Gregarina longirostris</i>	<i>Thanasimus formicarius</i>	
4	<i>Gigaductus</i> sp.	Carabidae	
5	<i>Anisolobus</i> sp.	<i>Dacne rufifrons</i>	
Fam. Hirmocystidae			
6	<i>Hirmocystis</i> sp.	Carabidae	GRASSE, 1953 KUDO, 1966
7	<i>Euspora</i> sp.	larvae of <i>Rhizotrogus</i>	
8	<i>Sphaerocystis</i> sp.	the gut of larvae of <i>Cyphon</i>	
9	<i>Caulocephalus</i> sp.	<i>Aulacophora foveicollis</i>	
Fam. Stylocephalidae			
10	<i>Stylocephalus giganteus</i>	adults of <i>Eleodes</i> sp.,	GRASSE, 1953 KUDO, 1966
		<i>Asida opaca</i>	
		<i>Eusattus</i> sp.	
11	<i>Bulbocephalus elongatus</i>	the gut of larvae of <i>Cucujus</i> sp.	
Fam. Acanthosporidae			
12	<i>Acanthospora polymorpha</i>	the gut of <i>Hydrous ceraboides</i> and <i>Omophilus</i> sp.	GRASSE, 1953 KUDO, 1966
13	<i>Corycella armata</i>	the gut of larvae of <i>Gyrinus natator</i>	
14	<i>Ancyrophora gracilis</i>	the gut of larvae and adults of: <i>Carabus auratus</i> , <i>C. violaceus</i> , <i>C. sp.</i>	
		larvae of <i>Silpha thoracica</i>	
15	<i>Cometoides capitatus</i>	the gut of larvae of <i>Hydrous</i> sp.	
Fam. Actinocephalidae			
16	<i>Actinocephalus acutispora</i>	gut of <i>Silpha laevigata</i> and larvae and adults of Carabidae	GRASSE, 1953 KUDO, 1966
17	<i>Asterophora philica</i>	gut of <i>Nyctobates pennsylvanica</i>	
18	<i>Steinina rotunda</i>	gut of <i>Amara augustata</i>	
19	<i>Pyxinia crystalligera</i>	gut of <i>Dermestes vulpinus</i> , <i>D. peruvianus</i>	
20	<i>Pyxinia bulbifera</i>	gut of <i>Dermestes lardarius</i>	
21	<i>Beloides firmus</i>	the gut of larvae of <i>Dermestes lardarius</i>	
22	<i>Pileocephalus</i> sp.	larvae of <i>Necrobia</i>	
23	<i>Stictospora provincialis</i>	the gut of larvae of <i>Melolontha</i> sp. and <i>Rhizotrogus</i> sp.	
24	<i>Bothriopsis histrio</i>	the gut of larvae of <i>Hydaticus</i> sp.	
25	<i>Legeria agilis</i>	the gut of larvae of <i>Colymbetes</i> sp.	
26	<i>Phialoides ornata</i>	the gut of larvae of <i>Hydrophilus piceus</i>	
27	<i>Stephanophora</i> sp.	<i>Dorcus parallelipedus</i>	
Fam. Ophryocystidae			
28	<i>Ophryocystis mesnili</i>	Malpighi tubules in <i>Tenebrio molitor</i>	

The parasitic protozoa beetles belong to the families Aphodiidae, Carabidae, Caraboidae, Chrysomellidae, Cleridae, Cucujidae, Dermestidae, Erotylidae, Lucanidae, Scarabaeidae, Silphidae, Tenebrionidae (land) and Gyrinidae, Dytiscidae, Hydrophilidae, Scirtidae (water).

### CONCLUSIONS

In conclusion, beetles are host species for bacteria, protozoa, fungi, nematodes, mites, hymenoptera and diptera. The consulted material allowed us to systematize only part of the information currently available in the country and abroad. To complete data about parasite fauna beetles still will consult other papers from country and from abroad.

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