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Canestriniidae (Acari, Astigmata) of Poland, with key to species of the genus *Photia* Oudemans, 1904

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Abstract: In Poland 14 species of canestriniid mites were found. The total number of collected mites were 1693. *Photia hejniana* and *P. chrysocarabi* are most numerous species in the country. Only *P. hejniana* was stated in the whole country. Very rare species are *Percanestrinia blaptis*, *Dicanestrinia knobi*, *D. huberti*, *Coleopterophagus albini* and *Pseudocanestrinia mahunkai*. All these species are associated with rare host species in Poland. Key to the *Photia* species of the world is provided.

Key words: Acari, Canestriniidae, faunistic list, Poland, Photia

INTRODUCTION

The family Canestriniidae contains about 95 genera and 305 species. In Poland the family Canestriniidae is hitherto poorly known. First record of canestriniid mites was given by Haitlinger (1988a, b). Then stated in Poland 3 species: *Canestrinia dorcicola* Berlese, 1881, *Dicanestrinia knobi* Samšiňák, 1971 and *Coleopterophagus megnini* (Berlese, 1881). Later 11 further species were found; among them four species were new for sciences: *Photia bardoica* Haitlinger, 1988, *P. hermengildae* Haitlinger, 1988, *P. adolfinae* Haitlinger, 1994 and *Coleopterophagus albini* Haitlinger, 1990 (Haitlinger, 1988c, d, 1990. 1994, 2002, 2004). *P. polymorpha* Samšiňák, 1971 earlier mentioned from Poland was mistakenly determined; these specimens belong to *P. adolfinae*. *P. polymorpha* in Poland is absent. All canenistriid mites occurring in Poland are associated with various species of *Carabidae*, *Scarabaeidae*, *Tenebrionidae* and *Lucanidae* (Insecta: Coleoptera). Now, 14 species of canenistriid mites belonging to 7 genera are known from Poland. In this paper all known localities in Poland are mentioned and new localities are given. In the absence of any key to the world canestriniid species, and that the other keys are restricted only to small regions, the key to the *Photia* species of the world is provided.

MATERIAL AND METHODS

In this paper besides earlier published data are given new information on canestriniid mites living in Poland. The analyzed material of hosts and mites was collected in various localities over the whole country since 1983 till 2009. These beetles (Coleoptera) were taken from the soil, under of stones, under bark of trees and traps and later mites were taken from their body. Mites were preserved in 70% ethanol. The following species of Coleoptera were investigated: *Carabus coriaceus* Linnaeus, 1758, *C. violaceus* Fabricius, 1787, *C. scheidleri* Panzer, 1799, *C. linnaei* Panzer, 1812, *C. glabratus* Paykull, 1790, *C. nemoralis* O. F. Müller, 1764, *C. auronitens* Fabricius, 1792, *C. variolosus* Fabricius, 1787 (Carabidae), *Dorcus paralellopipedus* (Linnaeus, 1758) (Lucanidae), *Blaps lethifera* Marsham, 1802 (Tenebrionidae), *Protaetia* (*Potosia*)

metallica (Herbst, 1782) and *P.* (*Cetonischema) aeruginosa* (Drury, 1770) (Scarabaeidae).The total number of collected mites were 1693 (104 *C. sellnicki*, 1 *P. mahunkai*, 43 *P. bourgognei*, 348 *P. chrysocarabi*, 708 *P. hejniana*, 171 *P. hermengildae*, 42 *P. adolfinae*, 276 *P. bardoica*). The idiosomal chaetotaxy nomenclature used in key is based on Griffiths et al. (1990).

Results

Canestrinia Berlese, 1881

Canestrinia dorcicola Berlese, 1881

Localities: Krzywa Góra n. Pokój (Opolskie prov.), Nowogród Bobrzański n. Zielona Góra (Lubuskie prov.), Sędziszów Małopolski (Podkarpackie prov.), Kępice n. Słupsk (Pomorskie prov.) (Haitlinger, 1988a, 2004).

Host: *Dorcus paralellopipedus* (Linnaeus, 1758).

Distribution: Italy, Poland, Ukraine (Haitlinger,1988a, Khaustov & Eidelberg, 2001, Trach, 2006).

Pseudocanestrinia Khaustov & Eidelberg, 2001

Pseudocanestrinia mahunkai (Samšiňák, 1971)

Localities: Wrocław-Osobowice, Oława (Dolnośląskie prov.) (Haitlinger, 1988d).

New locality: 1♀, 19.09.1991, Porażyn n. Opalenica (Wielkopolskie prov.)

Host: *Carabus coriaceus*.

Distribution: Hungary. Poland (Samšiňák, 1971, Haitlinger, 1988d).

Dicanestrinia Berlese, 1911

Dicanestrinia knobi Samšiňák, 1971

Localitiy: Pieniny (Małopolskie prov.) (Haitlinger, 1988b).

Host: *Carabus variolosus* Fabricius, 1787.

Distribution: Czech Republic, Yugoslavia, Italy, Poland, Ukraine (Samšiňák, 1971, Haitlinger, 1988a, Trach, 2006).

Dicanestrinia huberti Haitlinger, 1994

Locality: Bystre n. Baligród (Podkarpackie prov.) (Haitlinger, 1994).

Host: *Carabus variolosus*.

Distribution: Byelorussia, Poland (Haitlinger, 1994, Khaustov & Eidelberg, 2001).

Coleopterophagus Berlese, 1882

Coleopterophagus megnini (Berlese, 1881)

Localities: (from Cetonia aurata) Kamionka n. Kolbuszowa, Huwniki n. Przemyśl, (from Protaetia (P.) metallica) Kalnica n. Wetlina, Raniżów n. Kolbuszowa, Łowisko n. Leżajsk, , Berezka n. Lesko, Huta Różaniecka n. Narol, Żohatyń n. Bircza (Podkarpackie prov.), Ustrzyk n. Ochotnica Dolna (Małopolskie prov.), Bobolice n. Myszków, Podzamcze n. Kroczyce (Śląskie prov.), Stare Łysogórki n. Moryń, Wicie n. Jarosławiec (Zachodniopomorskie prov.), Górecko Stare n. Zwierzyniec (Lubelskie prov.), Wola Kłucka n. Strawczyn (Świętokrzyskie prov.), Skłoby n. Szydłowiec (Mazowieckie prrov.), Dobrylas n. Łomża (Podlaskie prov.),

Męcikał n. Brusy, Struga n. Męcikał, Leśno n. Brusy (Pomorskie prov.), Wrocław-Swojczyce (Dolnośląskie prov.) (Haitlinger, 1988b, 2002).

Hosts: *Protaetia (Potosia) metallica* (Herbst, 1782), *P. (P.) cuprea* (Fabricius, 1775), *P.* (*Eupotosia*) *affinis* (Andresch, 1797), *P.* (*Potosia*) *fieberi* (Kraatz, 1880), *P.* (*Potos*ia) *cuprin*a (Motschulsky, 1849), *Cetonia aurata* (Linnaeus, 1761). *C. aurata* is accidental host..

Distribution: Czech Republic, Croatia, England, Hungary, Holland, Italy, Poland, Turkey, Ukraine, Yugoslavia (Haitlinger, 1990, Khauatov & Eidelberg, 2001, Trach, 2006, Trach & Khaustov, 2011).

Coleopterophagus albini Haitlinger, 1990

Localities: Zaborze n. Połczyn Zdrój (Zachodniopomorskie prov.), Bałamątek n. Rowy (Pomorskie prov.) (Haitlinger, 1990, 2002).

Hosts: *Protaetia (Cetonischema) aeruginosa* (Drury, 1770), *P. (Liocola) marmorata* (Fabricius, 1792).

Distribution: Austria, Czech Republic, Germany, Poland, Romania, Ukraine (Haitlinger, 1990, Trach & Khaustov, 2011).

Procericola Cooreman, 1950

Procericola bourgognei (Oudemans, 1923)

Localities: Zabór Wielki, Oława, Wrocław (Dolnośląskie prov.), Rogalice n. Brzeg, Lubsza (Opolskie prov.), Rogacz n. Klimontów (Świętokrzyskie prov.), Policzno n. Puck (Pomorskie prov.) (Haitlinger, 1988d).

New localities: 1♀, 3♂♂, 19.09.1991, Porażyn n.. Opalenica (Wielkopolskie prov.) (*C. coriaceus*); 1♀, 2♂♂, 2d, 16.09.1991, Gródek n. Wołów, 7♀♀, 1♂, 16.09.1991, Rudno n. Wołów (Dolnośląskie prov.); 1♂, 3d, 25.05.1988, Przyłubie n. Solec Kujawski (Kujawsko-Pomorskie prov.); 3♀♀, 2♂♂, 18.08.1990, Kluczewo n. Czaplinek (Zachodniopomorskie prov.); 2♀♀, 2♂♂, 22.09.1993, Niżankowice n. Działoszyn (Łódzkie prov.); 5♀♀, 4♂♂, 5.08.1996, Kamionek Wielki n. Tolkmicko (Warmińsko-Mazurskie prov.); 2♀♀, 2♂♂, 5.10.2009, Ćmielów (Świętokrzyskie prov.)

Host: *Carabus coriaceus*.

Distribution: Caucasus, Czech Republic, Moldova, Poland, Ukraine (Samšinák, 1971, Haitlinger, 1988d, Khaustov & Eidelberg, 2001, Trach, 2006).

Percanestrinia Berlese, 1911

Percanestrinia blaptis (G. Canestrini & Berlese, 1880)

Locality: Ukta n. Ruciane (Warmińsko-Mazurzskie prov.) (Haitlinger, 1992)

Hosts: Blaps lethifera Marsham, 1802, *B. punctata*, *B. occulta* Seidlitz, 1833, *B. gibbosa*, *Sphodrus leucophthalmus* (Linnaeus, 1758).

Distribution: Bulgaria, Georgia, Germany, Hungary, Italy, Poland, Ukraine (Samšiňák, 1965, Haitlinger, 1992, Khaustov & Eidelberg, 2001).

Percanestrinia sellnicki (Samšiňák, 1971)

Localities: Zabór Wielki, Sulistrowiczki n. Sobótka, Wrocław, Oława (Dolnośląskie prov.), Moszna, Rogalice n. Brzeg, Kamień Śląski (Opolskie prov.), Podgaje n. Jastrowie (Wielkopolskie prov.), Bieszczady (Podkarpackie prov.) (Haitlinger, 1988d).

New localities:. 9♀♀, 3♂♂, 9d, 19.09.1991, Porażyn n. Opalenica (from *C. coriaceus*) (Wielkopolskie prov.), 2♀♀, 12.08.1993, Zwierzyniec, 4♀♀, 1♂, 12.08.1993, Górecko Stare

(Lubelskie prov.) (from C. violaceus); 1♀, 15.08.1986, Zalesie n. Limanowa (Małopolskie prov.) (*C. violaceus*); 1♀, 15d, 22.06.1994, Sokołowslo n. Wałbrzych (*C. violaceus*), 4♀♀, 5♂♂, 16.09.1991, Rudno n. Wołów (*C. coriaceus*), 2♀♀, 2d, 24.09.1990, Leśna Woda n. Oława (*C. violaceus*), 1♂, 5.09.2004, Międzygórze n. Bystrzyca Kłodzka (Dolnośląskie prov.); 1♂, 26.05.1988, Przyłubie n. Solec Kujawski (*C. coriaceus*), 1♂, 8.06.1988, Stary Wierzchlas n. Cekcyn (*C. violaceus*), 1♀, 3d, 2♂♂, 19.09.1990, Tleń, (*C. violaceus*)) (Kujawsko-Pomorskie prov.); 18♀♀, 5♂♂, 5.08.1990, Szymbark n. Kartuzy, 1♂, 1d 6.08.1990, Przytuły n. Szymbark (*C. violaceus*) (Pomorskie prov.); 3♀♀, 3♂♂, 3d, 15.05.1991, Nowogród Bobrzański (*C. violaceus*) (Lubuskie prov.); 3♀♀ 2♂♂, 4d, 18.08.1990, Kluczewo n. Czaplinek (*C. coriaceus*) (Zachodniopomorskie); 4♀♀, 1d, 3.10.1984, Lubsza n. Brzeg (*C. violaceus*) (Opolskie prov.); 1♀, 3d, 5.08.1996, Kamionek Wielki n. Tolkmicko *(C. coriaceus*)(Warmińsko-Mazurskie prov.).

Hosts: *Carabus coriaceus* Linnaeus, 1758, *C. violaceus* Linnaeus, 1758.

Distribution: Czech Republic, Moldova, Poland, Ukraine (Samšiňák, 1971, Haitlinger, 1988d, Trach, 2006).

Photia Oudemans, 1904

Photia chrysocarabi Cooreman, 1950

Localities: Taszów n. Duszniki Zdrj (Dolnośląskie prov.), Babia Góra, Zawoja-Policzne (Małopolskie prov.), Widełki n. Bereżk, Ustrzyki Górnei (Podkarpackie prov.) (Haitlinger, 1988d).

New localities: 6♀♀, 2♂♂, 3d, 9.06.1992, Jugów n. Nowa Ruda, 25♀♀, 8♂♂, 21.06.1989, Kletno n. Stronie Śląskie, 18♀♀, 8♂♂, 25.05.1989, Pasterka n. Kudowa, 12♀♀, 7♂♂, 10d, 21.06.1989, Ostra Góra n. Pasterka (Dolnośląskie prov.), 55♀♀, 38♂♂, 75d, 24.09.1993, Grabarze n. Działoszyn (Łódzkie prov.), 17♀♀, 8♂♂, 1d, 5.07.1993, Kamesznica Górna (Śląskie prov.); 8♀♀, 9.07.1989, Brzegi n. Bukowina, 7♀♀, 8♂♂, 8.06.1991, Lejowa Dolina (Tatry) (Małopolskie prov.);

Hosts: *Carabus auroniitens* Fabricius, 1792; accidental hosts: *C. irregularis* Fabricius, 1792; *C. scheidleri* Panzer, 1799

Distribution: Austria, Belgium, Czech Republic, England, France, Germany, Poland, Slovakia, Ukraine (Cooreman, 1950, Samšiňák, 1971, Haitlinger, 1988d, 1995, Trach, 2006).

Photia hejniana Samšiňák, 1971

Localities: Ostrzyca n. Proboszczów, Gola Wielka n. Twardogóra, Osola n. Oborniki Śląskie (Dolnośląskie prov.), Rawicz, Klempicz n. Wronki , Podgaje n. Jastrowie (Wielkopolskie prov.), Kamień Śląski (Opolskie prov.), Studzianki Pancerne, Jachranka (Mazowieckie prov.), Bieszczady (Podkarpackie prov.) (Haitlinger, 1988d).

New localities:. 11♀♀, 9♂♂, 4d, 5.07.1993, Kamesznica Górna, 5♀♀, 66.07.1989, Wisła-Głębce (Śląskie prov.), 10♀♀, 5♂♂, 15d, 12.08.1993, Zwierzyniec, 25♀♀, 9♂♂, 17d, 11.08.1993, Górecko Stare (Lubelskie prov,.); 6♀♀, 8♂♂, 16.07.1993, Zalesie n. Limanowa, 13♀♀, 3♂♂, 7d 18.08.1991, Lubachowa n. Tarnów , 3♀♀, 2♂♂, 8.07.1989, Brzegi n. Bukowina, 2♀♀, 13.07.1989, Hańczowa n. Uście Gorlickie, 1♀♂♂, 6.07.1993,Wieprzowiec n. Maków Podhalański (Małopolskie prov.); 22♀♀, 9♂♂, 2d, 24.09.1993, Grabarze n. Działoszyn (Łódzkie prov.); 2♀♀, 3♂♂, 1.08.1993, Szczawne n. Sanok, 4♀♀, 15.08.1991, Bystre n. Baligród, 10♀♀, 5♂♂, 11.08.1991, Stuposiany n. Ustrzyki Górne, 34♀♀,.17♂♂, 18d, 1.08.1993, Wysoczany n. Komańcza, 2♀♀, 22.07.1993, Chyrowa n. Dukla, 1♀, 1d, 12.08.1991, Ustrzyki Górne, 24♀♀, 18♂♂, 5d, 12.07.1987, Kamionka n. Sędziszów Małopolski, 16♀♀, 6 ♂♂, 6d, 20.07.1987, Łowisko n. Sokołów Małopolski; 3♀♀, 2♂♂, 25.08.2005, Bóbrka n.

Krosno (Podkarpackie prov.); 1♂, 22.06.1994, Sokołowsko n. Wałbrzych, 1♀, 3♂♂, 2d, 9.09.1991, Gródek n. Wołów, 3♂♂, 3d, 15.09.1991, Rudno n. Wołów, 3♀♀, 5♂♂, 20d, 24.09.1990, Leśna Woda n. Oława, 8♀♀, 4♂♂, 3d, 13.06.1990, Jodłowice n. BrzegDolny, 2♀♀, 1♂, 1d, 7.07.1992, Jordanów (Dolnośląskie prov.); 32♀♀, 18♂♂, 7d, 8.06.1988, Stary Wierzchlas n. Tuchola, 11♀♀, 3♂♂, 7d, 8.06.1988, Stary Wierzchucin n. Cekcyn, 2♀♀,, 2♂♂, 19.09.1990, Tleń, 17♀♀, 12♂♂, 3d. 2.08.1990, Ciche n. Brodnica (Kujawsko-Pomorskie prov.); 21♀♀, 10♂♂, 1d, 10.08.1990, Mierzeszyn n. Trąbki, 18♀♀, 6♂♂, 23d, 5.08.1990, Szymbark n. Kartuzy, 5♀♀, 3d, 13.08.1990, Objazda n. Ustka, 6♀♀, 3♂♂, 1d, 6.08.1990, Przytuły n. Szymbark, 5♀♀, 5♂♂, 10d, 3.08.1990, Wieżyca n. Kartuzy, 2♀♀, 1♂, 2d, 2/08.1992, Obłęże n. Kępice (Pomorskie prov.), 3♀♀, 3♂♂, 5d, 18.07.1990, Burdąg n. Jedwabno (Warmińsko-Mazuskie prov.); 20♀♀, 11♂♂, 2d, 15.05.1991, Nowogród Bobrzański (Lubuskie prov.); 5♀♀, 1♂, 19.08.1989, Parszów n. Skarżysko (Świętokrzyskie prov.).

Host: *Carabus violaceus* Linnaeus, 1758, accidental host: *C. coriaceus*.

Distribution: Austria, Croatia, Czech Republic, Moldova, Poland, Slovakia, Ukraine (Samšiňák, 1971, Haitlinger, 1988d, 1995, Trach, 2006).

Photia hermengildae Haitlinger, 1988

Localities: Huta Szklana (Świętokrzyskie prov.), Babia Góra (Małopolskie prov.), Bieszczady (Podkarpackie prov.) (Haitlinger, 1988c).

New localities:. 1♀, 1♂, 2d, 1.08.1993, Rzepedź n. Komańcza, 17♀♀, 18♂♂, 1d, 4.08.1993, Nowosiółki Dydyńskie n. Przemyśl, 3♀♀, 1♂, 14.07.1999, Kamionka n. Kolbuszowa, 24♀♀, 14♂♂, 12d, 2.08.1991, Gruszowa n. Huwniki, 5♀♀, 1♀♂, 22.07.1989, Rymanów Zdrój, 3♀♀, 3♂♂, 3d, 1.08.1993, Kulaszne n. Komańcza, 11♀♀, 3♂♂, 15.08.1991, Bystre n. Baligród (Podkarpackie prov.); 1♂, 8.05.1991, Lejowa Dolina (Tatry) (Małopolskie prov.); 11♀♀, 10♂♂, 6d, 20.06.1990, Pokrzywna n. Głuchołazy (Opolskie prov.); 10♀♀, 7♂♂, 3d,12.08.1883, Zwierzyniec (Lubelskie prov.)

Host: *Carabus linnaei* Panzer, 1812.

Distribution: Poland, Ukraine (Haitlinger, 1988c, Trach, 2006).

Photia adolfinae Haitlinger, 1994

Localities: Narewka n. Hajnówka, Sutno n. Drohiczyn, Białowieża (Podlaskie prov.) Twardogóra, Sulistrowiczki n. Sobótka, Pasterka n. Kudowa Zdrój (Dolnośląskie prov.), Zwierzyniec n. Biłgoraj (Lubelskie prov.), Brzegi n. Bukowina, Zawoja-Markowe, Babia Góra, Spalenica n. Polica (Małopolskie prov.), Mrozy n. Mińsk Mazowiecki (Mazowieckie prov.) (Haitlinger, 1988d 1994).

New localities: 22♀♀, 8d, 9.06.1992, Jugów n. Nowa Ruda, 1♀, 2♂♂, 20.o6.1988, Kletno n. Stronie Śląskie (Dolnośląskie prov.); 6♀♀, 2♂♂, 26.07.1991, Gruszowa n. Huwniki (Podkarpackie prov.), 1♀, 5.07.1993, Kamesznica Górna (Śląskie prov.)

Hosts: *Carabus glabratus*, Paykull, 1790,.*C. gyllenhali* Fisher von Waldheim, 1827.

Distribution: Byelorussia, Poland, Ukraine (Haitlinger, 1994, Khaustov & Eidelberg, 2001, Trach, 2006).

Photia bardoica Haitlinger, 1988

Localities: Bardo Śląskie n. Kłodzko, Łagów n. Zgorzelec (Dolnośląskie prov.), Centawa n. Jemielnica (Opolskie prov.), Bieszczady (Podkarpackie prov.) (Haitlinger, 1988c)

New localities: 12♀♀, 6♂♂, 21.06.1989, Ostra Góra n. Pasterka, 24♀, 8♂♂25.05.1989, Pasterka n. Kudowa,, 2♀♀, 3♂♂, 3d, 25.05.1990, Karłów n Kudowa (Dolnośląskie prov.); 9♀♀, 5♂♂, 25.05.1988, Przyłubie n. Solec Kujawski (Kujawsko-Pomorskie prov.); 16♀♀, 9♂♂, 17d, 17.05.1990, Warszawa-Wawer, 12♀♀, 5♂♂, 17.05.1990, Józefów n. Warszawa

(Mazowieckie prov.); 2♀♀, 1♂, 23.09.1993, Krzeczów n. Działoszyn (Łódzkie prov.); 8♀♀, 5♂♂, 16d, 31.05.1991, Trzcianka n. Piła, 26♀, 18♀♂♂, 26d, 30.05.1989, Czeszów n. Miłosław; 5♀♀, 2♂♂, 4d, 21.05.1987, Kobyla Góra n. Ostrzeszów (Wielkopolskie prov.); 3♀♀, 4♂♂, 6d19.06.1987, Krzywa Góra n. Pokój (Opolskie prov.); 8♀♀, 9♂♂, 2d, 8.07.1992, Łagów (Lubuskie prov.).

Host: *Carabus nemoralis* O. F. Műller, 1764

Distribution: Austria, Poland (Haitlinger, 1988c, 1995).

Summary

Among 14 species of canestriniid mites found in Poland, the only 4 species are very common in almost whole country: *P. hejniana* (known from 14 provinces), *P. sellnicki* (12), *P. bourgonei* (10) and *C. megnini* (10). Very rare species are: *P. blaptis* known only from a single locality in Warmińsko-Mazurskie prov., *D. knobi* from Małopolskie prov., *D. huberti* from Podkarpackie prov., *P. albini* from Pomorskie prov. and Zachodniopomorskie prov. and *P. mahunkai* known from Dolnośląskie prov. and Wielkopolskie prov. All these species are associated with rare host species in Poland. *P. chrysocarabi* and *P. hermengildae* belong to frequently collected species but both these species are restricted only to south and middle parts of the country. The presence of all canestriniid mites is closely dependent of their host territory. The 13 species occurring in Poland are associated with one host. The only *C. sellnicki* is associated with two hosts: *C. coriaceus* and *C. violaceus*. *C. megnini* was collected from two hosts but *C. aurata* is accidental host. In other countries for *D. knobi*, *P. blaptis*, *P. chrysocarabi, C. negnini, C. albinii* and *P. adolfinae* also other host species were stated (Khaustov & Eidelberg 2001, Trach, 2006, Trach & Khaustov, 2011).

The list of Polish Canestriniidae is not closed. At least species belonging to the genera *Amansiella* and *Paramansia,* associated with *Chrysolina* and *Timarcha* species can be found in future.

Key to species of the genus *Photia* of the world (females)

1. Setae c1 at least twice shorter than setae d1 2
- Setae c1 somewhat shorter than d1, equal in length or longer than d1 4
2. Setae d1 about twice longer than setae c1, host: *Carabus scabrinus, C. syriacus* .... *Photia procera* (Berlese, 1911) ;
- Setae d1 at least 3 times longer than setae c1 3
3. Tops of setae d1 reach beyond posterior margin of idiosoma; hosts: *C. impressus, C. anatolicus, C. coriaceus* ..... *Photia procustidis* (Berlese, 1881)
- Tops of setae d1 not reach beyond posterior margin of idiosoma; hosts: *C. coriaceus, C. kindermani* ..... *Photia graeca* Cooreman, 1958
4. Setae c1 and d1 placed almost on the same level 5
- Setae c1 and d1 placed on different level 6
5. The distance between bases of setae c1–d1 and c1 – c1 almost equal; hosts: *C. coriaceus, C. violaceus* ..... *Photia saetolata* (Cooreman, 1959)
- The distance between bases of setae c1 – c1 distinctly greater than distance between bases of setae c1–d1; host*: C. violaceus* ..... *Photia hejniana* Samšsiňak, 1971
6. Setae c1, c2, d1, d2, e1, h1 very short; their length is subequal (somewhat longer are only d1 and d2); hosts: *C. protensus, C. komarovi, C. plasoni, C. schamyli* .... *Photia bilkorum* Samšiňák, 1971
- These setae (or some of them) distinctly longer with different length 7
7. Setae c1 and d1 short (shorter than 100 μm) 8

- Setae c1 and d1 long (longer than 100 μm) 13
8. Setae c1 < 40 μm (30–37), d1 < 45 μm (37–41); host: *C. schoenherri* ..... *Photia sibirica* Khaustov & Eidelberg, 2001
- Setae c1 > 40 μm, d1 > 46 μm 9
9. Setae c2 < 80 μm (63–75); host: *C. kolbei* ..... *Photia pacifica* Khaustov & Eidelberg, 2001
- Setae c2 > 80 μm 10
10. Bases of setae d2 placed posterior to bases of setae c1; setae h1 do not reach posterior margin of idiosoma 11
- Bases of setae d2 placed anterior to bases of setae c1; setae h1 reach posterior margin of idiosoma 12
11. Setae c2 91–116, d2 136–149; host: *C. lopatini* ..... *Photia lopatini* Khaustov & Eidelberg, 2001
- Setae c2 280–332, d2 264–296; host: *Caraabus* sp. ..... *Photia melchiori* Haitlinger, 1998
12. Setae c1 > 55 μm (58–76); ratio IL (length of idiosoma)/c1 < 9; host: *C. glabratus* ..... *Photia adolfinae* Haitlinger, 1994
- Setae c1 < 55 μm, ratio IL/c1 > 9; hosts: *Carabus* sp. .. *Photia polymorpha* Samšiňák, 1971
13. Setae c1 very long (> 200 μm), their tops reach far beyond bases of setae. d1; host*: C lusitanus* ..... *Photia lusitanica* Samšiňák, 1971
- Tops of setae c1 do not reach bases of setae d1, or somewhat exceed these bases 15
14. Length of tarsus IV lesser than 105 μm, length of posterior seta of anal region ((ad1) over 74 μm; host: *C. nemoralis* ..... *Photia bardoica* Haitlinger
- Length of tarsus IV over 105 μm, length of seta ad1 lesser than 70 μm 15
15. Setae vi over 55 μm long, distance d1 – d1 over 100 μm, distance e1 – e1 over 105 μm ; host: *C. auronitens* ..... *Photia chrysocarabi* Cooreman, 1950
- Setae vi less than 55 μm long, distance d1 – d1 less than 90 μm , distance e1 – e1 less than 105 μm; host: *C. linnaei* ..... *Photia hermengildae* Haitlinger, 1988

KEY TO SPECIES OF THE GENUS PHOTIA OF THE WORLD (MALES)

1. Adanal suckers placed side by side 2
- Adanal suckers placed not side by side 8
2. Setae d2 more than 20μm long, longer than setae s1 3
- Setae d2 less than 20μm long, subequal with c1 in length 4
3. Dorsum of idiosoma without reticular pattern, caudal capsule present, setae c1 reach the bases of setae d1 ..... *Photia lopatini* Kaustov & Eidelberg, 2001
- Dorsum of idiosoma with well developed pattern, setae c1 far not reach the bases of setae d1 ..... *Photia procustidis* (Berlese, 1881)
4. Bases of setae c1 placed almost the same level as bases of setae c2 ..... *Photia graeca* Cooreman, 1958
- Bases of setae c1 far beyond of bases of setae c2 5
5. Genital apparatus reach the anal opening ..... *Photia polymorpha* Samšiňák, 1971
- Genital apparatus do not reach anal opening 6
6. Lateral parts of dorsum with well-developed elongate reticule pattern ..... *Photia sibirica* Khaustov & Eidelberg, 2001
- Lateral part of dorsum without reticule pattern ..... *Photia pacifica* Khaustov & Eidelberg, 2991
7. Distance between adanal suckers more than1.5 diameter of adanal suckers 8
- Distance between adanal suckers distinctly lesser 9
8. Idiosoma oval without ornamentation ..... *Photia bilkorum* Samšiňák, 1971

- Idiosoma distinctly narrow in its posterior part with ornamentation .... *Photia procera* Berlese, 1911
9. Genital apparatus placed far of opening slit, do not reach its anterior margin 10
- Genital apparatus placed near anterior margin of opening slitor reach to it 11
10. Setae ps 2 about twice longer than setae ps3 ..... *Photia saetolata* (Cooreman, 1950)
- Setae ps2 and ps3 subequal in length ..... *Photia hejniana* Samšiňák 1971
11. Setae c1 and d1 more than 40 μm long ..... *Photia lusitanica* Samšiňák, 1971
- Setae c1 and d1 less than 40 μm long 12
12. TaI less than 58 μm long ..... *Photia bardoica* Haitlinger, 1988
- TaI more than 50 μm long 13
13. Genital apparatus less than 104 m long, setae c1 and d1 less than 20 μm long .... *Photia adolfinae* Haitlinger, 1994
- Genital apparatus more than 106 μm long, setae c1 and d1 more than 28 μm long 14
14. Setae vi less than 50 μm long, genital apparatus less than 130 μm long .... *Photia hermengildae* Haitlinger, 1988
- Setae vi more than 50 μm long, genital apparatus more than 130 μm long ....*Photia chrysocarabi* Cooreman,, 1950

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STRESZCZENIE

[Canestriniidae (Acari, Astigmata) Polski, z kluczem do oznaczania roztoczy z rodzaju *Photia* Oudemans, 1904]

W Polsce stwierdzono obecność 14 gatunków Canestriniidae, reprezentujących 7 rodzajów. *Photia hejniana i* P. *chrysocarabi* występują najliczniej. Tylko *P. hejniana* została znaleziona prawie w całej Polsce. *Percanestrinia blaptis*, *Dicanestrinia knobi*, *D. huberti*, *Coleopterophagus albini* i *Pseudocanestrinia mahunkai* są w Polsce bardzo rzadkie. Wszystkie te gatunki są związane z rzadkimi gatunkami żywicielskimi. Opracowano klucze dla samców i samic do oznaczania wszystkich gatunków z. rodzaju *Photia*.

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