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First record of *Coleopterophagus albini* Haitlinger (Acari: Astigmata: Canestriniidae) from Estonia and Norway

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The genus *Coleopterophagus* contains nine species: *C. megnini* (Berlese) known from Czech Republic, Croatia, England, Holland, Hungary, Italy, Poland, Serbia (Syrmia), Turkey and Ukraine, *C. albini* Haitlinger from Austria, Czech Republic, Germany, Poland, Romania and Ukraine, *C. baali* Haitlinger from Iran, *C. belzebubi* Haitlinger from China, Japan and Taiwan, *C. dionizyi* Haitlinger from Syria, *C. donaldi* Haitlinger from Italy and Ukraine, *C. maroni* Haitlinger from Romania, Syria and Ukraine and *C. rudolfi* Haitlinger from China. All these species are associated only with hosts belonging to the *Protaetia* Burmeister (Coleoptera, Scarabaeidae, Cetoniinae) (Berlese 1882, Cooreman 1954, Haitlinger 1988, 1990, 2002, 2012, Khaustov and Eidelberg 2001, Trach 2006, Trach and Khaustov 2011). Now, *C. albini* is found for the first time in Estonia and Norway. In Europe, only *C. megnini* and *C. albini* were noted in middle Europe in Germany and Poland. Localities of *C. albini* in Estonia and Norway placed farthest on north of Europe for species of the genus *Coleopterophagus* and in general for canestriniid mites.

Flower beetles were collected during 8 July 1998 in Norway and 10 July 2009 in Estonia. Mites collected from *Protartia (Potosia) metallica* were mounted on microscopic slides in Berlese's medium. Mites are studied using microscope NIKON Eclipse 50i. The terminology of idiosomal and leg chaetotaxy follow Grandjean (1939), Griffiths *et al*. (1990) and Norton (1998). Measurements are given in micrometers (μm).

Family Canestriniidae Berlese, 1884

Coleopterophagus albini Haitlinger, 1990

Material examined

Estonia, Kurtna, 10 July 2009, 1♀, 2♂♂; Norway, Sandsmark n. Heskestad, 8 July 1998, 3♀♀, 3♂♂, all obtained from *Protaetia (Protaetia) metallica* (Herbst, 1782); leg. R. Haitlinger.

Distribution: Austria, Czech Republic**,** Estonia**,** Germany, Norway, Poland**,** Romania, Ukraine.

Distribution of *C. albinii* is probably restricted to middle and north Europe. All specimens collected in Austria, Czech Republic, Germany, Poland and Romania were obtained only from *Protaetia (Cetonischema) aeruginosa* (Drury, 1770) (Haitlinger 1990). Later this species was found on *P. (Liocola) marmorata* (Fabricius, 1792) (Trach and Khaustov 2011).

Specimens from Estonia and Norway were obtained from *P. (P.) metallica.* So, this species has several hosts. However, *P. (P.) metallica* is widespread in Europe and *C. albini* never was collected on this species.

Specimens (♀♀, ♂♂) from Estonia and Norway are smaller than specimens from middle Europe and their some idiosomal and leg setae are shorter (si, c1, c2, d1, d2, e2, cp) (Tables 1, 2).

Table 1. Metric data for *Coleopterophagus alini* Haitlinger, 1990, females; H- holotype; 1. Austria, Poland, Romania; 2. Ukraine; 3. Estonia; 4. Norway.

Character	H	1 (n = 11)	2 (n = 3)	3	4 (n = 3)	Range
IL	408	368–480	344–419	308	355–371	308–480
IW	280	264–344	260–326	213	276–278	213–344
vi	36	40–52	34–38	46	26–37	26–52
se	136	124–168	122–139	142	123–129	122–168
si	40	30–42	27–34	30	26–32	26–42
c1	62	52–72	53–59	61	46–58	46–72
c2	70	60–80	57–69	64	54–71	54–80
d1	66	56–76	53–61	61	49–61	49–76
d2	72	66–82	57–65	66	51–61	51–82
e1	52	44–60	38–48	48	38–44	38–60
e2	36	34–44	34–40	37	29–32	29–44
h1	205	193–208	210–252	269	226–231	193–269
h2	177	161–177	189–231	-	198–204	161–231
1a	29	26–28	34–44	43	30–35	26–44
c3	36	40–60	32–46	-	43–44	32–60
cp	124	114–136	122–128	100	105–136	100–136
3a	-	21–32	34–46	-	27–31	21–46
4a	-	22–29	34–42	29	30–42	22–42
p1	26	27–29	46–65	34	23–30	23–65
p2	27	19–26	27–38	21	13–25	13–38
p3	-	-	25–38	25	18–20	18–38
ad1	-	-	21–34	21	14–18	14–34
ad21	-	-	21–29	20	16	16–29
h3	-	64–66	80–107	91	66–80	64–107
4b	-	20	29–38	-	21–23	20 –38
f2	30	27–35	21–29	-	27–31	21–35
g	-	-	23–27	24	15–20	15–27
Ta I	44	46–52	-	47	46–48	44–52
Ta II	46	48–52	-	50	42–50	42–52
Ta III	62	64–72	-	70	59–63	59–72
Ta IV	62	66–74	-	71	60–70	60–74
Leg I	154	-	139–162	148	160–161	139–162
Leg II	150	-	143–169	160	157–166	143–169
Leg III	164	-	166–193	186	173–194	164–194
Leg IV	160	-	160–181	173	176–190	160–190
ωI¹	21	24–30	25–29	23	14–21	14–30
ωI³	42	29–39	36–40	36	30–39	29–42
φ1	71	69–94	80–86	91	66–75	66–94
σ1	45	37–54	40–57	41	37–43	37–57
cgI	23	22–29	-	22	20–22	20–29
mgI	24	29–36	-	39	27–38	24–39
dI	47	44–50	-	57	48–67	47–67
ω2	25	24–29	27–32	24	18–25	18–32
φ2	80	78–91	76–101	97	64–82	64–101
σ2	27	27–29	25–34	26	20–23	20–34
cgII	12	18–19	-	18	12–14	12–19

Table 1. Continued.

Character	H	1 (n = 11)	2 (n = 3)	3	4 (n = 3)	Range
mgII	35	32–38		34	29–41	29–41
dII	41	41–47		72	44–56	41–72
φ3	59	57–63	53–63	54	49–59	49–63
mgIII	46	41–52		52	40–46	40–52
dIII	75	57–64		69	75–88	57–88
φ4	36	30–41	34–40	41	28–31	28–41
dIV	68	59–69		71	73–96	59–96
c1–c1	57	50–62		-	42–52	42–62
d1–d1	64	84–96		71	72–79	64–96
e1–e1	29	30–32		29	28–34	28–34
e2=e2	78	76–88		67	70–81	67–91

Table 2. Metric data for *Coleopterophagus albini* Haitlinger, 1990, males. 1. Austria, Poland, Romania; 2. Ukraine; 3. Estonia; 4. Norway.

Character	1 (n = 5)	2 (n = 4)	3 (n = 2)	4 (n = 3)	Range
IL	360–408	344–372	261–269	347–350	261–408
IW	240–304	251–298	168–176	219–265	168–304
vi	38–40	29–36	28–31	29–30	28–40
se	126–132	111–137	118–126	123–134	111–137
si	24–32	23–27	14–18	17–22	14–32
c1	30–36	25–34	18	21–24	18–36
c2	36–40	32–46	24	23–33	23–46
d1	30–36	27–38	26	25–30	25–38
d2	36–42	32–42	26	25–33	25–42
e1	24–32	23–32	22–27	22–25	22–32
e2	26–30	21–27	22	15–22	15–30
h1	-	189–231	205–207	183–206	183–231
h2	-	179–221	163–176	157–188	157–221
1a	-	32–40	24	20–36	20–40
c3	34–44	34–44	27–38	21–36	21–44
cp	114–130	101–130	96–101	104–106	96–130
3a	-	36–44	23–25	23–32	23–44
4a	-	36–44	28	25–34	25–44
p1	-	38–55	16	14–28	14–55
p2	-	25–38	19	15–30	15–38
p3	-	25–34	14–21	16–23	14–34
h3	-	74–90	58	64–77	58–90
4b	-	27–38	-	18–23	18–38
f2	-	17–25	-	16–22	16–25
g	-	19–25	15–21	16–23	15–25
Ta I	44–50	-	43–46	48–50	43–50
Ta II	44–50	-	44	47–52	44–52
Ta III	60	-	55–60	62–63	55–63
Ta IV	60–64	-	54–62	62–73	54–73
Leg I	-	126–158	124–129	146–158	124–158
Leg II	-	128–151	125–138	146–160	125–160
Leg III	-	147–179	149–151	153–169	147–179
Leg IV	-	153–179	135–152	156–165	135–179
ω^1	-	19–25	18–19	16–22	16–25
ω^3	-	25–36	28–35	31–33	25–36
φ1	-	63–82	58–60	64–75	58–82
σ1	-	38–46	28–32	36–41	28–46
cgI	-	-	17–18	18–22	17–22
mgI	-	-	23–26	36	23–36
dI	-	-	51	43–64	43–64

Table 2. Continued.

Character	1 (n = 5)	2 (n = 4)	3 (n = 2)	4 (n = 3)	Range
ω2	-	25–32	44–46	-	25–46
φ2	-	63–84	66–67	62–70	62–84
σ2	-	25–27	18–23	20–22	18–27
cgII	-	-	19	18–24	18–24
mgII	-	-	25–29	21–34	21–034
dII	-	-	49–56	47–63	47–63
φIII	-	46–57	44–52	43–66	43–66
mgIII	-	-	33–42	28–35	28–42
dIII	-	-	57–59	70–84	57–84
φ4	-	32–38	29–33	28–33	28–38
dIV	-	-	58–78	60–76	58–78
c1-c1	-	-	24	37–43	24–43
d1-d1	-	-	-	64–68	64–68
e1-e1	-	-	29	43–54	29–54
e2-e2	-	-	94	95–98	94–98

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