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**REDESCRIPTION AND NEW MORPHOLOGICAL DATA ON
Charletonia bucephalia LARVA (ACARI: ERYTHRAEIDAE) FROM
SPECIMENS COLLECTED IN MONTENEGRO**

SUMMARY

Redescription and new morphological data on larva of *Charletonia bucephalia* Beron, 1975 is given. New metric data for *Charletonia bucephalia*, ectoparasitic larva on *Euchorthippus declivus* (Brisout, 1848) (Orthoptera: Acrididae) from Paštrovska Gora, Montenegro, are provided.

Keywords: *Charletonia bucephalia*, *Euchorthippus declivus*, larva, redescription, morphological data.

INTRODUCTION

Charletonia bucephalia was described by Beron (1975) based on the larvae collected from Orthoptera: Tettigoniidae in Primorsko, Burgas, Bulgaria. During the period 2010-2012 a survey was carried out to collect and identify terrestrial Parasitengona mites associated with short-honed grasshoppers *Euchorthippus declivus* (Acrididae) in Paštrovska Gora, south Montenegro by senior author. After this study it was found that the specimens of species *Charletonia bucephalia* from Bulgaria and Montenegro conspecific. This species was known from Bulgaria, Croatia, Greece (Haitlinger, 1984, 2000, 2004, Beron, 1975, Southcott, 1991). Figures of this species given by Beron (1975) are incomplete and dimensions were based on not many specimens. Therefore, in this paper new figures and measurements are given for *Charletonia bucephalia* (Table 1).

MATERIAL AND METHODS

The larvae of mites were collected in Montenegro from Orthoptera, during the period 2010-2012. Samples of grasshoppers were taken twice in every week of July (2010-2012). The specimens were collected by a sweep net on grasses and preserved in 70% ethanol. They were examined in laboratory for mites associated with them. Mite specimens were detached under the wings and on the thorax of Orthoptera by an insect pin, cleared in Nessbitt's solution and mounted in Faure medium (Walter & Krantz, 2009). All measurements are given in micrometers (μm) and calculated using a Carl Zeiss Axioscope A1 microscope. The terminology and abbreviations follow Robaux (1974) and Saboori *et al.* (2009).

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RESULTS AND DISCUSSION

Description (based on manuscript of *Charletonia bucephalia* Beron, 1975, Acta zool. bulgarica, with additional data from Montenegro specimens) - LARVA - Dorsal surface with 35- 36 (fD) barbed and pointed setae, arranged 2-6-6-6-4-4-2(Fig.2); Dorsal setae in enlarge platelates, about 5,5. One eye on each side of idiosoma and 21 μm in diameter. Dorsal scutum punctate, pentagonal, somewhat longer than wide, with three pairs of scutalae. AL, ML and PL barbed and pointed, PL slightly shorter than ML and AL. Two pairs of sensillae, ASens and PSens barbed in distal 1/3, AM<S (Fig. 3). Anterior margin of scutum slightly convex, posterior margin rounded, and near S bases is slightly concave. Two setae placed between scutum and eyes.

Idiosoma ventrally with 2 barbed setae *1a* (between coxae I), and 2 barbed setae *2a* (between coxae II) which are not distinctly longer than setae *1a*. Between coxae II-III two slightly barbed setae *3a* and 14-15 slightly barbed setae (fV) posterior to coxae III(Fig.1). Coxal fields punctate.

Gnathosoma with hypostomalae aHy, pHy and galaelae, both nude. Galeala not longer than posterior hypostomalae. Cheliceral bases and subcapitulum punctate. Palpal femur and genu each with one slightly barbed seta. Palptibia with three setae (two barbed, one nude). Palpal tibial claw bifurcate. Palptarsus with 7 setae, 1 very long seta and 6 distinctly shorter setae, (with eupathidium and solenidion). One seta barbed, others nude (Fig.11,12).

Leg segmentation formula: 7-7-7. Leg setal formula:

Leg I: Ta 1 ω , 2 ζ , 1Cp, 27N; Ti 1 κ , 2 ϕ , 18N; Ge 1 κ , 1 Φ , 12N; Tf 5N; Bf 4N; Tr 1N; Cx 1N (Fig. 5,8).

Leg II: Ta 1 ω , 1 ζ , 29N; Ti 2 ϕ , 18N; Ge 1 κ , 12N; Tf 5N; Bf 4N; Tr 1N; Cx 2N (Fig. 6,9).

Leg III: Ta 1 ζ , 30N; Ti 1 ϕ , 18N; Ge 12N; Tf 5N; Bf 2N; Tr 1N; Cx 2N (Fig. 7,10).

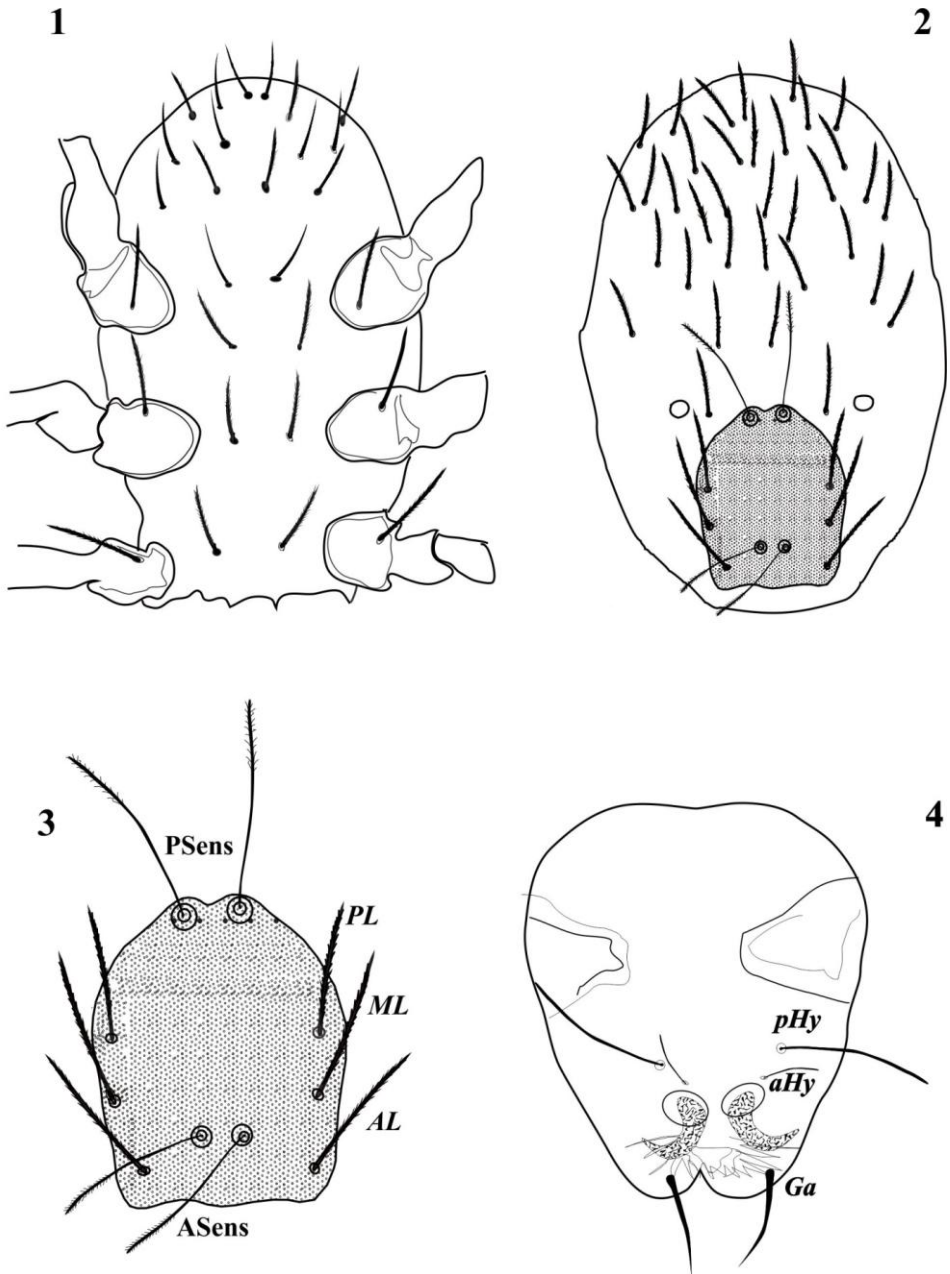
Dorsal and ventral surface of legs punctate.

Leg lengths: leg I 619-658, leg II 596-609, leg III 704-748. Ip = 1932-2013.

Table 1: Metric data of *Charletonia bucephalia* (Beron, 1975) larvae collected from Montenegro.

Character	1a	2a	3a	4a	5a	Range
IL	301	464	1265	459	760	301-1265
IW	204	241	880	554	670	204-880
AW	58	59	60	58	61	58-61
MW	64	63	64	62	64	62-64
PW	71	71	74	72	74	71-74

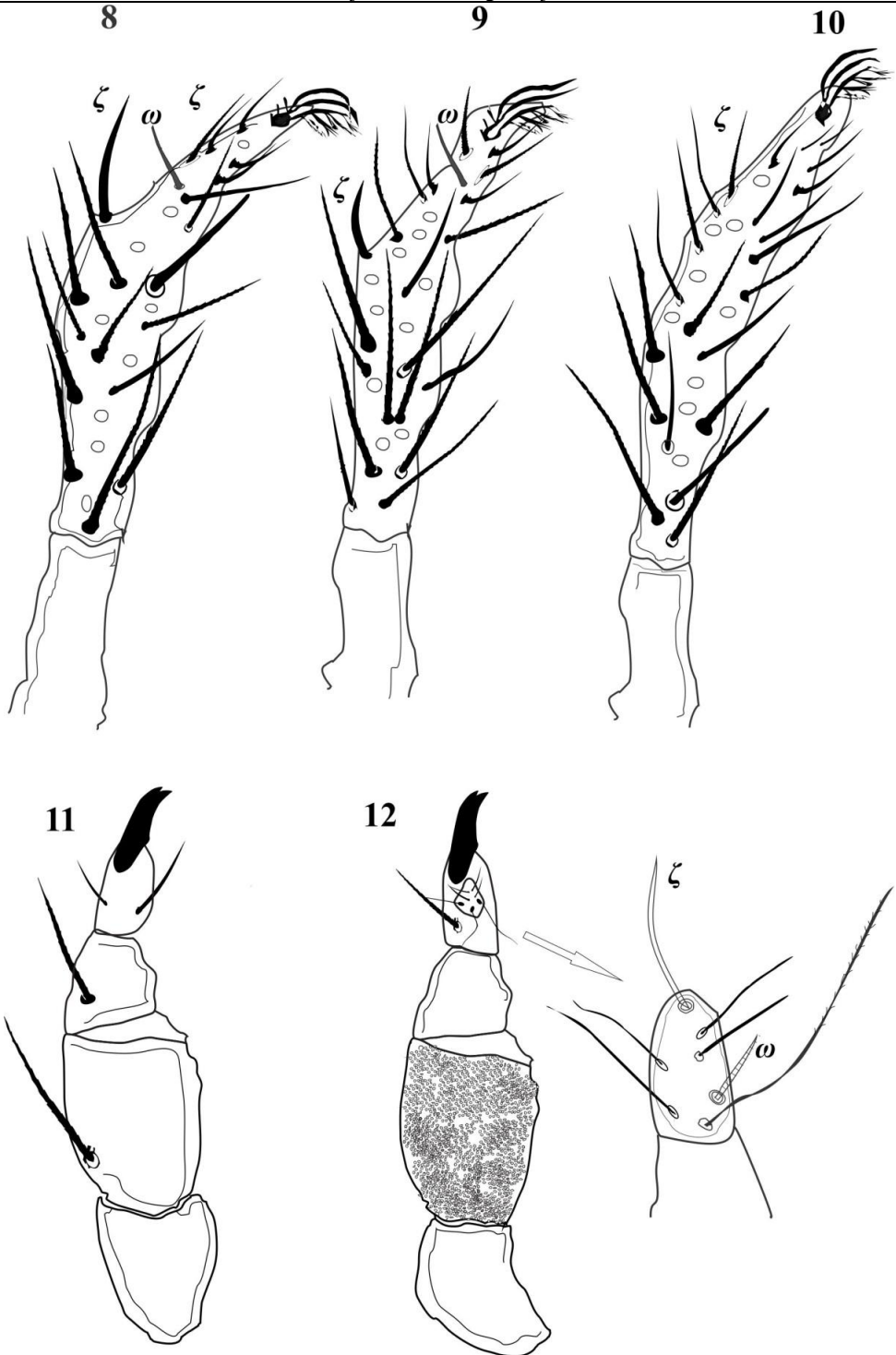
AA	13	12	13	11	12	11-13
SB	15	13	15	13	14	13-15
AP	41	39	43	39	43	39-43
AL	43	44	41	41	40	40-45
ML	42	42	38	39	40	38-42
PL	40	43	39	38	41	38-43
S	71	69	66	67	69	66-71
L	90	94	96	93	95	90-96
W	82	86	88	81	85	81-88
ISD	63	64	65	63	63	63-65
GL	128	130	131	127	130	127-131
DS	40	38	34	34	37	34-40
<i>1a</i>	49	50	44	45	47	44-50
<i>1b</i>	70	64	67	70	66	64-70
<i>2a</i>	42	45	50	44	46	42-50
<i>2b</i>	58	56	56	55	58	55-58
<i>3a</i>	35	31	35	33	34	31-35
<i>3b</i>	47	46	46	45	47	45-47
PaScFed	55	47	53	48	50	47-55
PaScGed	39	32	31	33	36	31-39
Hy	50	40	42	44	47	40-50
Ta I (L)	140	136	147	137	141	136-147
Ta I (H)	21	22	19	19	21	19-22
Ti I	143	144	146	145	143	143-146
Ge I	104	109	114	105	107	104-114
Tf I	72	79	75	73	76	72-79
Bf I	77	75	72	73	77	72-77
Tr I	38	43	46	39	45	38-46
Cx I	50	46	58	47	55	46-58
Leg I	624	632	658	619	644	619-658
Ta II (L)	135	134	131	133	130	130-135
Ta II (H)	19	23	19	19	22	19-23
Ti II	127	131	132	128	130	127-132
Ge II	92	96	94	93	96	92-96
Tf II	66	58	66	60	65	58-66
Bf II	85	79	75	80	82	75-85
Tr II	39	38	45	40	42	38-45
Cx II	63	63	64	62	64	62-64
Leg II	607	599	607	596	609	596-609
Ta III (L)	144	140	152	145	141	140-152
TaIII (H)	23	20	16	21	22	16-23
Ti III	180	183	190	182	180	180-190
Ge III	105	112	106	106	110	105-112
Tf III	85	84	89	85	90	84-90
Bf III	77	80	86	78	80	77-86
Tr III	50	56	50	55	50	50-56
Cx III	63	62	75	66	70	62-75
Leg III	704	717	748	717	721	704-748
IP	1935	1948	2013	1932	1974	1932-2013



FIGURES 1–4. *Charletonia bucephalia* (Beron, 1975) (Larva). 1, ventral view of idiosoma; 2, dorsal view of idiosoma; 3, scutum; 4, subcapitulum.



FIGURES 5–7. *Charletonia bucephalia* (Beron, 1975) (Larva). 5, coxa-tibia I; 6, coxa-tibia II; 7, coxa-tibia III;



FIGURES 8–12. *Charletonia bucephalia* (Beron, 1975) (Larva). 8, tarsus I; 9, tarsus II; 10, tarsus III; 11, palp dorsal view; 12, palp ventral view.

CONCLUSIONS

Charletonia bucephalia is redescribed here and corrected characters are as follow (in the original manuscript this part of description is not given): One eye on each side of idiosoma and 21 µm in diameter; TaI 1□, 2□, 26B; TaII 1□, 1□, 27B; TaIII 1□, 27B. Gnathosoma with hypostomalae aHy, pHy and galaetae, both nude; Ga < pHy. Palptarsus with 6 setae, 1 very long seta and 5 distinctly shorter setae, (with eupathidium and solenidium), all nude. Corrected characters: TiI 1□, 2□, 18B; TiII 2□, 18B; posterior to coxae III 16 slightly barbed setae (fV).

This species belongs to the species group of *Charletonia* with two setae between coxae II-III. This group includes 16 species: *C. berlesiana* Paoli, 1937 from Italy; *C. bucephalia* Beron, 1975 from Bulgaria, Greece and Croatia; *C. edytae* Haitlinger, 1987 from Madagascar; *C. blascoi* Southcott, 1993 from Spain; *C. saboori* Iravanlou, Kamali and Talebi, 2002, *C. nazaleae* Iravanlou, Kamali and Talebi, 2002; *C. damavandica* Iravanlou, Kamali and Talebi, 2002, *C. behbahanensis* Haitlinger and Saboori, 2008 and *C. talebii*, Ali Sedghi et al. 2010 all from Iran; *C. dalegori* Haitlinger, 2003 from Greece (Rhodes) and Croatia; *C. glifadaensis* Haitlinger, 2003; *C. kaliksti* Haitlinger, 2003; *C. kalithensis* Haitlinger, 2006; *C. samosensis* Haitlinger, 2006 all from Greece (Rhodes, Samos); *C. austensis* Haitlinger, 2007 and *C. cuglierensis* Haitlinger, 2007 both from Sardinia.

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**REDESKRIPCIJA I NOVI MORFOLOŠKI PODACI O LARVAMA
Charletonia bucephalia (ACARI: ERYTHRAEIDAE) JEDINKI
SAKUPLJENIH U CRNOJ GORI**

SAŽETAK

Rad se odnosi na redeskripciju i nove morfološke podatke larvi vrste *Charletonia bucephalia* Beron, 1975. U radu su prezentovane i metričke mjere vezane za larve vrste *Charletonia bucephalia*, koje su sakupljene kao ektoparaziti na *Euchorthippus declivus* (Brisout, 1848) (Ortoptera: Arcididae) sa Paštrovske Gore u Crnoj Gori.

Ključne riječi: *Charletonia bucephalia*, *Euchorthippus declivus*, larva, redeskripcija, morfološki podaci.