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Paracanestrinia denmarkica nov.gen., nov.sp. (Astigmata: Canestriniidae) from Denmark

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A b s t r a c t : *Paracanestrinia denmarkica* nov.gen., nov.sp. collected inDenmark from undetermined *Carabus* sp. is described and illustrated.

K e y w o r d s : Canestriniidae, new genus, new species, Denmark.

Introduction

In Europe were known 17 genera of canestriniid mites: *Amansiella* KHAUSTOV & EIDELBERG 2001, *Camirohylla* HAITLINGER 1991, *Canestrinia* BERLESE 1881, *Coleopterophagus* BERLESE 1882, *Dicanestrinia* BERLESE 1911, *Lombardiniella* COOREMAN 1950, *Mesophotia* SAMŠIŇAK 1971, *Neophotia* SAMŠIŇAK 1971, *Paramansia* COOREMAN 1950**,** *Paraphotia* KHAUSTOV & EIDELBERG 2001**,** *Percanestrinia* BERLESE 1911, *Percanestriniell*a KHAUSTOV & EIDELBERG 2001, *Photia* OUDEMANS 1904**,** *Procericola* COOREMAN 1950**,** *Pseudoamansia* COOREMAN 1950, *Pseudocanestrinia* KHAUSTOV & EIDELBERG 2001 and *Ibizella* HAITLINGER & ŠUNDIĆ 2016 (BERLESE 1881, 1882, 1911; OUDEMANS 1904; COOREMAN 1950; SAMŠIŇAK 1971; HAITLINGER 1991, 2001; KHAUSTOV & EIDELBERG 2001; HAITLINGER & ŠUNDIĆ 2016)**.** In *Camirohylla* and *Lombardiniella* females are unknown. In this paper we describe *Paracanestrinia denmarkica* nov.gen., nov.sp. from Denmark.

Material and methods

Two specimens (females) were collected by R. Haitlinger from undetermined *Carabus* sp. and preserved in 70% ethanol and later mounted on microscopic slide using Berlese medium. Measurements (given in micrometers) were made using microscope NIKON Eclipse 80i. Figures were drawn using Carl Zeiss Axioskop A1 microscope. The terminology and abbreviations follow GRANDJEAN (1939), GRIFFITHS et al. (1990), NORTON (1998) and TRACH & KHAUSTOV (2011). Additional abbreviations: GL – length of idiosoma, IW – width of idiosoma, GL – length of gnathosoma, GW – width of gnathosoma.

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Family Canestriniidae BERLESE 1884

***Paracanestrinia* nov.gen.**

D i a g n o s i s : female: dorsum reticulated with 6 pairs of short setae (c_1, c_2,d_1,d_2, e_1, e_2), setae d_2 the longest, distance c_1-c_1 greater than d_1-d_1, d_1-d_1 > e_1-e_1 and e_2-e_2, setae f_2 placed in ventral side of idiosoma at its lateral margins. Bursa copulatrix positioned posteroventrally. Propodosomal plate and setae ve absent. Sejugal suture absent.

R e m a r k s : The new genus belongs to genera group without propodosomal plate. The only genera *Camirohylla* and *Canestrinia* are without this plate but *Camirohylla* was described based on males only. It differs from *Canestrinia* in 6 pairs of short dorsal setae on hysterosoma vs. 7 pairs of short setae, sejugal suture absent vs. sejugal suture present, setae ve absent vs. setae ve present, distance c_1-c_1 greater than distance d_1-d_1 vs. distance c_1-c_1 shorter than distance d_1-d_1, h_2 and h_3 placed on ventral side of idiosoma vs. setae h_2 and $h_3$placed on or near posterior margin of idiosoma and 8 pairs of short setae beyond genital region vs. 6 pairs of short setae beyond genital region. From genera having propodosomal plate it differs from *Dicanestrinia* in sejugal suture absent vs. sejugal suture present, setae ve absent vs. setae ve present, tarsi IV short (<70) vs. tarsi IV long (>80), 6 pairs of hysterosomal setae (excluding setae h_1 and h_2) vs. 8 pairs of setae; from *Percanestrinia* in idiosoma ornamented vs. idiosoma mot ornamented or only incompletely ornamented, posterior part of opisthosoma narrow vs. posterior part of opisthosoma wide, posterior margin of opisthosoma rounded vs. posterior margin of opisthosoma almost straight or in middle part concave, tarsi I-II short (<40) vs. tarsi I-II longer (> 60), sejugal suture absent vs. sejugal suture present; from *Photia* in setae ve absent vs. setae ve present, sejugal suture absent vs. sejugal suture present, sickle-shaped structure absent vs. sickle shaped structure present, distance c_1-c_1 distinctly greater than distance d_1-d_1 vs. distance c_1-c_1 subequal with distance d_1-d_1; from *Pseudocanestrinia* in absence of setae ve, c_1 and d_1 similar long vs. c_1 distinctly shorter than d_1, if have similar length then both setae are very short, distance c_1-c_1 distinctly greater than distance d_1-d_1 vs. distance c_1-c_1 and d_1-d_1 similar, sejugal suture absent vs. sejugal suture present; from *Pseudocanestriniella* in dorsal surface reticulated vs. dorsal surface not reticulated, propodosomal plate absent vs. propodosomal plate present (weakly developed, small), setae c, d, e relatively long vs. setae c, d, e very short, thin, distance c_1-c_1 distinctly greater than distance d_1-d_1 vs. distance c_1-c_1 and d_1-d_1 almost equal, sejugal suture absent vs. sejugal suture present; from *Coleopterophagus* in sejugal suture absent vs. sejugal suture present, distance c_1-c_1 distinctly greater than distance d_1-d_1 vs. distance c_1-c_1 and d_1-d_1 almost equal, posterior margin of idiosoma narrow vs. posterior margin of idiosoma wide and very long setae h_1 (>320) and h_2 (>350) vs. setae h_1 and h_2 distinctly shorter (<260 and <230 respectively); from *Mesophotia* in setae ve absent vs. setae ve present, sejugal suture absent vs. sejugal suture present and setae h1 placed on ventral side of idiosoma vs. setae h_1 placed on dorsal side of idiosoma; from *Neophotia* in setae ve absent vs. setae ve present, sejugal suture absent vs. sejugal suture present; from *Paramansia* in posterior part of idiosoma narrow vs. posterior part of idiosoma wide, idiosomal dorsum reticulated vs. idiosomal dorsum not reticulated, setae ve absent vs. setae ve present; from *Paraphotia* in dorsal surface of idiosoma reticulated vs. dorsal surface of idiosoma not reticulated, setae ve absent vs. setae ve present, 2 adanal setae vs. 3 adanal setae and setae h_1 placed on ventral side of idiosoma vs. setae h_1 placed on

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dorsal side of idiosoma; from *Percanestriniella* in idiosoma reticulated vs. idiosoma not reticulated, 5 setae on tarsus IV vs. 6 setae on tarsus IV, setae ve absent vs. setae ve present and sjugal setae absent vs, sejugal setae present; from *Amansiella* in sejugal suture absent vs. sejugal present, but developed only medially and setae ve absent vs. setae ve present; from *Procericola* in setae ve absent vs. setae ve present, sejugal setae absent vs. sejugal setae present and dorsal idiosoma reticulated vs. dorsal idiosoma not reticulated; from *Pseudoamansia* in sejugal suture absent vs. sejugal suture present, setae ve absent vs. setae ve present, setae d_1 placed far from base of setae e_1 vs. setae d_1 extended far beyond base of setae e_1, idiosoma reticulated vs. idiosoma with spine-like structures and beyond genital region 8 pairs of short setae vs. 6 pairs of short setae and from *Ibizella* in posterior margin of idiosoma narrow vs. posterior margin of idiosoma wide, idiosoma reticulated vs. idiosoma not reticulated and setae e_1 placed far from setae e_2 vs. setae e_1 and e_2 placed almost same level.

T y p e s p e c i e s : *Paracanestrinia denmarkica* nov. sp.

E t y m o l o g y : Named after the similar genus *Canestrinia* and is added word para**.**

***Paracanestrinia denmarkica* nov.sp.**

M a t e r i a l e x a m i n e d : 2♀♀ Locus typicus: Denmark, 11 km north of Hvidbjerg, 6 July 2007, from undetermined *Carabus* sp., coll. R. Haitlinger, Holotype and paratype are deposited at the Museum of Natural History, Wrocław University, Poland.

D i a g n o s i s : as for the genus**.**

D e s c r i p t i o n (♀): Idiosma pear-shaped**.** Gnathosoma relatively narrow (50 holotype, 47 paratype). Dorsal surface of idiosoma reticulated as on Fig 1. Setae c_1, c_2. d_1, d_2, e_1 and e2 short; setae d_2 are the longest (Table 1). Setae c_2 not reach the bases of setae d_2. The distance c_1-c_1 is longer than distance d_1-d_1, e_1-e_1 and e_2-e_2. Setae h_1 and h_2 very long whip-like, placed at posterior margin of idiosoma.. Posterior part of idiosoma narrow.

Ventral surface with thin setae, h3 and ad2 are the longest (Table 1). Setae f_2 placed at lateral margins, widely arranged (f2-f2 155-166). Apodemes I joint medially to form Y-shaped structure. Gnathosoma only partially covered by propodosoma. Bursa copulatrix positioned posteroventrally (Figs 2, 3).

Legs. Tarsus IV is the longest. Tarsus III > tarsi I, II. Ta I: ω1, ω2, ω3, ε, d, wa, e, p, q, Ti I φ, Ge I σ, mG, cG, Fe I vF, Tr I vTr (Fig. 4); Ta II ω, d, wa, e, la, ra, Ti II φ, Ge II σ, mG, cG, Fe II vF, Tr II vTr (Fig. 5); Ta III w, d, e, Ti III φ, Ge III nG, Tr III vTr (Fig. 6); Ta IV w, d, e, Ti IV φ, Tr IV vTr (Fig. 7). Measurements are given in Table 1.

E t y m o l o g y : Named after the country where holotype was collected.

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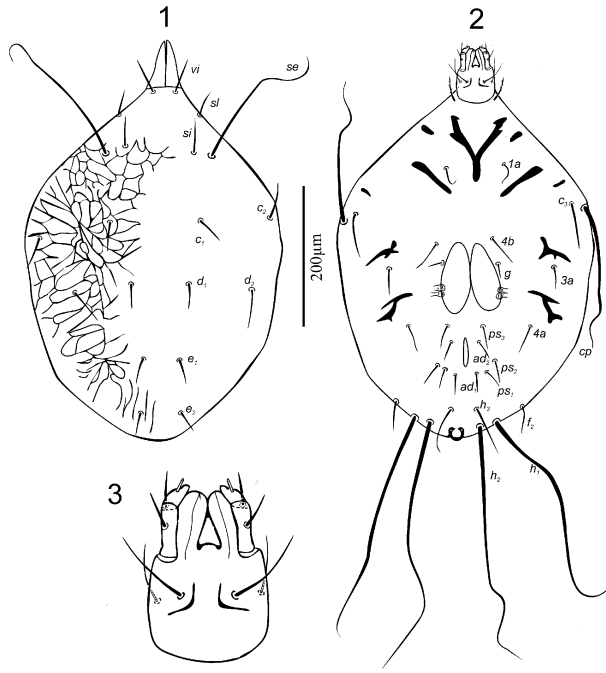
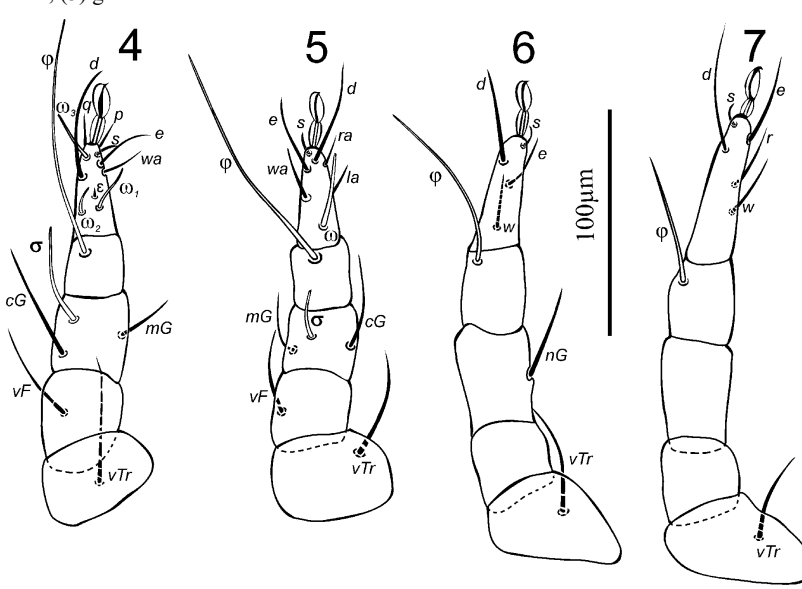


Figs 1-3. *Paracanestrinia denmarkica* nov sp. (♀) (**1**) dorsal view, idiosoma; (**2**) ventral view, idiosoma; (**3**) gnathosoma.



Figs 4-7. *Paracanestrinia denmarkica* nov.sp. (♀) (**4**) leg I; (**5**) leg II; (**6**) leg III; (**7**) leg IV.

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Table 1. Metric data (in µm) for females *Paracanestrinia denmarkica* nov.gen., nov.sp.

Character	H	P	Character	H	P	Character	H	P
IL	513	505	Ta I ω3	27	30	Ti III φ	84	74
IW	384	369	Ta I d	58	59	Ge III nG	43	46
c1	51	44	Ta I wa	15	16	Tr III vTr	43	38
c2	57	53	Ta I e	25	22	Ta IV d	49	48
c3	52	54	Ta I p	9	11	Ta IV e	36	38
d1	-	44	Ta I q	10	7	Ta IV w	23	30
d2	65	59	Ta I ε	5	4	Ta IV r		6
e1	44	42	Ti I φ	104	90	Ti IV φ	59	43
e2	35	35	Ge I σ	47	39	Tr IV vTr	38	38
f2	24	29	Ge I cG	34	46	*1a*	21	25
h1	367	391	Ge I mG	55	30	*3a*	16	21
h2	395	-	Fe I vF	40	42	*4a*		27
h3	40	46	Tr I vTr	61	45	*4b*	34	
ps1	22	20	Ta II ω	31	32	se	243	293
ps2	19	16	Ta II d	45	49	si	56	57
ps3	19	21	Ta II wa	17	18	vi	69	67
ad1	24	28	Ta II e	29	32	sl	42	
ad2	21	22	Ta II la	18	16	Cp	214	187
g	14	13	Ta II ra	21	28	Ta I	37	37
c1-c1	123	154	Ti II φ	118	90	Ta II	34	38
d1-d1	77	80	Ge II σ	20	21	Ta III	44	47
e1-e1	61	62	Ge II cG	47	44	Ta IV	60	60
e2-2e2	62	68	Ge II mG	26	29	Leg I	160	169
f2-f2	155	166	Fe II vF	43	54	Leg II	160	172
GL	115	96	Tr II vTr	48	46	Leg III	181	186
GW	50	52	Ta III w	25	28	Leg IV	205	207
Ta I ω1	22	30	Ta III d	35	46			
Ta I ω2	8	8	Ta III e	23	35			

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