

Landesmus. Joanneum Mitt. Abt. Zool.	Jg. 4 H. 1	S. 11—19	Graz 1975
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Aus dem Hygiene-Institut der Universität Graz

(Vorstand: Univ.-Prof. Dr. J. R. Möse)

Contribution to the Morphology of *Dermacentor reticulatus* and *D. marginatus* larvae (Arach., Acari, Ixodidae)

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With 18 figures and 1 table

Received June 26th 1975

1. Introduction

The distinguishing criteria between *Dermacentor reticulatus* and *D. marginatus* larvae are well known (CERNY 1957, ARTHUR 1960, FEIDER 1965). The exact comparative morphology of *Dermacentor* larvae by use of scanning electron microscopy was until now not carried out. The fine tegumental structures permit to observe some evolutive adaptations for a better understanding of physiology, mode of life and behaviour of larvae.

2. Material and Methods

Dermacentor reticulatus and *D. marginatus* larvae from laboratory bred were used. The ticks were fixed with Loitsilber 200 at the scanning plate. For coating the specimens Gold was used by the „sputtering method“.

3. Comparative Morphology

Dermacentor reticulatus larva: Length of body 0,7 mm (Figs. 1, 2). Scutum is broader than long with one eye on each side. The cervical grooves are well defined reaching nearly to the middle of scutum. Anterior setae 1+1 are situated near the cervical grooves laterally, median setae 1+1 occur on the margin of scutum near the eyes, and 1+1 postero-median setae (Figs. 1, 11). Alloscutum has the following chaetotaxial pattern: 3+3 lateral setae, 2+2 anterior setae 2+2 posterior setae and 10 festonal setae (Fig. 1).

Palpi are relatively short furnished with serrated setae (Figs. 3, 4, 6). Ventrally, a slightly developed palpal spur is present (Figs. 5, 6, 7).

Palpal segment IV provided with apical sensillae 8 in number (Fig. 6). Dermal sensilla lacking on dorsal surface (Figs. 3, 4). Hypostome is spatulate, corona slightly incised, hypostomal denticles on the basis of hypostome with rounded apex (Figs. 7, 8). The smooth posthypostomal hairs, 2 in number, may be considered as sensillae (Fig. 8).

Cheliceral lamellae with lateral teeth (Figs. 5, 7 and Fig. 15). Basis capituli ventrally with well developed lateral cornua (Fig. 5).

Basis capituli dorsally basolaterally salient (Fig. 11). Porose areas consist from few pores only (Fig. 11). Haller's organ on the tarsus consists of a distal bristle group — the anterior pit — and a proximal capsule which enclosed several sensillae (Figs. 9, 10). The capsule is characterized with irregular opening (Fig. 9). The field lying near the capsule consists from 5 sensory bristles. Sensillae A₂ and A₁ possess plugged pores lying close each other, the other sensillae possess a single opening at the tip (Fig. 10).

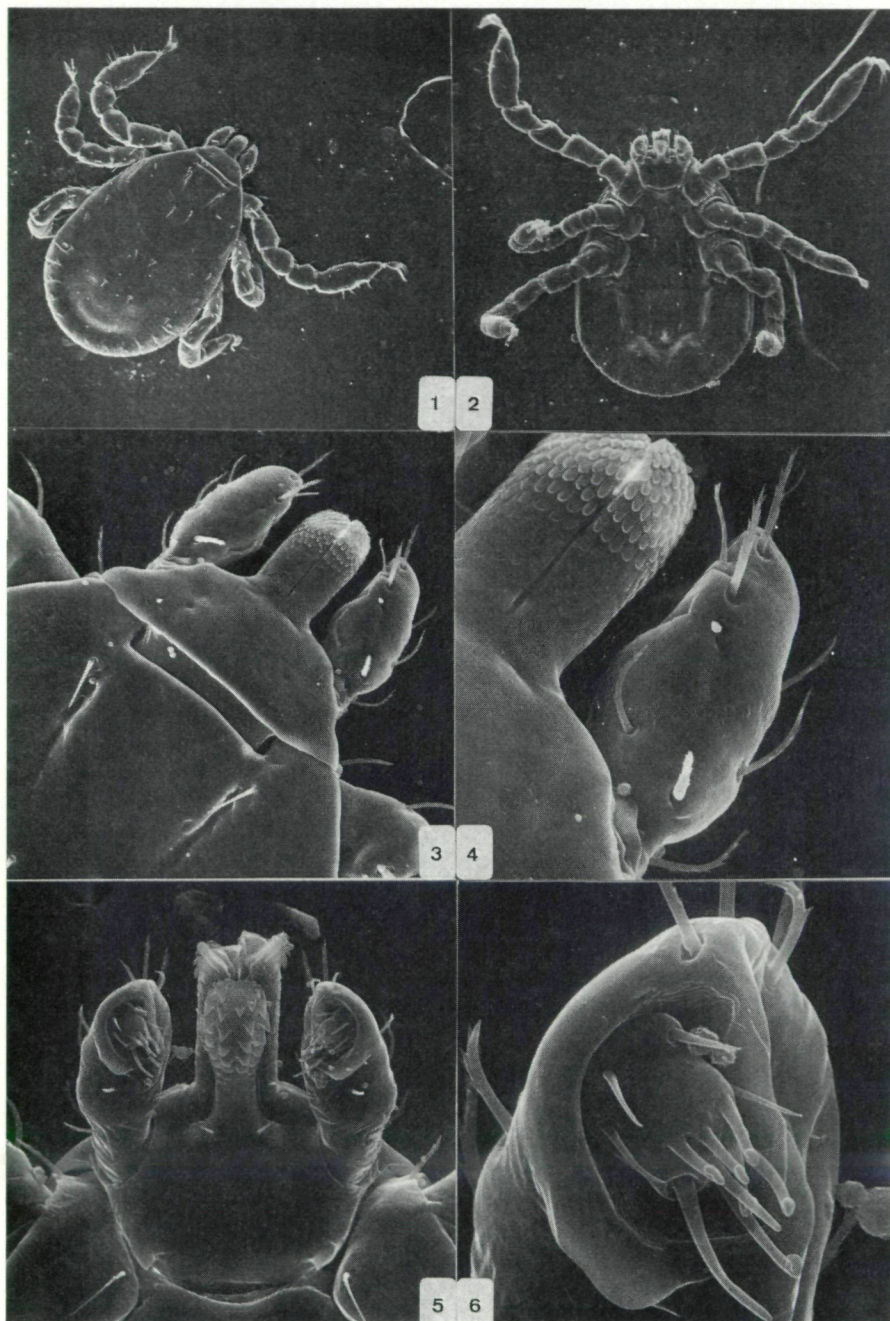
Ventral side of idiosoma is characterized with following chaetotaxy: 1+1 anterior setae, 1+1 median setae and 1+1 posterior setae, 4+4 adanal setae, 2+2 postanal setae and 10 festonal setae. Anal plate is furnished with 1-1 smooth setae on the basis (Fig. 16). Anal groove contouring the anus behind (Fig. 2). Dermal pores occur near coxa II and III (Figs. 12, 13, 14).

Legs: Each coxa with a small blunt tooth. The coxal setae are serrated of palpus in *D. marginatus* larva.

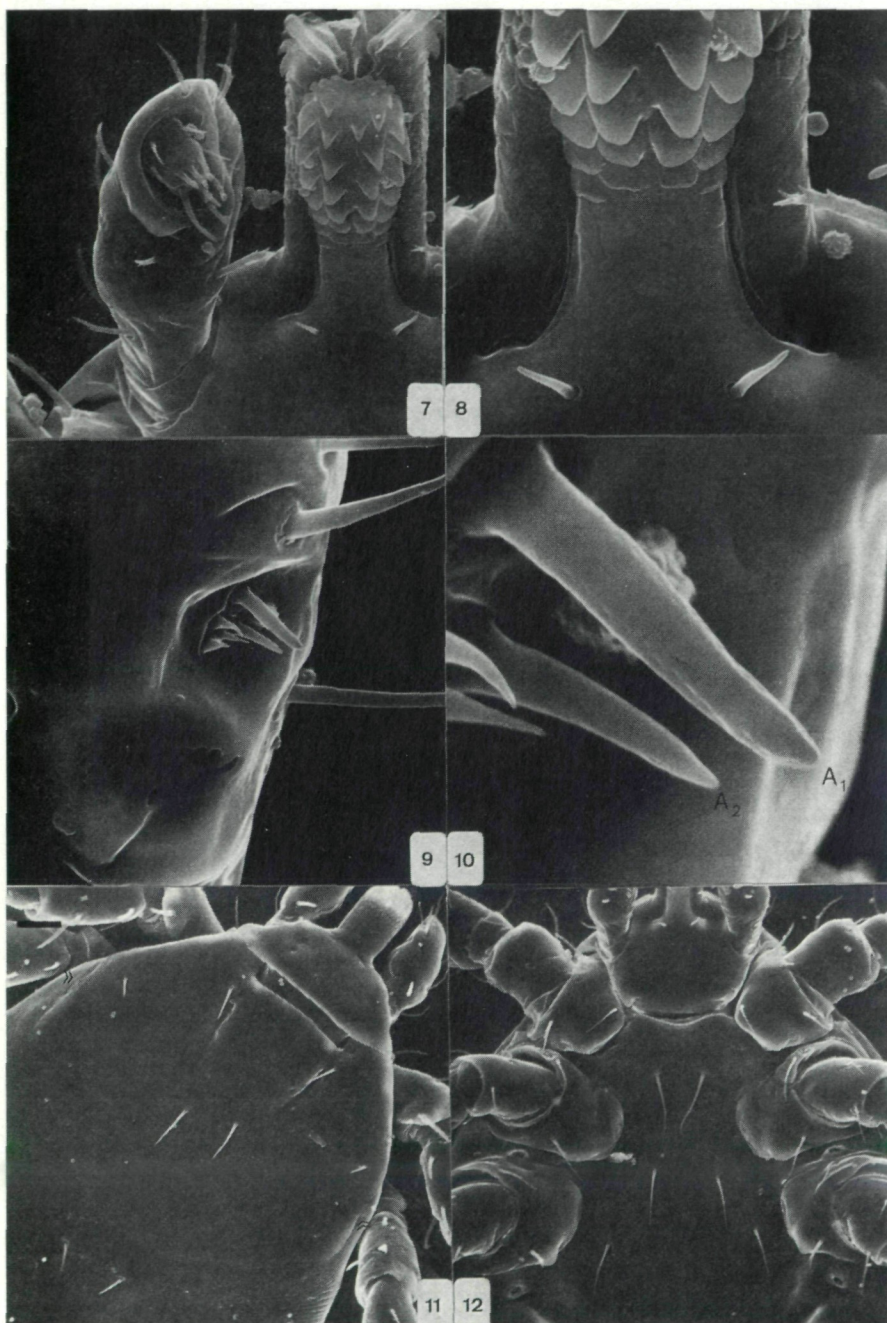
Dermacentor marginatus larva: The presence of dermal sensilla on the palpus is very significant difference between the *Dermacentor marginatus* and *D. reticulatus* larvae (see the comparative table and Figs. 17, 18).

Table 1: Key for Determination (Comparative Table).

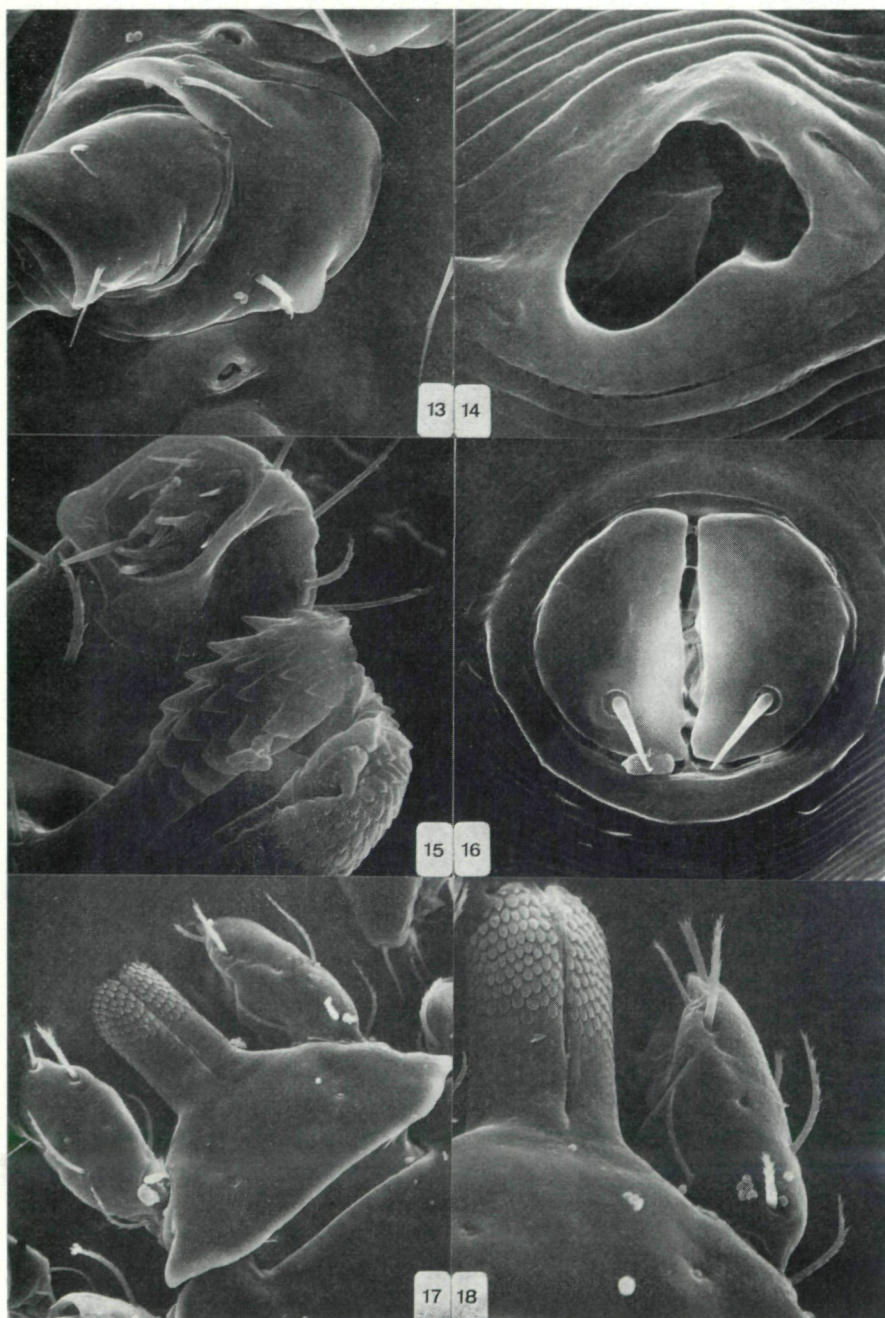
	<i>D. marginatus</i>	<i>D. reticulatus</i>
Morphological features / Larvae	+	+
Eyes present Fig. 11	+	+
Palpi short Figs. 1—4	+	+
Palpi with dermal sensilla dorsally Figs. 17, 18	+	—
Palpal segment IV with apical sensillae 8 in number Fig. 6	+	+
Palpal spur slightly developed Figs. 6, 7	+	+
Hypostome spatulate Figs. 5, 7	+	+
Basis capituli baso-laterally salient dorsally Fig. 3	+	+
Sensory field of Haller's organ with 5 sensory rods Fig. 9	+	+
Capsule of Haller's organ with irregular opening	+	+
Dermal pores near coxa III present Figs. 12, 13, 14	+	+
Anal plates with 1+1 hairs Fig. 16	+	+
Anal groove contouring the anus behind Fig. 2	+	+
Festoons 10 in number Fig. 2	+	+
Palpal setae serrated Fig. 4	+	+
Posthypostomal hairs smooth Fig. 8	+	+
Postero median bristles on scutum exceeded 40 μ long	—	+



Figs. 1—6: *Dermacentor reticulatus* larva. 1: Larva dorsally (x 87). — 2: Larva ventrally (x 103). — 3: Basis capituli (x 400). — 4: Palpus dorsally (x 900). — 5: Palpi, hypostome and chelicerae ventrally (x 520). — 6: Palpal segment IV with apical sensillae and palpal segment III with slightly developed spur (x 1950).



Figs. 7—12: *Dermacentor reticulatus* larva. 7: Palpus, hypostome and chelicerae (x 830). — 8: Posthypostomal hairs (x 1830). — 9: Haller's organ (x 2000). — 10: Sensory rods A₁ and A₂ (x 10000). — 11: Dorsal shield chaetotaxy and eyes (x 2607). — 12: Dermal pores near coxa III and chaetotaxy (x 280).



Figs. 13—16: *Dermacentor reticulatus* larva. 13: Dermal pores near coxa III (x 730). — 14: Dermal pore (x 7000). — 15: Hypostome and chelicerae (x 1200). — 16: Anal plates (x 2050).
Figs. 17—18: *Dermacentor marginatus* larva. 17: Basis capituli and palpi (x 500). 18: Palpus dorsally (x 800).

4. Summary

The significant differences between the *Dermacentor marginatus* and *D. reticulatus* larvae are: the presence of dermal sensilla on the palpus dorsally in *D. marginatus* and the length of postero-median bristles on the scutum which exceeded $40\ \mu$ length in *D. reticulatus*.

5. References

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Jahr/Year: 1975

Band/Volume: [04_1975](#)

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