

Larval morphology of the water mite *Hydryphantes octoporus* Koenike (Acariformes: Hydryphantidae)

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The larva of the water mite *Hydryphantes octoporus* is described. Morphology of larvae in *H. octoporus* and *H. thoni* is identical, and the latter should be considered a junior synonym of *H. octoporus*.

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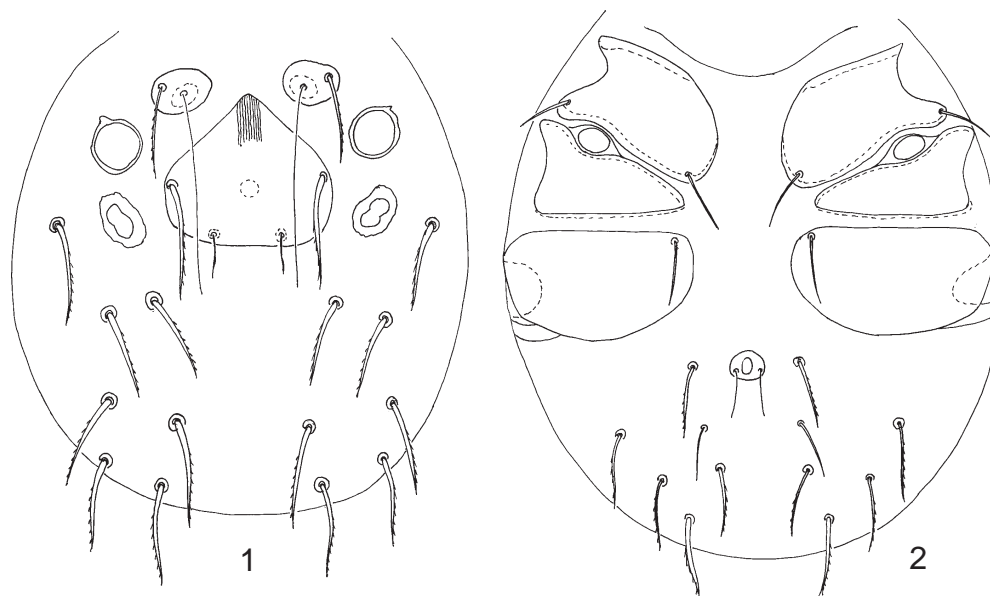
The geographical distribution of *Hydryphantes octoporus* Koenike includes Europe, Asia and Africa (Viets, 1956; Lundblad, 1968; K.O. Viets, 1978). The larva of *H. octoporus* was hitherto unknown. In the present paper, an illustrated description of the larva of *H. octoporus* is given.

In the description, notations of idiosomal setae follow Tuzovskij (1987). The following abbreviations are also used: s, solenidion; e, eupathidium; ac, acanthoid seta; P1-5, pedipalp segments (trochanter, femur, genu, tibia and tarsus); I Leg. 1-6, first leg, segments 1-6 (trochanter, basifemur, telofemur, genu, tibia and tarsus); tarsus of leg I: de1, distance between anterior end of segment and

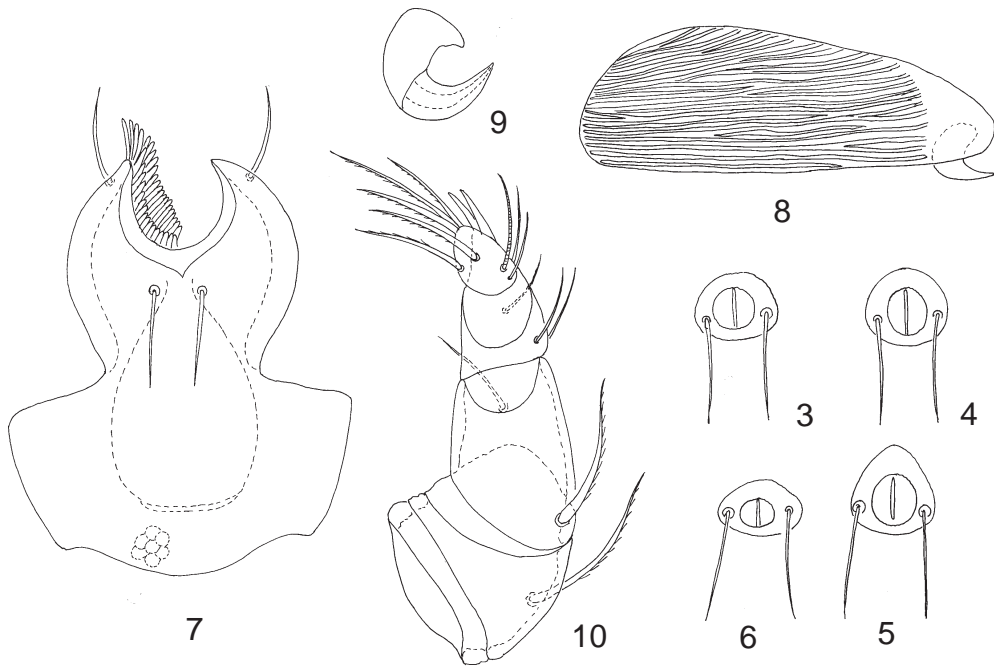
eupathidium, ds1, distance between anterior end of segment and solenidion; tarsus of leg II: de2, distance between anterior end of segment and eupathidium, ds2, distance between anterior end of segment and solenidion.

Hydryphantes (Polyhydryphantes) octoporus Koenike, 1896 (Figs 1-7)

Material examined. Adult mites collected by the author in temporary reservoirs: 3 ♀ and 1 ♂ from Omsk Prov., 17 ♀ and 23 ♂ from Samara Prov., 6 ♀ and 2 ♂ from Yaroslavl Prov.; 43 larvae were reared from 5 ♀ (Sa-



Figs 1-2. *Hydryphantes octoporus*, larva: 1, dorsal view; 2, ventral view.



Figs 3-10. *Hydryphantes octoporus*, larva: 3-6, anal plate; 7, capitulum, ventral view; 8, chelicera, lateral view; 9, cheliceral stylet; 10, pedipalp, lateral view.

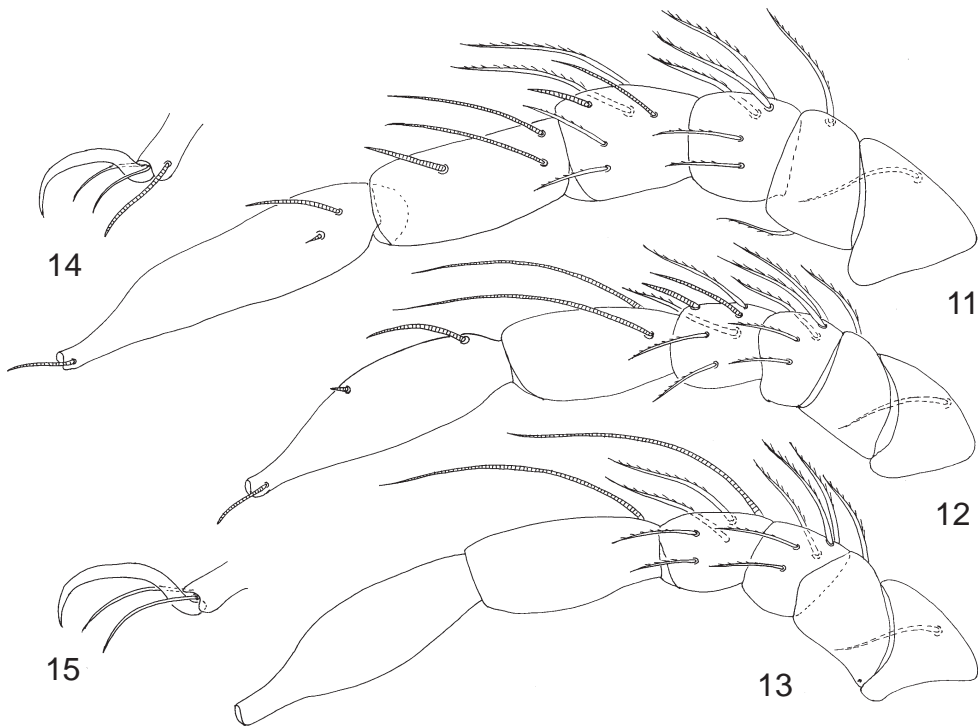
mara Prov.) and 13 larvae from 2 ♀ (Yaroslavl Prov.). Each mature female was placed in a separate glass cylinder 10-15 mm in diameter and 10 mm in height. The duration of the embryonic period was 12-20 days at room temperature.

Description. Larva. Colour red. Body oval. Dorsal shield divided into three portions: two small anterior platelets and rather large posterior plate (Fig. 1). Proterosoma with 5 pairs of setae: Fch, Fp, Vi, Oi, Oe. Anterior platelets bearing setae Fch and Fp. Posterior plate narrow anteriorly and wide posteriorly; setae Vi and Oi situated near posterior margin of the plate. Median eye developed slightly, located between setae Oi. Trichobothria Fp long, Oi short. Length of trichobothria Oi less than distance between their bases. Simple proterosomal setae (Fch, Vi and Oe) thick, but Fch shorter than Vi and Oe. Hysterosomal dorsal setae Hi, He, Sci, Sce, Li and Le subequal, their bases situated on small rounded sclerites. Coxae II triangular; coxae I and III trapezoid and broadly rounded medially (Fig. 2). Lateral setae on coxae I shorter than medial setae on coxae I and III. Urstigma rather large and located on anterior edge of coxae II laterally. Setae Si longer and thicker than other hysterosomal ventral setae. Setae Ci, Se, Pi, and Pe subequal and slightly longer than anal setae (Ai, Ae).

Anal plate small, its shape variable (Figs 3-6).

Anal opening situated behind setae Ai in posterior portion of the plate. Setae Ai and Ae subequal. Capitulum (Fig. 7) with wide base and comparatively narrow rostrum; ventral and dorsal setae approximately subequal. Mouth opening surrounded by numerous papillae. Pharynx wide, with convex lateral margins. Basal part of capitulum with scale-like patterns. Basal segment of chelicera striate (Fig. 8). Cheliceral stylet thick and without apical teeth (Fig. 9). Pedipalps moderately long (Fig. 10). Trochanter without setae; femur with single dorsal seta. Genu with thick proximal seta and thin distal one. Tibia with three subequal thin setae and large bifurcate dorsodistal claw. Tarsus with long solenidion, two short, thin proximal and five thick, long setae.

Leg 6-segmented. Leg II much shorter than anterior and posterior ones. Number of leg setae (number of specialized setae specified in brackets): I Leg. 1-6: 1, 2, 5, 6 (s, e), 13 (2s, e), 23 (s, e, ac); II Leg. 1-6: 1, 2, 5, 6 (s, e), 12 (2s), 22 (s, e, ac); III Leg. 1-6: 1, 1, 5, 5 (s), 11 (s), 20. All simple setae thick and usually with long serrations. Eupathidia situated in distal parts of genu I and tibia I (Fig. 11) and occupying proximal position on tarsus I behind solenidion basis. Solenidion and eupathidium on genu of leg I subequal. Solenidion on genu of leg II (Fig. 12) about twice as



Figs 11-15. *Hydryphantes octoporus*, larva: **11**, leg I; **12**, leg II; **13**, leg III; **14**, claw of leg I; **15**, claw of leg III. Simple setae on tibiae and tarsi of all legs not shown.

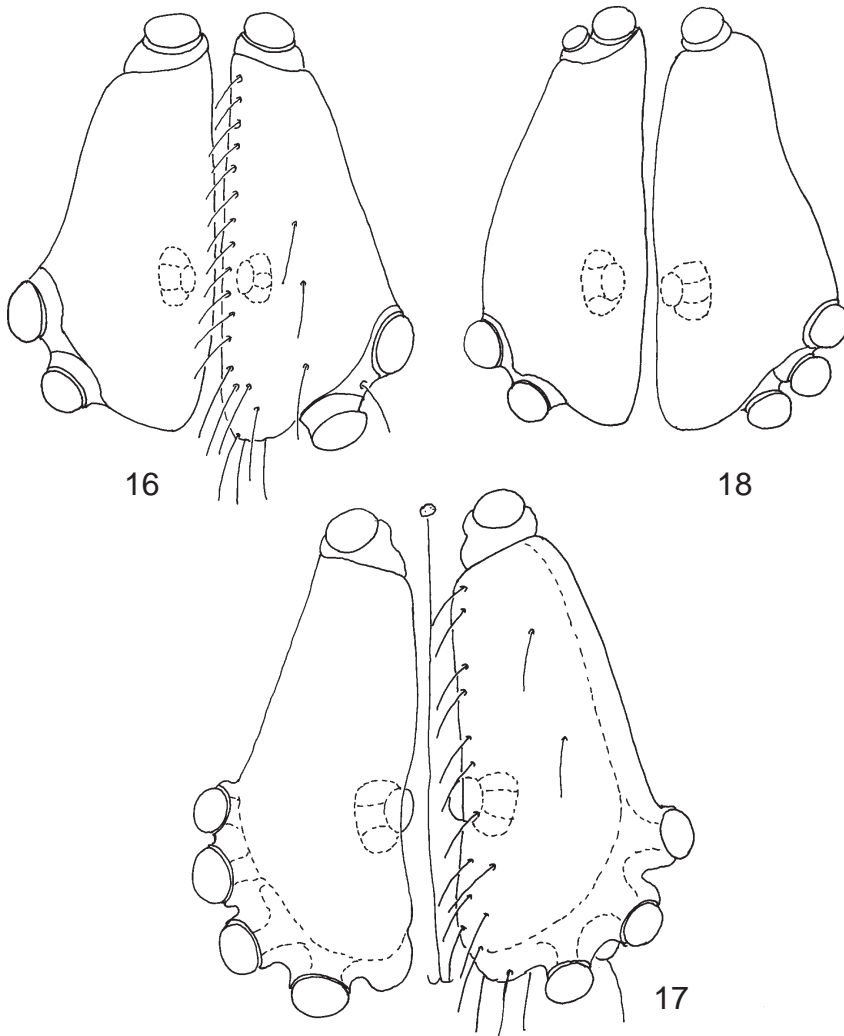
long as eupathidium. Tibiae of legs I and II with two subequal proximal solenidia each; eupathidium rather long and thick. Genu and tibia of legs III (Fig. 13) with single proximal solenidion each. Solenidion on genu III subequal to that on tibia III. Solenidion occupies proximal part of tarsus II, whilst eupathidium is located near the middle of the segment. Tarsi of legs I and II with rather long acanthoid setae, which are situated distally. Empodium large and crescent-shaped on all tarsi. Ambulacra short and thin, slightly shorter on tarsi I and II (Fig. 14) than on tarsi III (Fig. 15).

Measurements, μm . Length of unpaired dorsal plate 48-55, width 48-58; length of urstigma 9-12, height 6-7; diameter of anterior lateral eyes 12-14; length of anal plate 9-13, width 10-16; length of setae Fch 17-26, of setae Fp 52-61, of setae Vi 26-32, of setae Oi 6-9; distance between bases of setae Vi 32-35, distance between bases of setae Oi 22-26; length of capitulum 75-90, width 67-80; length of rostrum 40-48, width of rostrum 48-60; length of basal segment of chelicera 65-80, width 25-32; width of strips on basal segment of chelicera 1.5-2.0, distance between strips on basal segment of chelicera 1.5-2.0; length of cheliceral stylet 16-17; length of pedipalpal segments (P 1-5): 5-7, 25-32, 22-29, 12-

17, 6-10; length of legs segments: I Leg. 1-6 – 22-26, 16-19, 16-20, 25-29, 32-36, 58-67; II Leg. 1-6 – 22-26, 16-19, 10-13, 16-19, 28-32, 48-52; III Leg. 1-6 – 25-29, 16-22, 12-16, 19-23, 32-36, 44-48; ds1 11-13, de1 6-8, ds2 6-9, de2 32-34.

Discussion. The larva of *H. octoporus* is similar to that of *H. ruber* (De Geer, 1778) and differs from it in the following characters (character states of *H. ruber* are in parentheses, they are taken from Wainstein, 1980): trichobothria Oi shorter than distance between their bases (vs. longer); excretory pore situated in the centre of anal plate (vs. in posterior portion); tarsus I: eupathidium situated behind solenidion, de1 > ds1 (vs. in front of, de1 < ds1).

Adult mites of *H. octoporus* are similar to those of *H. thoni* Piersig, 1900 (larva of *H. thoni* also unknown). Some acarologists consider *H. thoni* a synonym of *H. octoporus* (Lundblad, 1962; K.O. Viets, 1978; Gerecke, 1996). Both species are very similar and differ mainly in the number of genital acetabula: *H. octoporus* with 8 acetabula (Fig. 16), *H. thoni* with 10-12 acetabula (Fig. 17). The number of acetabula varies in representatives of the subgenus *Polyhydryphantes*, especially in the posterior portions of the external genital organ (Figs 17, 18), anterior acetabulum



Figs 16-18. *Hydryphantes octoporus*, adult mite, external genital organ.

is sometimes doubled (Fig. 18). Larvae have been reared from two females with 8 acetabula, from three females with 10 acetabula, from one female with 11 acetabula and from one female with 12 acetabula. The morphology of all larvae is identical, and thus it is necessary to consider *H. thoni* a junior synonym of *H. octoporus*.

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