

ON AN ANOMALOUS SPECIMEN OF *ACERENTOMON DODEROI* SILVESTRI, 1907
(PROTURA: ACERENTOMIDAE)

LORIS GALLI¹ & MATTEO CAPURRO¹

¹Department of Earth, Environment and Life Sciences (DISTAV) – Genoa University
Corso Europa 26, 16132 Genova, Italy

* Correspondence: loris.galli@unige.it

ABSTRACT

A praeimago specimen belonging to genus *Acerentomon* - *doderoi* group collected in Sestri Levante (NW-Italy) shows a set of morphological characters that led us to attribute it to an hypothetic new species. In this note we compare such specimen with others from the same locality and with the other species belonging to genus *Acerentomon*, concluding that it must be considered an anomalous *Acerentomon doderoi* with additional setae (*d6*) on the head.

KEYWORDS: Additional setae, Head chaetotaxy, Sestri Levante (Italy), variability.

SHORT NOTE

On 2007, 22nd May, under a Downy Oak *Quercus pubescens* in Sestri Levante (Genoa province, NW-Italy), among others, a praeimago proturan belonging to genus *Acerentomon* was collected by C. Parola. This specimen displays a set of characters that led us to believe it belonged to a new species.

It is clearly a member of *doderoi* group, characterized by the presence of seta *x* on tergite VII (see Nosek, 1973; Shrubovych et al., 2016). On the head additional setae *d6* are present (Rusek et al., 2012). Sensillum *a* on foretarsus is long and slender almost reaching the base of *d*; sensillum *b* is large sward shaped, passing the base of seta $\gamma 3$, and nearly as long as *c* (Figures 1A, 1B). Tergite VII has 18 posterior setae (setae *P3a* present) (Figure 1C). On sternites IV to VI there are 7 anterior setae. Setae *Pl1a* are present on sternite VIII (formula 4/2). Sternite IX has four setae. Comb VIII is characterized by 20-21 thin, close to each other and rather regular teeth (Figure 1C). Ratios are as follows: LR = 3.63, PR = 16.8, TR = 2.88, BS = 0.58 (see Nosek, 1973).

In order to collect other similar specimens, soil samples were taken in the same area two more times (4th April 2008, 29th July 2008). Moreover, two series of slides of proturans from a close locality in the same municipality were available in our collection. Totally 26 other specimens belonging to *Acerentomon doderoi* group from Sestri Levante area were found and none of them showed the characteristics (especially the head chaetotaxy) of the praeimago analyzed, but they were identified as *A. doderoi* Silvestri, 1907 and *A. maius* Berlese, 1908.

Among the 40 *Acerentomon* species known to date (Szeptycki, 2007; Szeptycki & Shrubovych, 2008; Shrubovych, 2009; Shrubovych et al., 2016), only six are known to have setae *d6* on the head. In *A. oreophilon* Szeptycki, 1980 seta *x* is missing (as in *aceris* group according François, 2006). The others are part of *doderoi* group, but three of them have a tiny foretarsal sensillum *b*: *A. gallicum* Ionesco, 1933, *A. omissum* Szeptycki, 1980 and *A. christiani* Shrubovych & Resh, 2016. Only *A. granulatum* Szeptycki, 1993 and *A. skuhravyi* Rusek, 1965 (placed in the *doderoi* group based on Szeptycki, 1980) show a foretarsal sensillum *b* similar to that of the considered specimen, but differ from it for some characters. *Acerentomon granulatum* differs from the specimen examined for chaetotaxy of tergites I (for the presence of seta *Ac*) and VII (for the presence of seta *Pc*), and of sternites III to VI (only 5 anterior setae) and IX (6 setae). Moreover comb VIII in this species has more than 35 long and slender teeth. *Acerentomon skuhravyi* differs from our specimen for the presence of seta *Pc* on tergite VII, for the presence of only 5 anterior setae on sternites IV to VI and of 6 setae on sternite IX. This species is also characterized by the smooth hind margin of pleurite VIII (compare to figure 1C), by large longer than broad pseudoculi (pseudoculus ratio PR: 11.0-13.3), by a very long rostrum (labrum ratio LR of praeimago 3.09), by a more distal position of foretarsal sensillum *t1* and a high tarsus ratio due to the relative short length of the claw (in praeimago BS = 0.65 and TR = 3.3, respectively).

For other species of *Acerentomon* belonging to *doderoi* group (according to Shrubovych et al., 2016), chaetotaxy of the head is unknown. Some of them have a large foretarsal sensillum *b*, passing the base of seta $\gamma 3$ like the specimen examined. In *A. imadatei* Nosek, 1967 sensillum *b* is very long, reaching seta $\gamma 4$, setae *P3a* on tergite VII are absent, and comb VIII has only 12 long teeth. *Acerentomon rostratum* Ionesco, 1951 has a very long rostrum (LR = 3.2) and a very unusual comb VIII with a distinct inner lobe and nearly 60 very slender and long teeth. In *A. maius* sensillum *a* is broad, sword shaped, setae *P3a* on tergite VII are absent, and comb VIII has 14-16 long teeth. Moreover setae *d6* on the head should be absent, based on our observation of many specimens attributable to this species, some of them collected in localities a few kilometers far from the type locality. In *A. doderoi* additional setae on the head are absent: this assumption is based on the presence in our collection of several specimens attributable to this species (some of them from the type locality in Genoa) and on the opportunity to examine Silvestri's type material by one of us (LG). All other known diagnostic characters (see Nosek, 1973) are generally comparable to those of the praeimago specimen examined.

All the above observations, as well as the collection in the Sestri Levante area of "typical" *A. doderoi* specimens, therefore, bring to the conclusion that the praeimago *Acerentomon* object of this note is almost surely an anomalous specimen belonging to this species.

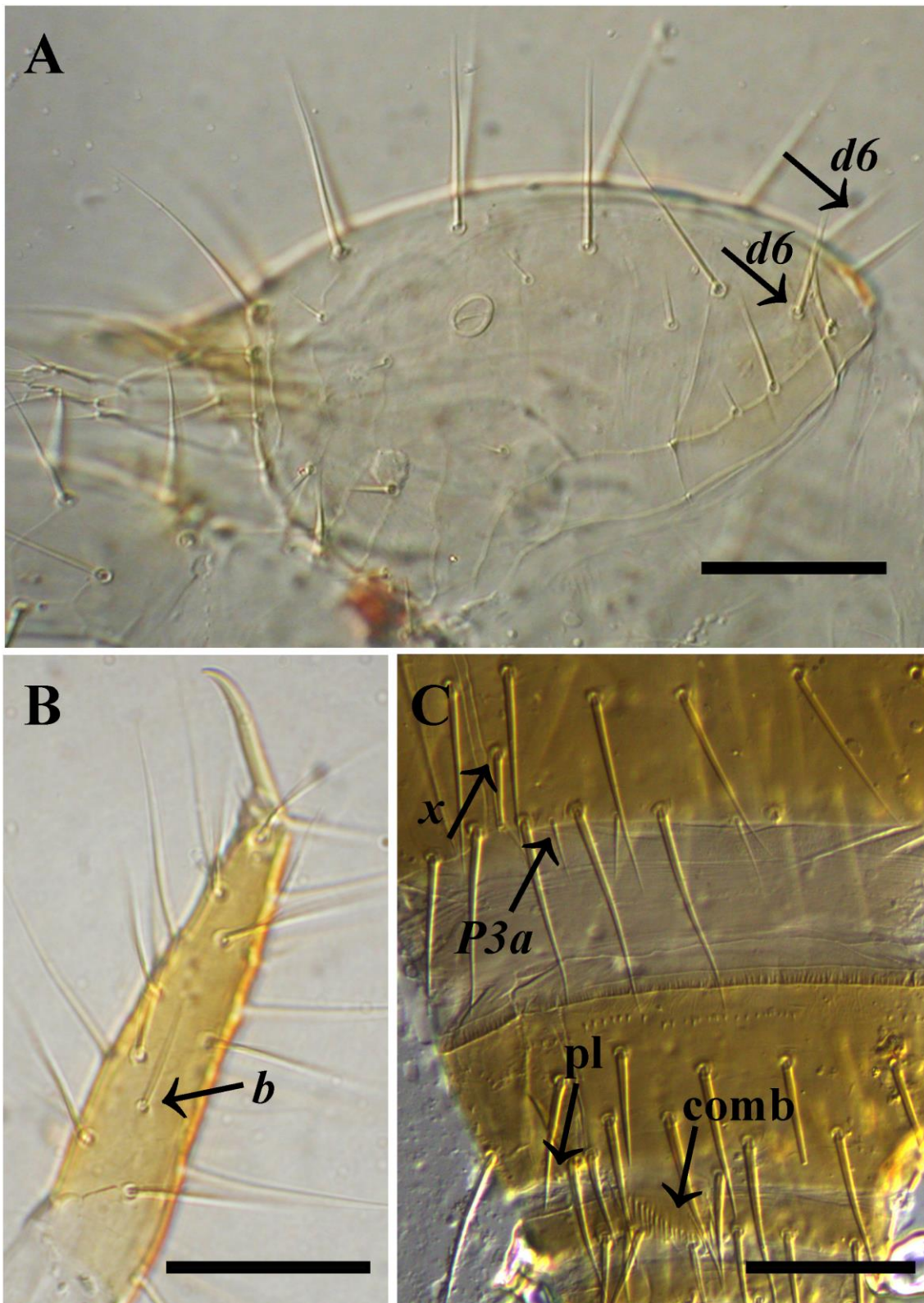


Figure 1. *Acerentomon doderoi* Silvestri, 1907 praeimago (Sestri Levante, NW-Italy). A) Head (setae *d6* are evidenced). B) Foretarsus (sensillum *b* is shown). C) Abdominal segments VII and VIII. Seta *x* (characterizing the *doderoi* group), seta *P3a*, comb VIII and toothed hind margin of pleurite VIII (*pl*) are indicated. Scale bars = 50 μ m.

Variability in chaetotaxy is well known in most species of Protura, but it normally refers to the abdominal segments. Moreover, Nosek (1977) described some degree of variability in body size, chaetotaxy, and foretarsal sensilla size and arrangement in *Acerentulus confinis* (Berlese, 1908) and he hypothesized a genetic flux between this taxon and the syntopic *A. exiguus* Condé, 1944. A very interesting case of additional abdominal appendages rudiments on segments IV and V in *A. gallicum* is discussed by Szeptycki (2000). The one examined here is the first case of intraspecific variability of head chaetotaxy, with the appearance of additional *d6* setae in a species that normally lacks them. The presence of these setae in *Acerentomon* species belonging to different phyletic lines (François, 2006) and in species of other genera of Acerentomidae, Hesperentomidae and Protentomidae (Rusek et al., 2012) seems to indicate that they are a plesiomorphic character in Acerentomata. Therefore, their appearance in species such as *A. doderoi* where they are normally absent can be considered an atavism. Hopefully, future research will be able to shed light on the mechanisms underlying such phenomena in Protura and their possible evolutionary implications.

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