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Research Note

Androlaelaps rotundus (Fonseca) (Acari: Parasitiformes: Laelapidae): Taxonomic Status, Lectotype/Paralectotype Designation, and New Morphological Details

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ABSTRACT: The status of *Androlaelaps rotundus* (Fonseca) (Acari: Gamasida: Laelapidae) is solidified by designating a lectotype and series of paralectotypes based on museum specimens. These specimens were studied from the Acari Collection of the Instituto Butantan in São Paulo, Brazil. New morphological details given here suggest that a species of *Necromys* Ameghino may be the host of the type series of *A. rotundus*.

KEY WORDS: *Androlaelaps rotundus*, mite, Laelapinae, Acari, ectoparasite.

Androlaelaps rotundus (Fonseca) was originally described as *Eubrachylaelaps rotundus* on the basis of female cotypes collected from a "small undetermined wild rodent species," later deposited in the Acari Collection of the Butantan Institute (IBSP) in São Paulo, Brazil, as IBSP251. Topotypes (IBSP334) were also considered in the description (Fonseca, 1936). Individuals of *A. rotundus* are usually recorded on rodents of the tribe Akodontini (Cricetidae: Sigmodontinae) from South America (Gettinger and Owen, 2000). However, several other species of rodents have also been reported as hosts (Furman, 1972; Lareschi and Mauri, 1998). Substantial intraspecific variation in this mite species has been reported (Furman, 1972; Gettinger and Owen, 2000), and was corroborated by examining specimens deposited at the IBSP and in the collection of the senior author.

Since the type series of, as well as the literature relative to, *A. rotundus* is confused, in this article, we provide information that serves to clarify the status of the species. As a result of our studies of specimens belonging to the original type series of *A. rotundus*, we designate both a lectotype and paralectotypes and provide new defining characters for the species.

The main taxonomic characters used by Fonseca (1936) and Gettinger and Owen (2000) were measured from the cotypes IBSP251 when available, since some structures have been lost or damaged. Measurements, in μm, for the lectotype and each paralectotype, as well as the mean ± standard deviation followed by range values in parentheses are given in Table 1. Among the cotypes, IBSP251a is designated as the lectotype because it is the most complete specimen; IBSP251b, IBSP251c, and IBSP251d are designated as paralectotypes.

The genus *Eubrachylaelaps*, established by Ewing (1929) for *Laelaps hollisteri* Ewing, was considered a synonym of *Haemolaelaps* Berlese by Zumpt and Patterson (1951). However, Furman (1955) redescribed *Eubrachylaelaps* and distinguished it from *Haemolaelaps* based on the "elongate spine-like dorsal setae on the apices of the femora and bases of the genua of legs I and II" and included in the genus *Eubrachylaelaps* species restricted to the New World. Zumpt and Till (1958) studied specimens of *Eubrachylaelaps* from Africa and the Americas and concluded that the spinulation of the forelegs did not allow a clear separation, with intermediate forms occurring in Africa. They once again included *Eubrachylaelaps* in the genus *Haemolaelaps*. Furman and Tipton (1961) disagreed and considered *Eubrachylaelaps* as an independent genus. Later, Furman (1972) accepted the concept of the genus *Androlaelaps* Berlese given by Till (1963), as a prior synonym of *Haemolaelaps*. A phenetic study of characteristics of systematic importance showed that *A. rotundus* was more closely related to *Laelaps* Koch and *Echinolaelaps* Ewing than to *Androlaelaps* spp., and reevaluation of the genus *Eubrachylaelaps* was proposed (Botelho et al., 2002). Since the genus *Eubrachylaelaps* was not defined, the species continued to be known as *A. rotundus* (Lareschi et al., 2006, 2007).

The type locality of *A. rotundus* is not clear, and the type host is unknown. When redescribing the

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Table 1. Measurements in micrometers (μm) of the main taxonomic characteristics for the lectotype (IBSP251a) and each paralectotype (IBSP251b, IBSP251c, and IBSP251d) of *Androlaelaps rotundus*, as well as the mean ± standard deviation (SD) followed by range values in parentheses.

Characters measured	Lectotype	Paralectotypes			
	IBSP251a	IBSP251b	IBSP251c	IBSP251d	Mean ± SD (range value)
Dorsal shield length	650	650	650	650	650
Dorsal shield width	530	510	550	520	528 ± 17 (510–550)
Distance between j5 setae	64	62	64	62	63 ± 1 (62–64)
Length of j5	—	21	17	19	19 ± 2 (17–21)
Distance between z5 setae	154	149	149	151	151 ± 2 (149–154)
Length of z5	19	21	17	21	20 ± 2 (17–21)
Distance between J5 setae	83	—	74	74	77 ± 5 (74–83)
Length of J5 setae	14	—	12	14	13 ± 1 (12–14)
Distance between Z5 setae	126	—	109	121	119 ± 9 (109–126)
Length of gnathosomal setae	30	30	30	30	30
Inner hypostomal setae	—	—	—	50	50
Length of sternal shield	118	114	130	114	119 ± 8 (114–130)
Width of sternal shield	185	175	213	171	186 ± 19 (171–213)
Distance between sternal setae 1	83	83	88	83	83 ± 2 (83–88)
Length of sternal setae 1	61	61	61	59	61 ± 1 (59–61)
Distance between sternal setae 3	154	161	149	154	155 ± 5 (149–161)
Length of sternal setae 3	78	76	83	76	78 ± 3 (76–83)
Length of sternal setae 4	114	126	126	111	69 ± 3 (66.71)
Length of epigynial shield	114	126	126	111	119 ± 8 (111–126)
Width of epigynial shield	119	130	126	130	126 ± 5 (119–130)
Distance between epigynial setae	81	81	83	88	89 ± 3 (82–100)
Length of epigynial setae	62	59	64	62	62 ± 2 (59–64)
Anal shield width	100	—	100	97	99 ± 2 (97–100)
Distance postanal seta–anterior midline of anal shield	71	—	—	64	68 ± 5 (64–71)
Length of paranal setae	55	—	—	59	57 ± 3 (55–59)
Distance between paranal setae	28	—	28	28	28
Length of proximal setae of coxa I	55	59		59	58 ± 2 (55–59)
Length of distal setae of coxa I	31	33	36	33	33 ± 2 (31–36)
Length of proximal setae of coxa II	48	57	57	52	54 ± 4 (48–57)
Length of proximal setae of coxa III	29	36	36	36	34 ± 3 (29–36)
Length of proximal setae of coxa IV	26	26	—	21	24 ± 3 (21–26)
Length of anterior dorsal setae of femur I	24	27	—	21	24 ± 3 (21–27)
Length of posterior dorsal setae of genu I	24	—	—	17	21 ± 5 (17–24)

female and describing the male, Fonseca (1957/1958) said that specimen no. 35 was a topotype collected from the rodent *Zygodontomys lasiurus* (Lund) (Cricetidae, Sigmodontinae) (syn. *Necromys lasiurus* (Lund); D'Elía et al., 2008), captured in the littoral area of São Paulo State. However, in the same article (page 169), Butantan (São Paulo, Brazil) is mentioned as the type locality. Consequently, we may not consider specimen no. 35 as a topotype, and although both localities are close, we believe that Butantan is the type locality. However, Fonseca's (1957/1958) redescription of the female of *A. rotundus* on the basis of specimen no. 35 is valid since it fits the characteristics of the type series. Specimens mentioned in the same article (their Fig. 43, p. 166), parasites of unknown rodent from Bertioga, Santos, Brazil, must not be considered, because the chaetotaxy of the dorsal shield is different from that of specimen no. 35 and those in type series. Although Fonseca (1936, 1957/1958) did not mention a type host, he noticed the preference of *A. rotundus* for the rodents *Zygodontomys pixuna* (Moojen) and *Akodon arviculoides* (Wagner) (Cricetidae, Sigmodontinae), which are both now considered synonymous with *N. lasiurus* (D'Elía et al., 2008). New morphological characteristics given here fit those given by Gettinger and Owen (2000) for *Necromys* (=*Bolomys*) *lasiurus* from Paraguay, and they differ from specimens associated with other akodontine species mentioned in the same article, as well as from those deposited at the IBSP and in the collection of the senior author. This information further supports the concept that a

species of *Necromys* may be the host of the type series of *A. rotundus*. Morphometric intraspecific differences related to different host species were observed with specimens of *A. rotundus*, suggesting that it is a composite species (Gettinger and Owen, 2000). The information given in the present study may contribute to the recognition of the "true *A. rotundus*" and help to differentiate it from other similar species.

Androlaelaps rotundus (Fonseca)

Lectotype: Female, IBSP251a, collected by F. Fonseca on 20 November 1933.

Paralectotypes: Females, IBSP251b, IBSP251c, and IBSP251d, collected and identified by F. Fonseca on 20 November 1933.

Type host: "Small undetermined sylvatic rodent species."

Type locality: Butantan district (Instituto Butantan Park), São Paulo, SP, Brazil.

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