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A REDESCRIPTION OF THE GENUS *OLABIDOCARPUS* LAWRENCE
WITH A DESCRIPTION OF A NEW SPECIES FROM TEXAS
(ACARINA : LISTROPHORIDAE)

BY

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The genus *Olabidocarpus* was erected by LAWRENCE (1948) for a single female specimen, *Labidocarpus belsorum*. This species was collected by G. L. VAN EYNHOVEN (1940) from *Myotis myotis*, the European Vespertilionid Bat. LAWRENCE (1948) separated the genus *Olabidocarpus* from the other genera of the subfamily Labidocarpinae by the distinctly trifold head shield, the middle projection being long and narrow, and the number of spines of tarsus III and IV. MCDANIEL and LAWRENCE (1962), in a revised key to the genera of the subfamily Labidocarpinae, utilized the number of tarsal spurs as being distinctive of the genus *Olabidocarpus*. With the discovery of a species from Texas and the placing of *Labidocarpus cristatus* Lawrence (1953) in the genus, it was decided to draw up a revised description of the genus *Olabidocarpus*. Following a review of the subfamilies, Chirodiscinae and Labidocarpinae, it was, in our opinion, necessary to reinstate the Labidocarpinae in the family Listrophoridae. Under this arrangement, we regard the subfamily Chirodiscinae as containing the genera *Chirodiscus*, *Schizocoptes*, and *Schizocarpus*, the subfamily Labidocarpinae as consisting of the genera *Labidocarpus*, *Olabidocarpus*, *Eulabidocarpus*, *Parakosa*, and *Alabidocarpus*. The genus *Chirodiscus* occupies a rather isolated position in the subfamily Chirodiscinae, differing from all other members in lacking copulatory suckers and the anterior legs not being cleft or divided into two opposing pads. On the other hand, we agree with PINCHPONGSE (1963) that it cannot be regarded as a member of the Atopomelinae as suggested by DOMROW (1961) since the first two pairs of legs are strongly modified and lack caruncles while all the Atopomelinae possess caruncles on legs I and II. The genus together with *Schizocarpus* and *Schizocoptes* forms a subgroup within the family Listrophoridae which differs from the Labidocarpinae genera (all of which are parasites of Chiroptera) in having caruncles on the tarsi of the two posterior legs.

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SUBFAMILY CHIRODISCINAE TROUESSART
AN AMENDED KEY TO THE GENERA OF CHIRODISCINAE¹

1. Body more or less flattened in a dorso-ventral direction..... 2
Body laterally compressed, four copulatory suckers in the male ; posterior tarsi with caruncles..... SCHIZOCARPUS Trouessart
2. Two copulatory suckers, leg I enlarged apically, the terminal segment cleft.....
SCHIZOCOPTES Lawrence
No copulatory suckers, leg I fairly long, subparallel, curved and hollowed out on the under side apically and not cleft..... CHIRODISCUS Trouessart

SUBFAMILY LABIDOCARPINAE GUNTHER
AN AMENDED KEY TO THE GENERA OF LABIDOCARPINAE.

1. Leg III longer and thicker than IV, the tarsi of both with a pointed claw at extreme apex and projecting at an angle to this, a subsidiary spur ; claw not or only a little longer than tarsus..... 2
Leg III shorter than IV, their tarsi with a blunt claw at extreme apex, the subsidiary spur not projecting at an angle but usually parallel to claw ; tarsus III with two, tarsus IV with one accessory spur ; main claw (especially in tarsus IV) very long, curved, much longer than tarsus..... 3
2. Tarsi of leg III and IV similarly armed, each with a single subsidiary spur ; headplate with a short single median posterior projection in addition to the lateral projections....
LABIDOCARPUS Trouessart
Tarsi of leg III and IV differently armed, with three and two accessory spurs respectively ; headplate with the median posterior projection consisting of a pair of elongate chitinous bars behind but quite separate from it..... OLABIDOCARPUS Lawrence
3. Posterior legs remote from anterior legs, forming a group near posterior end of body, considerably shorter than the modified anterior legs.. EULABIDOCARPUS Lawrence
Posterior legs not remote from anterior legs or near posterior end of body, considerably longer than the modified anterior legs..... 4
4. Tarsi III and IV with a triangular spine at base of claw in addition to the accessory spurs ; the four dorsal setae behind the headplate very stout, long, and subequal.....
PARAKOSA McDaniel and Lawrence
Tarsi III and IV without a triangular spine at base of claw in addition to the accessory spurs ; the four dorsal setae behind the headplate minute, short, or absent.....
ALABIDOCARPUS Ewing

1. The new genus proposed by PINICHPONGSE (1963 : 84) is an unavailable name at this time. See Article 13 of *The International Code of Zoological Nomenclature Adopted by the XV International Congress of Zoology*.

OLABIDOCARPUS, Lawrence.

Genotype — *Labidocarpus belsorum* van Eyndhoven.

Female body long, slender, with or without a distinct crest dorsally posterior to main head shield. Head shield bifid or trifid ; if trifid, middle portion projecting posteriorly long and narrow ; if bifid, with long narrow chitinous plate or bar, not connected to head shield. Lateral projections beset with single setae. Legs I and II of the usual *Labidocarpinae* type, the keel-like structure between legs II and III well developed. Legs III more robust and a little longer than IV. Tarsus of legs III with three spurs, tarsus of legs IV with two spurs ; apical claw of legs III and IV slightly curved, drawn out in a sharp point and projecting at an angle to the long axis of the tarsus. Abdomen with 40-60 annulations, rounded or ending in knob-like projection posteriorly.

THE RELATIONSHIPS OF THE GENUS *Olabidocarpus*.

Olabidocarpus seems to stand most closely to *Labidocarpus* but also has affinities with *Alabidocarpus* forming a fairly natural group with these two genera and with *Parakosa*.

It agrees with *Labidocarpus* in the tarsal structures of legs III and IV, the main claw being fairly short, not greatly curved, and more or less pointed at its apex ; also in leg III being in general longer and stouter than IV. *Labidocarpus natalensis* Lawrence seems to link *Labidocarpus* with *Olabidocarpus* since the structures of the tarsus in this species resemble those of *Olabidocarpus* rather than *Labidocarpus*, while agreeing with the latter genus in other respects. *Alabidocarpus* and *Parakosa* have the main claw of the posterior legs much longer, strongly curved and bluntly rounded at its apex, while leg III is weaker and shorter than IV.

On the other hand *Olabidocarpus* differs from *Labidocarpus* and agrees with *Alabidocarpus* and *Parakosa* in having two accessory spurs on tarsus III, one on tarsus IV, (*Olabidocarpus* and *Parakosa* having in addition another spine at the base of the claw) ; it may thus be said to be a connectant between *Labidocarpus* on the one hand, and the *Parakosa* — *Alabidocarpus* group on the other, *Eulabidocarpus* representing a third and rather separate group. *Labidocarpus tanganyikensis*, recently described by PINICHPONGSE (1963) from East Africa is, like *L. cristatus*, evidently a member of the genus *Olabidocarpus*. Males have been collected for only one species in the genus *Olabidocarpus*, *O. tanganyikensis*. Though there is no mention of anal suckers being present in the description, there is a structure in the illustration which strongly resembles anal suckers. These structures are present in *Labidocarpus (rollinatti and natalensis)* and *Alabidocarpus (calcaratus and nasicolus)* as well as in males of *Parakosa tadarida*.

It is of interest to note that parasites of bats are found in only one of the Liotrophorid subfamilies, the Labidocarpinae, in which all of the five genera live on Chiroptera only ; with respect to the hosts of these mites, six different families of bats are involved. Thus *Labidocarpus* and *Alabidocarpus*¹ occur only on Rhinolophidae (genus *Rhinolophus*) ; *Olabidocarpus* only on Vespertilionidae (genera *Myotis* and *Lasiurus*) and Emballonuridae (genus *Coleura*) ; *Parakosa* only on Molossidae (genus *Tadarida*), and *Eulabidocarpus* only on Pteropodidae (genus *Pteropus*).

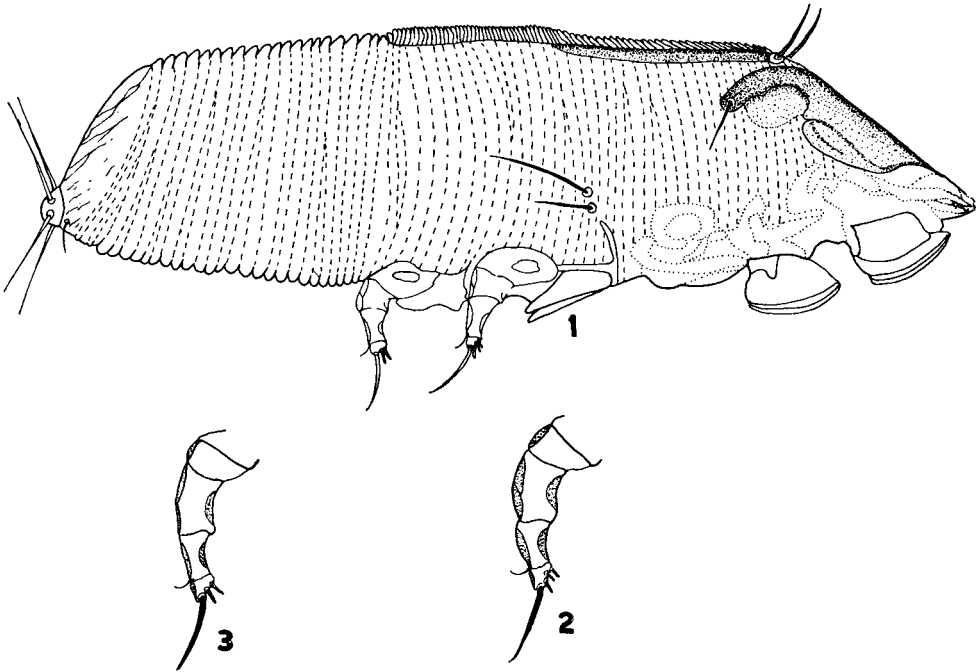
***Olabidocarpus americanus* n. sp.**

Female. — Body laterally compressed, elongated, with numerous fine annulations ; skin transparent except for anterior head plates and coxal apodemes of all legs. Leg I and II highly modified, of the usual Labidocarpinae type, that is, with flap-like plates for clasping hair of the host ; first pair more elongate than second pair. Legs III and IV located in the middle portion of body with legs IV removed from posterior portion of body by at least three times their length. Head plate elongate, with two lateral projections, each beset with a single seta. Median projection consisting of a pair of long narrow rod-like plates distinctly separated from head plate, with a pair of setae at anterior apex (Fig. 1) ; these plates separated by a crest composed of minute annulations which extend backwards to about the middle of the body (Fig. 1), the annulated crest giving the appearance of a mane. Apodemes of legs I and II sclerotized, occupying lower half of anterior portion of body beneath head plate. Gnathosoma produced into a sharp point similar to that found in *Alabidocarpus* and *Labidocarpus*. Legs III and IV four-segmented, apodemes connected. Coxae expanded, those of legs III attached to keel-like chitinous bar, this bar forming a V-shaped structure that aids in clasping the host's hair (Fig. 1). Legs III with three tarsal structures in addition to the claw ; single main claw long, slightly curved toward posterior portion of body, characteristic of members of the genus *Olabidocarpus* ; three shorter straight accessory spurs ; prominent setae located on posterior side at distal portion of tibia (Fig. 2). Legs IV smaller and shorter than legs III in size and shape ; with a single long main claw, slightly curved toward posterior end of body ; two short straight accessory spurs similar in structure to those of legs III ; setae located on posterior side at distal portion of tibia smaller in size than same setae on legs III (Fig. 3). Abdomen with approximately 60 annulations, not clearly visible at extreme posterior apex of body. On dorsal surface annulations of posterior part of body appear as distinct ripples, those of anterior dorsal section of specialized structure, extending to anterior head plate (Fig. 1). Two large setae located above apodemes of legs III ; lower setae smaller than upper ; similar in structure to those located on lateral projections of head shield. Apex of abdomen produced into a rounded knob armed with two

1. *Alabidocarpus calcaratus* seems to be an exception, being found on *Myotis tricolor* in Natal, South Africa.

pairs of anal setae. A smaller seta located next to the knob-like apex of abdomen on ventral surface. Posterior section of abdomen devoid of annulations, with what appears to be a longitudinal slit, details of this structure difficult to ascertain. Length of female : 333 microns. Width¹ of female : 92 microns.

The material upon which the new species from Texas is based consists of two females obtained from the Texas yellow bat, *Lasiurus intermedius* (*Dasypterus intermedius* by some authors) from Kleberg County, on the campus of Texas College of Arts and Industries, Kingsville, Texas. The host was found in the upper fronds of the California palm, *Washingtonia robusta* Wendl. The discovery of this new



Olabidocarpus americanus n. sp.

FIG. 1, holotype female. — FIG. 2, Enlargement of leg III. — FIG. 3, Enlargement of leg IV.

species extends the distribution of the genus *Olabidocarpus* to the Nearctic region of the Western Hemisphere and the inclusion of the species *L. cristatus* Lawrence (1953) and *L. tanganyikensis* Pinichpongse (1963) now gives the genus a distribution that includes the continent of Africa. It is of interest that to date males of only *O. tanganyikensis* have been obtained and that each of the hosts on which these parasites were obtained were not heavily infested. In the type *O. belsorum*, only a single female was collected ; in *O. cristatus*, four females ; and in *O. tanganyikensis*, eight females, two males, and four nymphs. The new species is based on two

1. Measured at midsection of body between legs II and III.

females, and described from a female holotype mounted on a single slide, from *Lasiurus intermedius*, the Texas yellow bat ; found on the campus of Texas College of Arts and Industries, Kingsville, Texas, on March 15, 1962 and deposited in the United States National Museum (U.S.N.M. No. 2931), Washington, D. C. One female paratype was collected at the type locality on the same date as the holotype and is deposited in the senior author's personal collection.

KEY TO SPECIES OF THE GENUS *OLABIDOCARPUS* LAWRENCE.

1. With a distinct annulated crest on dorsal edge, posterior to main cephalic shield. 2
Without a distinct annulated crest on dorsal edge, associated with the European Vespertilionid Bat, *Myotis myotis*..... BELSORUM (van Eyndhoven)
2. Abdomen ending in a knob-like apex, two setae inserted above leg III..... 3
Abdomen not ending in a knob-like apex, rounded, one large setae inserted above leg III, associated with *Myotis tricolor*..... CRISTATUS (Lawrence)
3. With only nine serrations in crest on median projection on head plate ; two subequal setae above leg III, associated with *Coleura afra*. TANGANYIKENSIS (Pinichpongse)
With more than nine serrations in crest on median projection of head plate ; two large setae inserted above leg III, lower setae smaller than upper ; single small seta inserted at posterior portion of abdomen in addition to large anal seta ; associated with *Lasiurus intermedius*..... AMERICANUS n. sp

ADDITIONAL HOST RECORD.

Additional host record for *Lasiurus intermedius* taken at the same locality as *O. americanus* n. sp. was five females and one male of *Pteracarus chalinolobus* (Womersley).

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ADDENDA.

While this paper was in press a new species belonging to the genus *Olabidocarpus*, *O. aitkeni*, was described by PINICHPONGSE. This species, when applied to the key herein erected for the members of the genus *Olabidocarpus*, will key to *O. belsorum* (van Eyndhoven). However, *O. aitkeni* may be separated from this species by the two pairs of setae posterior to the propodosomal shield and the two lateral setae next to coxae III being subequal.

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ERRATA.

A new genus and species of parasitic mite from Mexico (Acarina, Listrophoridae), by BURRUSS MCDANIEL and R. F. LAWRENCE, published in the *Journal of Parasitology*, Vol. 48, June, 1962, pp. 463-466.

Page 463. Add to description of *Parakosa* : Male with two small oval-shaped anal suckers resembling those of the genus *Labidocarpus*.

Page 466. *Parakosa* sp. n. change to *Parakosa* gen. n.
