REVISION OF THE WORLD SPECIES OF ARADOPHAGINI
(HYMENOPTERA: SCELIONIDAE)

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Abstract
Seven species of Aradophagini are classified in three genera. Aradophagus Ashmead includes A. fasciatus (USA, Canada, Europe), A. pulchricornis n. sp. (Mexico, USA), and A. microps n. sp. (South India). Ladora n. gen. includes L. brunnea n. sp. (type-species: Morocco, Mallorca, Gambia), L. maura n. sp. (South Africa), and L. trjapitzini n. sp. (Central Asia). Abuko n. gen. with A. sarotes n. sp. (type-species: Gambia). The tribe Aradophagini is redefined and its taxonomic position in the family Scelionidae is discussed. Keys to genera and species of Aradophagini are given.

The tribe Aradophagini was proposed by Kozlov (1970) to contain the genus Aradophagus Ashmead. Kozlov followed Ashmead (1893), Kieffer (1926), and Musebeek and Walkley (1951) in classifying Aradophagus in the subfamily Telenominae. However, Masner (1976a) expressed the view that Aradophagus is evidently a highly derivative member of the subfamily Scelioninae, and is only convergent with some members of the Telenominae. The latter view is further substantiated in the present paper by several important discoveries. Extensive material of Aradophagus fasciatus became available in 1976 (Masner 1976b), permitting the much-needed dissection of the metasoma. The discovery of Ladora and Abuko, two new genera related to Aradophagus, has helped to clarify the higher classification of Aradophagini.

The principal morphological difference between the subfamily Telenominae, and the subfamilies Scelioninae and Teleasinae, is in the structure of the metasoma (Masner 1976a). The sternal plates of the telenomine metasoma are solid, undivided sclerites, not differentiated laterally into laterosternites. Consequently, there is no locking system with the wide laterotergites. On the contrary, the sternal plates of the Scelioninae and Teleasinae show distinct laterosternites usually locked into corresponding folds of the narrow laterotergites. While the presence or absence of laterosternites is the essential distinction between these two groups of scelionid wasps, there are various secondary modifications within each of them.

The metasoma in Aradophagus is strongly depressed dorsoventrally, so as to be almost foliaceous in dry specimens, with the sternal plates thin, considerably less sclerotized than in other scelionids. This condition makes it difficult to determine the presence of laterosternites on dry, mounted specimens. The previous rarity of individuals of Aradophagus in collections did not allow for dissections. However, numerous individuals of A. fasciatus collected during 1976 were preserved in alcohol, and had the metasoma conveniently inflated to expose the delicate but distinct laterosternites at the sides of each sternal plate. These laterosternites were more conspicuous, due to the colour, in melanic males than in xanthic females. However, the wide laterotergites do not lock with the narrow laterosternites but rather with
the main sternal plates (Fig. 3), i.e., the submarginal groove so typical for the Scelioninae is not developed in Aradophagini. The presence of laterosternites together with the antennal formula 12–12 and the position of the ocelli (described below) substantiate in our view the classification of Aradophagini in the Scelioninae rather than in the Telenominae.

Tribe Aradophagini Kozlov

1970, Aradophagini Kozlov, Rev. Ent. U.R.S.S. 49: 215.
1976, Aradophagini: Masner, Mem. ent Soc. Can. 97: 52.

Body moderately to considerably depressed dorsoventrally; foramen magnum of head located quite high, almost adjacent to top of vertex, leaving narrow occiput and unusually long distance to hypostomal arc; ocelli in a curved line or a very low triangle, lateral ones distinctly separated from inner orbits by at least one diameter;

Figs. 1–5. Schematic cross-section of (1) generalized metasoma in subfamilies Scelioninae and Teleasinae, (2) metasoma in subfamily Telenominae, and (3) specialized metasoma in tribe Aradophagini (Scelioninae). 4, Aradophagus microps n. sp. ♂, holotype, head. 5, Ladora brunnea n. sp. ♀, holotype, mesonotum. LS, laterosternite; LT, laterotergite; S, sternite; S.G., submarginal groove; T, tergite.
frons without depression, with a short, blunt keel above antennal insertion; mandibles small, bidentate; palpi extremely short, formula 2–1; radicle remarkably elongate, about 1/3 of scape length; antennae in both sexes elongate, slender, subclavate in females, antennal formula 12–12; prepectus and skaphion absent; notauli abbreviate anteriorly, running parallel, or absent; scutellum narrow, almost strip-like, strongly transverse; metanotum and propodeum unarmed, the latter with more or less well defined median carina and lateral plicae; fore wings with 1 or 2 dark transverse bands; marginal vein at least as long as stigma vein, postmarginal vein long; hind wings with complete submarginal vein reaching to hamuli; metasoma strongly flattened dorsoventrally, moderately elongate, T2 or T3 the longest tergites; T7 in females extruded with ovipositor; laterotergites relatively wide, locking loosely on sternal plates, leaving only narrow space between them; submarginal groove not distinct.

Three genera are known, viz. *Aradophagus* (Holarctic, Ethiopian, Oriental), *Ladora* (Palearctic, Ethiopian), and *Abuko* (Ethiopian). Representatives of *Ladora* and *Abuko* retain some plesiomorphic character states, viz. partly developed notauli, and OOL shorter than LOL. *Aradophagus* is a more derivative member of the tribe, with no notauli and OOL at least as long as LOL.

The metasoma of Aradophagini resembles superficially the telenomine type in that the laterotergites are relatively wide, not forming the usual submarginal groove on the ventral side. However, similar cases of convergence with Telenominae are known in other tribes of the Scelioninae, e.g. in *Baeus* Hal. (Baeini) and in *Tiphodytes* Bradl., *Tanaodytes* Msn., and *Microthoron* Msn. (Thoronini).

Host associations are not known with certainty as no representatives of the tribe have been reared. Ashmead's (1893) assumption of parasitism on Aradidae (Heteroptera) was never confirmed, but the present data seem to indicate association of members of Aradophagini with wood inhabiting insects. The flattened habitus of all members of this tribe indicates that the host eggs may be also flattened.

**KEY TO GENERA OF ARADOPHAGINI**

1. Notauli absent; OOL slightly to considerably longer than LOL; laterotergites in ventral view wide (as in Fig. 3), leaving only narrow gap in between them

   - Notauli present, abbreviated anteriorly, running parallel posteriorly, located in extreme corners of mesoscutum (Fig. 5); OOL distinctly shorter than LOL; laterotergites in ventral view narrower, leaving gap subequal to their width

2. Fore wing with tuft of erect long black bristles below submarginal vein and with two dark transverse bands (Fig. 9); T2 slightly longer than T3; cheeks with only short delicate striae

   - Fore wing with no tuft of black bristles and only one dark transverse band; T2 slightly shorter than T3; cheeks with strong fan-like striae

**Aradophagus**

1893, *Aradophagus* Ashmead, U.S. natn. Mus. Bull. 45: 138, 166.

Body strongly depressed dorsoventrally, head and mesosoma 2–3 times wider than high, metasoma even more depressed, almost foliaceous; head in frontal view subcircular or elongate; cheeks not striate; eyes glabrous or with minute hairs; OOL slightly to considerably longer than LOL; notauli absent; T2 distinctly longest of all tergites, longer than T3; laterotergites rather wide, not incised into sternites, no submarginal ridge.

Type-species: *Aradophagus fasciatus* Ashmead.
DISTRIBUTION. Holarctic (1 sp.), Nearctic (1 sp.), Oriental (1 sp.); also two undescribed Ethiopian species (Somaliland; F. Bin, pers. comm.).

BIOLOGY. Reliable host records not available.

KEY TO SPECIES OF Aradophagus

1. OOL fully 3 times as long as LOL; from in front eyes remarkably small, shorter than temples; temples longer than cheeks, parallel behind eyes and then curving mediad (Fig. 4); marginal vein twice as long as stigmal vein; South India

   A. microps n. sp. ♂

- OOL only slightly longer than LOL; from in front eyes large, 2-3 times longer than temples; temples shorter than cheeks, abruptly curving mediad (Fig. 10); marginal vein about as long as stigmal vein

2. Mesoscutum entirely coriaceous, with polygons distinctly elongate; ocelli in low but distinct triangle; from in front eyes twice as long as temples; in female A3-A7 and A12 whitish in contrast to dark A2 and A8-A11; sexes isochromatic, male xanthic, concolorous with female; ? Mexico

   A. pulchricornis n. sp. ♀ ♂

- Mesoscutum coriaceous only in anterior part and at sides, with large smooth area posteromedially; ocelli in a curved line; from in front eyes 3 times as long as temples; in female A3-A12 black in contrast to light A2; sexes dichromatic, male melanic, female xanthic; Holarctic

   A. fasciatus Ashmead ♀ ♂

Aradophagus fasciatus

Figs. 10-15

1893, A. fasciatus Ashmead, U.S. natn. Mus. Bull. 45: 166.
1908, A. fasciatus: Brues, in Wytsman, Genera Insectorum, fasc. 80: 12.
1926, A. fasciatus: Kieffer, Scelionidae, Das Tierreich 48: 17.

Figs. 6-9. 6, Ladora brunnea n. sp. ♀, holotype, antenna. 7, L. maura n. sp. ♀, holotype, antenna. 8, Abuko sarotes n. sp. ♀, holotype, antenna. 9, A. sarotes n. sp. ♀, holotype, fore wing.
1951, *A. fasciatus*: Muesebeck and Walkley, in Muesebeck et al., Hymenoptera of America north of Mexico, Synoptic Catalog, Agriculture Monogr. 2: 690, U.S. Dep. Agric.

1956, *A. fasciatus*: Muesebeck and Walkley, Proc. U.S. natn. Mus. 105: 331.

1965, *A. fasciatus*: Masner and Kozlov, Acta ent. bohemoslov. 62: 288–290.

1967, *A. fasciatus*: Muesebeck and Masner, in Krombein and Burks, Hymenoptera of America north of Mexico, Synoptic Catalog, Agriculture Monogr. 2 (Suppl. 2), p. 296, U.S. Dep. Agric.

1968, *A. fasciatus*: Masner and Muesebeck, U.S. natn. Mus. Bull. 270: 60.

1970, *A. fasciatus*: Kozlov, Rev. Ent. U.S.S.R. 49: 215.

1971, *A. fasciatus*: Kozlov, Horae Soc. ent. U. Soviet. 54: 41.

1974, *A. fasciatus*: Fabritius, Folia ent. hung. 27: 339.

1975, *A. fasciatus*: Fabritius, Studii si comunicari 19: 235–236.

1976, *A. fasciatus*: Masner, Mem. ent. Soc. Can. 97: 52.

1976, *A. fasciatus*: Masner, Proctos 2: 3.

**Figs. 10–15** (SEM, gold-coated, 20 kv). *Aradophagus fasciatus* Ashmead, female (Kansas). 10, head (200×); 11, mesosoma (160×); 12, habitus, lateral view (84×); 13, mesosoma, pleura (278×); 14, mesosoma, posterior part (212×); 15, metasoma (140×).
MORPHOLOGY. This species was already adequately described by Masner and Kozlov (1965), who figured the female and described the unknown male. Ashmead's (1893) data on the palpal formula is not quite exact. The dissection of mouth parts revealed the labial palpi to be only 1-segmented, almost wart like, not 2-segmented as claimed by Ashmead. An interesting chromatic inversion exists in the colour pattern of the scape, A2 and A3 in females of *fasciatus* and *pulchricornis*. In *fasciatus* the tip of the scape, A2 and extreme base of A3 are light coloured whereas exactly those areas are darker in *pulchricornis*. The two species also differ in that the sexes are dichromatic in *fasciatus* (females xanthic, males melanic), but iso-chromatic in *pulchricornis* (both sexes xanthic).

DISTRIBUTION. This is a rare but apparently widely spread Holarctic species. It has been recorded from Florida and Massachusetts (Brues 1908), Texas (Muesebeck and Masner 1967), Kansas (Masner 1976b), Switzerland, Hungary and Soviet Union (Masner and Kozlov 1965; Kozlov 1971), and Romania (Fabritius 1975). Masner and Kozlov (1965) considered *A. fasciatus* as native to the whole Holarctic Region, rejecting the idea of spread by human activities such as commercial shipping, etc. However, new data presented in this paper might indicate at least some interactions in this respect. Over several years in July–August G.W. Byers observed large numbers of individuals of *A. fasciatus* swarming on windows inside a house in Lawrence, Kansas (Masner 1976b). Three males of *A. fasciatus* were collected inside a house in Palo Alto, California (see below). D.B. Levin (pers. comm.) found a dead female of *A. fasciatus* stuck to a window inside a wood-frame house in Waterloo, Ontario (first Canadian record). The closely related *A. pulchricornis* has been intercepted twice by quarantine procedures (Brownsville, Texas and Baltimore, Maryland).

BIOLOGY. The host remains unknown.

MATERIAL EXAMINED. Over 100 specimens (♀♂) Lawrence, Kansas (USA), July 1–18 & July 24–Aug. 8, 1976, G.W. Byers, in house (USNM, CNC, Snow Museum, Lawrence, Kansas); 1♀ 3mi N.W. Uvalde, Texas, Uvalde Co., May 7, 1977, Malaise trap, T. Eichlin, M. Wasbauer (Department of Food and Agriculture, Sacramento, California); 3♂ 3♀ Palo Alto (Stanford Univ.), California, Aug. 24, 1933, on window inside garage with stored fire wood, C.N. Duncan (Univ. San Jose, California).

*Aradophagus pulchricornis* n. sp.

Female. Length 1.3 mm. Xanthic species, generally orange-yellow; tips of mandibles brown; ocelli in dark brown pits; antennae remarkably varicoloured, with apex of scape, A2 and extreme base of A3 infuscate, brownish, rest of A3, A4–A7 and A12 whitish in contrast to dark brown A8–A11; fore and hind coxae and trochanters whitish, mid-coxae whitish posteriorly and orange-yellow anteriorly; posterior margins of T2–T5 with darker band, darkest posterolaterally; fore wings predominantly infuscate, with two transverse dark bands separated by whitish band; hind wings clear; hind tibiae slightly darker than rest of legs.

Head moderately elongate (40:36), more than twice as wide as high (36:16), shining, lower half of frons and vertex with fine coriaceous sculpture, upper frons (below median ocellus) almost sculptureless; hypostomal carina projecting in small denticle near base of mandible; eyes appearing glabrous, twice as long as distance between posterior orbit and top of vertex; ocelli in low but distinct triangle, OOL only slightly longer than LOL (7:5), POL twice as long as LOL; occipital carina delicate but forming sharp rim dorsally, gradually disappearing towards hypostoma; radicle 5 times as long as wide, slightly less than 1/3 length of scape; antennae long and slender, segments in relative proportions 33:4, 12:3, 9:3, 6:4, 5:4, 4:4, 6:4.5, 6:5, 6:5, 6:5, 6:5, 11:5.
Mesosoma slightly more than twice as wide as high (35:15); mesoscutum entirely and evenly coriaceous, with polygons distinctly elongate; scutellum, metanotum, and dorsum of propodeum smooth; propodeum with deep longitudinal carina at meson; marginalis, stigmalis, and postmarginalis in proportions 8:8:26.

Metasoma elongate (75:39), tergites in relative proportions 9:13, 23:35, 13:37, 10:30, 5:15, 3:6, apical tergite (T7) partly retracted under T6, attached to ovipositor; T1 trapezoidal, with sides slightly converging anteriorly, densely striate longitudinally all over; T2 trapezoidal, with sides strongly converging anteriorly, with dense sculpture situated anteromedially, tergite reticulate basally, striate distally, striae not reaching basal half of T2, rest of T2 smooth; T3–T7 smooth.

Male. Essentially like female both chromatically and morphologically, differing only in the following few characters. A2–A12 dark brown, antennal segments in relative proportions 28:3.5, 9:3.5, 8:5, 7:5.5, 5:5, 5:5, 5:5, 5:5, 5:5, 5:5, 11:5. Head shorter, as long as wide.

Type Material. 1♀, holotype, “Mid. E. Ports, taken at Baltimore” (USNM); 1♂, allotype, same data as holotype (USNM); 1♀, paratype, “On medicinal herbs, Mexico”; “Brownsville #44664”; “G. A. Pfaffman Nov. 1, 1940”; “Ident. Lot No. 40-23952”; “Aradophagus n. sp. Gahan det.” (CNC No. 15495).

Biology. Host unknown. However, the circumstances under which the three specimens were obtained possibly indicate a host associated with human activities.

Distribution. Probably Mexico, as one individual was intercepted with medicinal herbs on the Mexican–Texan boundary (Brownsville). The other two specimens were intercepted on a ship in Baltimore harbour. Unfortunately, no more data are available in the latter case.

Discussion. This is the second species of Aradophagus known from the New World. It differs from A. fasciatus in several characters mentioned in the key. Furthermore, the sculpture on T2 and following tergites differs in the two species. In pulchricornis the fan of striae on T2 is much shorter, hardly exceeding the basal 1/3 of the tergite (♀♂), and T3–T7 are virtually sculptureless. In fasciatus the fan is much longer (♀) extending to distal 3/4 of the tergite, being coriaceous and not striate distally, and T3–T7 (♀♂) show fine but distinct coriaceous sculpture on each of their anterior halves. However, the most striking difference between the two species is chromatic, with the sexes being isochromatic (xanthic) in pulchricornis but dichromatic in fasciatus which has xanthic females and melanic males.

Aradophagus microps n. sp.

Fig. 4

Male. Length 1.2 mm. Light brown; head (except for darker vertex), radicle and scape brownish yellow; A2–A12 brown; mesosoma chestnut brown; legs including coxae and prosternum dirty yellow; fore wings with two rather weak darker transverse bands, first below distal end of submarginal vein, second below stigmalis-postmarginalis; metasoma lighter than mesosoma, yellowish brown, T1 lightest.

Head remarkably subrectangular-elongate (33:27); frons sculptureless, shining; temples, cheeks, and vertex finely coriaceous; denticle on hypostomal carina conspicuous; eyes sparsely pubescent and from in front, remarkably small, shorter than temples (10:13), temples at first straight and parallel, then curving to occiput; ocelli rather large, almost in a line bent slightly forward, situated considerably behind line connecting posterior orbits, OOL fully 3 times as long as LOL, POL longer than LOL (8:3) (Fig. 4); occipital carina not well developed; radicle 3 times as long as wide, slightly more than 1/3 length of scape, antennal segments in relative proportions 22:4, 6:4, 5:4, 4:4.5, 4:4.5, 3.5:5, 4:5, 4:5, 4:5, 4:5, 4:5, 9:5.
Mesosoma less than 3 times as wide as high (31:13); mesoscutum coriaceous in anterior 1/3, shining and sculptureless in posterior 2/3; scutellum, metanotum, and propodeum smooth; propodeum with median carina; marginalis, stigmalis, and postmarginalis in proportions 11:6:10.

Metasoma elongate (62:33); tergites in relative proportions 6:16, 15:31, 10:33, 10:32, 10:29, 6:24, 4:14, 3:8; T1 transverse, trapezoidal, densely longitudinally striate; T2–T6 finely but entirely coriaceous.

**Female.** Unknown.

**TYPE MATERIAL.** 1 ♂, holotype; Bangalore, S. India; February 1975; pan trap in forest laboratory grounds (CIBC); CNC No. 15494.

**BIOLOGY.** Unknown.

**DISTRIBUTION.** South India.

**DISCUSSION.** This first Oriental species (cf. Masner 1976a) is quite peculiar on account of its cephalic characters.

**Ladora n. gen.**

Figs. 5–7

Female. Body rather flattened dorsoventrally, mesosoma twice as wide as high, metasoma fully 3 times as wide as high; head in frontal view subcircular, in dorsal view strongly transverse; eyes large, with minute scattered hairs; ocelli in curved line, lateral ones distant from inner orbits by more than one diameter; LOL less than twice as long as OOL; subocular suture distinct, carinate, cheeks fan-like striate; antennae 12-segmented, clava indistinct; notauli abbreviate anteriorly, well impressed in posterior half of mesoscutum, running parallel, located in extreme corners of mesoscutum (Fig. 5); scutellum broadly transverse, more than twice as long as metanotum; fore wings with only one dark transverse band in distal half and no tuft of erect bristles below submarginal vein; marginal vein slightly longer than stigma1 vein; postmarginal vein long; metasoma with laterotergites narrower than space between them (ventral view); T3 longest and largest; 7 visible tergites, T7 extruded with ovipositor.

**Male.** Unknown.

**TYPE-SPECIES:** Ladora brunnea n. sp. (described below).

**DISTRIBUTION.** Semi-arid biotopes of Africa (Morocco, The Gambia, South Africa), Europe (Mallorca), Central Asia (Kirghizia).

**BIOLOGY.** Unknown. One species collected on Tamarix-shrubs

**ETYMOLOGY.** An euphonic word, to be regarded as feminine.

This genus was mentioned first as an undescribed member of the Aradophagini (Masner 1976a). The differences between *Ladora* and the other two genera of Aradophagini are amply tabulated above in the key to genera.

**KEY TO SPECIES OF Ladora**

1. A2 as long as A3; Central Asia ......................... *L. trjapitzini* n. sp.
   - A2 slightly to distinctly longer than A3 (Figs. 6, 7); S. Europe, Africa .......... 2

2. Mesoscutum finely coriaceous between notauli; frons evenly coriaceous from above antennal insertion to anterior ocellus; propodeum predominantly rugulose below spiracle; general body colour dark chestnut brown; Morocco, Mallorca, The Gambia ................. *L. brunnea* n. sp.
   - Mesoscutum sculptureless between notauli; frons appearing almost smooth, with a few punctures from above antennal insertion to anterior ocellus; propodeum predominantly smooth below spiracle; general body colour blackish; South Africa .......................... *L. maura* n. sp.
Ladora brunnea n. sp.

Figs. 5, 6

Female. Length 1.2 mm. Chestnut brown; head and mesosoma darker than metasoma, T1 lighter than rest of metasoma; antennae and legs including coxae yellowish brown; fore wings with one transverse dark band under stigmalis-postmarginalis.

Head in dorsal view more than twice as wide as long (38:16); sculpture of frons consisting mostly of hexagonal or sub-hexagonal cells; lateral ocelli distant from inner orbits by more than one diameter; radicle long, about 1/3 of scape length (8:20); antennal segments in relative proportions 20:4, 9:3, 5.5:2.5, 5:3, 4:3, 3:3.5, 3:3.5, 4.5:4, 5:4, 5:4, 5:4, 5:4, 9:3.5 (Fig. 6).

Coriaceous sculpturing of mesoscutum becoming gradually finer towards scuto-scutellar suture; however, entire space between notauli evenly sculptured (to be viewed from behind at 45° angle), otherwise highly shining; scutellum smooth; metanotum smooth; propodeum mostly rugulose, with short median carina; marginalis, stigmalis, and postmarginalis in proportions 10:7:16.

Metasoma moderately elongate (70:35), tergites in relative proportions 8:18, 15:32, 21:35, 12:35, 10:21, 2:7, 2:5; T1 entirely with dense longitudinal striae; T2 with a fan or longitudinal rugulosity anteromedially, coriaceous along posterior margin; T3 with distinct coriaceous sculpture, polygons mostly elongate in middle part, almost as long as wide along anterior and posterior margins; tergites 4 and 5 with irregular polygons; posterior margins of T2-T5 with narrow smooth stripes.

Male. Unknown.

Type Material. 1 ♀, holotype (CNC No. 15500), Morocco, Tangier (no further data); 1 ♀, paratype (CNC), same data as holotype; 1 ♀, paratype (Coll. Huggert, Umeå), Spain, Mallorca, Cala Magor, March 26, 1972 (A. Törnwall); 1 ♀, paratype (Coll. Huggert, Umeå), The Gambia, West Africa, Lamin, Abuko Nature Reserve, Jan. 20, 1978 (L. Huggert).

Distribution. Morocco, Mallorca, The Gambia.

Discussion. In general colouring and propodeal sculpture, L. brunnea appears closer to L. trjapitzini than to L. maura. The ratio of A2:A3 is greater in brunnea than in maura. The sculpture of the frons and mesoscutum in brunnea is more developed than in trjapitzini or maura.

Ladora maura n. sp.

Fig. 7

Female. Length 1.2 mm. Black; radicle, scape and legs (excluding darker coxae) dirty yellow; A2-A12 light brown; fore wings with dark transverse band under stigmalis-postmarginalis.

Head in dorsal view broadly transverse (40:15); frons highly shining, almost sculptureless, with delicate coriaceous sculpture along inner orbits and a few scattered punctures in between; coriaceous sculpture on vertex by contrast more distinct; lateral ocelli distant from inner orbits by one diameter; radicle elongate, 1/3 of scape length (8:24); antennal segments in relative proportions 24:3.5, 10:3, 7:2.5, 6:2.5, 5:3, 4:3, 4:3.5, 5:4.5, 5:5, 5:5, 5:4.5, 5:4.5, 8:4 (Fig. 7).

Anterior third of mesoscutum as well as parts lateral to notauli irregularly coriaceous; space between notauli virtually sculptureless, highly shining, with a few scattered setigerous punctures and with very narrow streak of delicate aciculae running along notauli inward; scutellum and metanotum smooth; propodeum mostly rugulose medially, with large smooth field below spiracle; marginalis, stigmalis, and postmarginalis of proportions 9:6:13.

Metasoma as in brunnea except for T3 which is evenly coriaceous, with polygons in median part not distinctly elongate.

Male. Unknown.

Type Material. 1 ♀, holotype (USNM, Washington), South Africa, Humansdorp Distr., March 12, 1969 (J. de Villers), ex Lepidosaphes beckii; 1 ♀, paratype
Biology. The type series was allegedly reared from an armoured scale; however, this needs to be confirmed considering the known host associations of other Scelioninae.

Distribution. South Africa.

Discussion. L. maura differs markedly from the other two species of Ladora by its dark colour. There are subtle differences between maura on the one hand, and brunnea and trjapitzini on the other, in OOL and the sculpture of the propodeum below the spiracles.

Ladora trjapitzini n. sp.

Female. Length 1.2 mm. Chestnut brown; head and mesosoma darker than metasoma, T1 not lighter than rest of metasoma; A1–A5 dirty yellow, A6–A12 as well as legs including coxae light brownish yellow; fore wing with one dark transverse band under stigma-postmarginalis.

Head broadly transverse (40:17); frons shining, with delicate irregular coriaceous sculpture which is finer than in brunnea but more distinct than in maura; lateral ocelli distant from inner orbits by more than one diameter; radicle elongate, but shorter than in the two preceding species, compared to scape length (7:23); antennal segments in relative proportions 23:3.5, 8:3.5, 8:2.5, 5.5:2.5, 4:3, 3:3.5, 3:5.4, 4:5:4.5, 5:5, 5:4.5, 7:5.4.

Coriaceous sculpture of mesoscutum better developed than in brunnea but considerably finer than in brunnea; space between notauli appears almost smooth; however, under higher magnification a delicate coriaceous sculpture is seen; scutellum, metanotum, propodeum, and ratio of veins in fore wing as in brunnea.

Metasoma as in brunnea except that polygons in middle part of T3 are not elongate.

Male. Unknown.

Type Material. 1 ♀, holotype (Zoological Institute, Academy of Sciences USSR, Leningrad), South Kirghizia, Arkit, Sary-Chelek Nature Preserve, Sept. 2, 1963 (V. Trjapitzin); 1 ♀, paratype (deposited along with the holotype), Turkmenistan, Gorge of Kel-Ata, region of Geok-Tepe, Sept. 24, 1966 (V. Trjapitzin).

Biology. Host unknown. Holotype swept from Tamarix shrubs.

Distribution. Central Asia (Western Turkestan).

Discussion. This species is an intermediate between L. brunnea and L. maura in sculpturing of the frons and mesoscutum. However, the ratio of A2 and A3 will distinguish L. trjapitzini at once from the other two species. The species is named after its collector, the well-known Soviet chalcidologist, V.A. Trjapitzin (ZIN, Leningrad).

Abuko n. gen.

Figs. 8, 9

Female. Body considerably flattened dorsoventrally, almost twice as wide as high, metasoma fully three times as wide as high; head in frontal view subcircular, in dorsal view strongly transverse; eyes large, with minute scattered hairs; ocelli in curved line, lateral ones distant from inner orbits by more than one diameter; LOL more than twice as long as OOL; subocular suture fine, ecarinate; cheeks with only very short, inconspicuous striae at base of mandibles; antennae 12-segmented, clava indistinct; notauli as in Ladora, abbreviate anteriorly, well impressed in posterior half of mesoscutum, running parallel, located in extreme corners of mesoscutum; scutellum broadly transverse, about twice as long as metanotum; fore wings with two dark transverse bands; at about distal 1/3 of and just below submarginal vein with
a tuft of strong erect black bristles forming a slanting cone (Fig. 9); marginal vein slightly longer than stigmal vein; postmarginal vein long; metasoma with laterotergites in ventral view subequal to space between them; T2 slightly longer than T3; 7 visible tergites, T7 extruded with ovipositor.

Male. Unknown.

Type-species: *Abuko sarotes* n. sp. (described below).

Biology. Unknown.

Distribution. The Gambia (West Africa).

Etymology. Named after the Abuko Nature Reserve in The Gambia (West Africa); to be regarded as masculine.

Discussion. *Abuko* in some respects presents a mosaic of characters found in *Aradophagus* and *Ladora*. With *Aradophagus* it shares the sculpture of the cheeks, the 2-banded fore wings, and the general shape of the metasoma. With *Ladora* it shares the position of the ocelli and the shape of the notauli. However, the tuft of long black erect bristles on the fore wing in *Abuko* is virtually unique among all genera of Scelionidae, and is reminiscent of a similar structure found in some Chalcidoidea (Pteromalidae, Eulophidae). Similarly, the overall smoothness, body colour, and iridescent eyes in *Abuko* are also reminiscent of some members of Chalcidoidea (e.g. Cerocephalinae of the Pteromalidae), which are parasites of Scolytidae and Anobiidae.

*Abuko sarotes* n. sp.

Figs. 8, 9

Female. Length 1.0 mm. Golden yellow; ocelli partly margined by dark brown; antennae remarkably varicoloured, A2 and most of A3 brown, A8–A12 black; radicle and A1, A4–A7 yellow; eyes slightly iridescent; legs yellow, with whitish coxae; wing pattern as in Fig. 9.

Head transverse in dorsal view (16:33); frons perfectly smooth and shining, with scattered setigerous punctures; lateral ocelli distant from inner orbits by slightly more than one diameter; radicle about 1/3 of scape length (7:20); antennal segments in relative proportions 20:3, 8:3, 4.5:2.5, 4.5:2.5, 3.5:3.3, 3.4:4.4, 5:4.5, 5:4.5, 5:4.5, 8:5.4.

Mesonotum smooth and shining except for a small area of delicate coriaceous sculpture at extreme anterior of mesoscutum; metanotum and propodeum smooth and shining; marginalis, stigmatis, and postmarginalis in proportions 8:5:10.

Metasoma moderately elongate (55:25), tergites in relative proportions 7:13, 16:24, 13:25, 8:24, 5:20, 3:12, 1.5:3; T1 entirely longitudinally striate; T2 with longitudinal striae at base, striae medially reaching almost posterior margin of tergite, lateral parts smooth; T3 at meson with longitudinal reticulation, smooth laterally; T4 with faint reticulation at meson, otherwise smooth; following tergites smooth.

Male. Unknown.

Type Material. 1♀, holotype (Coll. Huggert, Umeå), The Gambia, West Africa, Lamin, Abuko Nature Reserve, Jan. 22, 1978 (L. Huggert).

Biology. Unknown.

Distribution. The Gambia.

Etymology. *Sarotes* in Latin means "sweeper" or "broom", indicating the presence of the unique brush on the fore wing.

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