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The first species of Myrocheini (Hemiptera: Pentatomidae: Pentatominae) from the Palaearctic Region

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Heteroptera, Pentatominae, Myrocheini, Palaearctic Region, cladistics, new genus, new species

Abstract. *Lodosia* Ahmad & Önder, gen. n., and *Lodosia gonocoxa* Ahmad & Önder, sp. n. are described. The single female specimen was collected some 900 km east of Ankara, Turkey, and is the westernmost representative of the pentatomine tribe Myrocheini; it is distinguished in particular by the raised tips of both pairs of the gonocoxae. Our cladistic hypothesis is that *Laprius* Stål is the sister group of *Lodosia*, and that *Dollingiana* Ahmad & Kamaluddin is the sister group of *Lodosia* + *Laprius*. The three genera all have remarkably wide interocular distances; and *Lodosia* and *Laprius* each has an unusually wide anteocular distance. Autapomorphies of the three genera are discussed.

INTRODUCTION

The pentatomine tribe Myrocheini Stål, 1876 was removed from synonymy and redescribed by Ahmad & Afzal (1989), who also reviewed the taxonomic history of the tribe and of the genera included in it, and provided a key to the Indo-Pakistani genera and species. Ahmad & Afzal (1989) diagnosed the tribe as having a broad head with laminate margins; paraclypei longer than or equal to clypeus; 1st antennal segment not surpassing head; pronotum's lateral margins reflexed and laminate and entire, or very finely serrate; anterior pronotal angles sharp and produced anteriorly, and humeral angles rounded; metathoracic scent gland apparatus poorly developed, with no or only a small peritreme and evaporative area; forefemora (and mesofemora: Schaefer, pers. observ.) more incrassate than hind femora. To these characterizations may be added: second antennal segment longer than third, and forefemora with one or two preapical spines (Ahmad & Kamaluddin, 1986; Schaefer, pers. observ.).

Until now, Myrocheini has been thought restricted to Africa and the Indo-Pakistani subcontinent (Ahmad & Afzal, 1989). In 1983, the third author, on expedition to Erzincan, 883 km east of Ankara (Turkey), collected a female myrocheine on unidentified grasses. This appears to be the westernmost record of Myrocheini, and extends the tribe's known range into the Palaearctic Region. The specimen belongs to a new genus, which is described here.

All measurements are in millimeters.

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DESCRIPTIONS

Genus *Lodosia* Ahmad & Önder, gen. n.

TYPE SPECIES: *L. gonocoxa* Ahmad & Önder, sp. n. (present designation, monobasic).

Dull, grayish black with castaneous tinge; elongately oval, sides of head and pronotum markedly explanate and reflexed. Head distinctly wider than long; paraclypei slightly longer than but not enclosing clypeus in front; anteocular distance distinctly longer than remainder of head; interocellar distance about three times distance from ocellus to eye; 2nd antennal segment 1.5 times 3rd and longer than 4th; labium reaching about middle of 3rd abdominal sternum. Pronotum with anterior angles slightly pointed toward eyes; humeri round; apex of scutellum conical; metathoracic ostiolar peritreme small but distinct, shining, slightly curved; mesosternum sulcate; forefemora unspinose but with a few very fine granules distally, all tibiae and tarsi with bunches of stout setae. Male not available.

FEMALE GENITALIA. First gonocoxae subtriangular, medially widely separated with tips prominently raised and with strong and dense brush of setae; 2nd gonocoxae medially fused, tips remarkably raised with scattered brush of setae; triangulin medially fused, heavily sclerotized, tapering posteriorly with acute tips; arcus slightly visible laterally adjacent to inner margins of 1st gonocoxae; 9th paratergites elongate, more or less triangular, with round apices, distally raised and medially markedly depressed, not quite reaching medially fused posterior margins of 8th paratergites; latter prominently raised distally and slightly basally but medially prominently depressed; proctiger not quite reaching apices of 9th paratergites; spermatheca with well developed proximal and distal flanges, pump region, median dilation, proximal and distal ducts; bulb elongate, oval, with median constriction but without tubular processes.

ETYMOLOGY. The generic name honors Prof. Dr N. Lodos, the well known hemipterist of Turkey, who invited the first author to work at his department at Ege University, Izmir, and who retired in June, 1988.

Lodosia clearly belongs in Myrocheini, fitting the diagnostic description of the tribe by Ahmad & Afzal (1989) and, earlier, by Ahmad & Kamaluddin (1986) (see Introduction). However, its forefemora are not spined, although they have a few small granules; we believe this to be an autapomorphy (by loss) of the genus.

Lodosia gonocoxa Ahmad & Önder, sp. n.
(Fig. 1)

COLORATION. Densely blackly pigmented against a pale background; pale median carina extending from tip of clypeus to basal one-third of scutellum, latter with pale callosities at basal corners, sides, middle, and at distal portion; antennae, labium, legs castaneous black, underside heavily pigmented against pale or pinkish pale background; raised and reflexed margins of pronotum and basal one-fourth of corium pale.

GENERAL SHAPE. Elongately oval, length about twice width across humeri but distinctly less than twice maximal width of abdomen. Total length (♀) 14.5.

HEAD. Anteriorly more or less triangular; length anteocular region 1.45; length remainder of head 1.15, width 3.0; interocular distance 2.3; interocellar distance (including

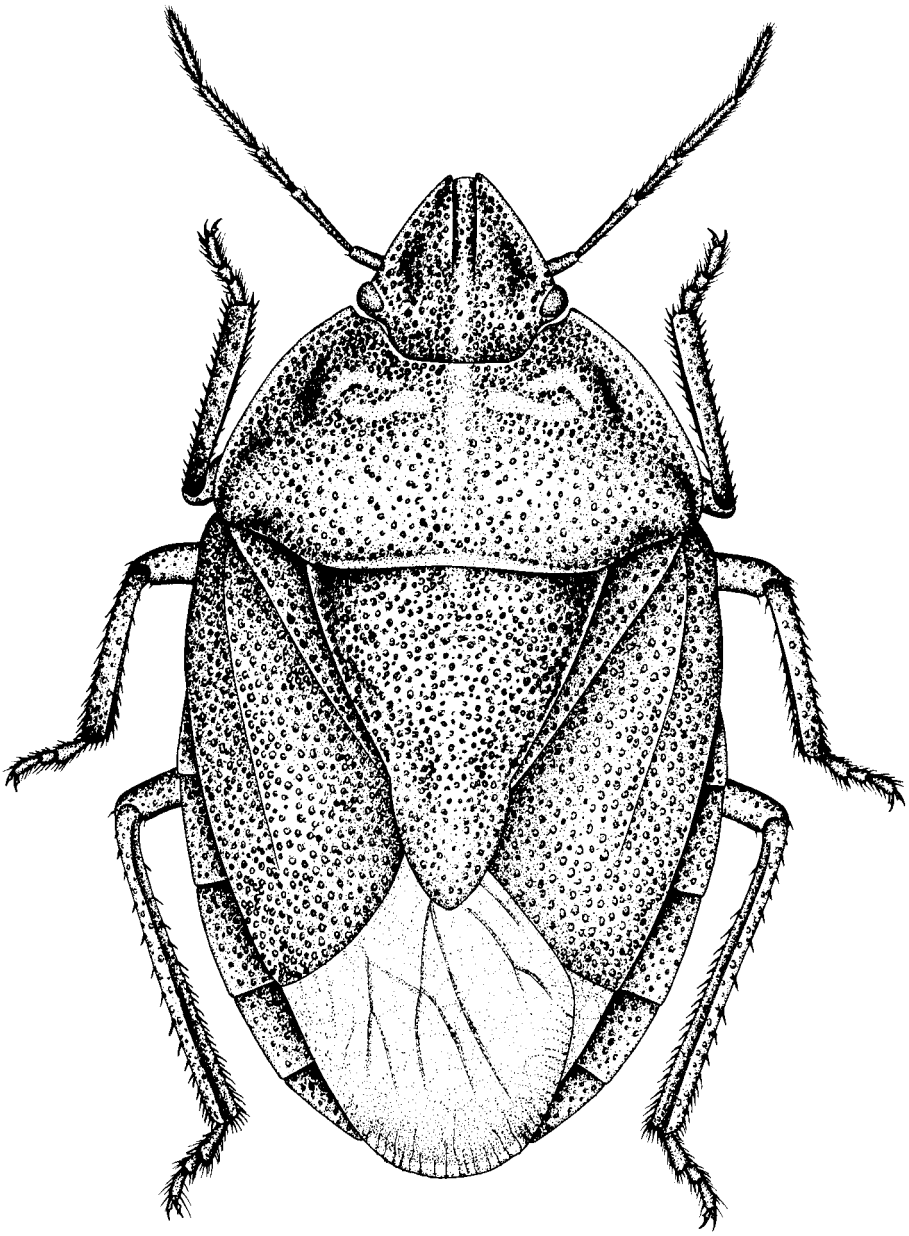
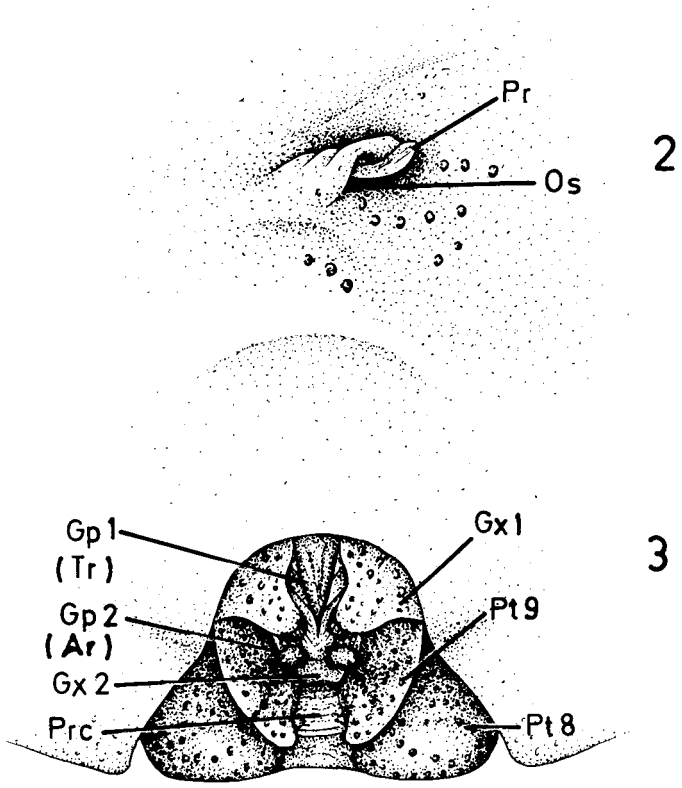


Fig. 1. *Lodosia gonocoxa* sp. n. Dorsal view.



Figs 2–3: *Lodosia gonocoxa*. 2 – metathoracic scent gland apparatus, ventral view. 3 – external female genitalia, ventral view. Abbreviations: Pr – peritreme; Os – ostiole; Gx – gonocoxa; Gp – gonopophysis; Tr – triangulin; Ar – arcus; Prc – proctiger; Pt – paratergite.

ocelli) 1.5; distance between an ocellus and an eye 0.5; length antennal segments: I 0.6, II 1.2, III 0.8, IV 1.1, V 1.2; length labial segments: I 1.3, II 2.15, III 1.7, IV 1.3.

THORAX. Pronotum with anteromedial margin deeply concave, boat-shaped, with slight middle portion convex, beyond concavity convex lobelike, with anterior angles pointed toward eye, lateral margins smoothly convex, sides adjacent to lateral and anterior margins depressed, callosities, dorsal portion, and humeri raised, slightly tapering posteriorly, posterior margin medially slightly concave following slight convexity, concave again becoming round at humeri; length (maximum, from anterior angle) 3.5 (median length 3.0), width 7.0. Scutellum more or less triangular, slightly constricted beyond middle, forming apical conical lobe, base and midregion of edges raised, distally depressed, length 4.9, width 4.3. Metathoracic ostiolar peritreme (Fig. 2) small but distinct; membrane of hemelytra slightly passing beyond tip of abdomen.

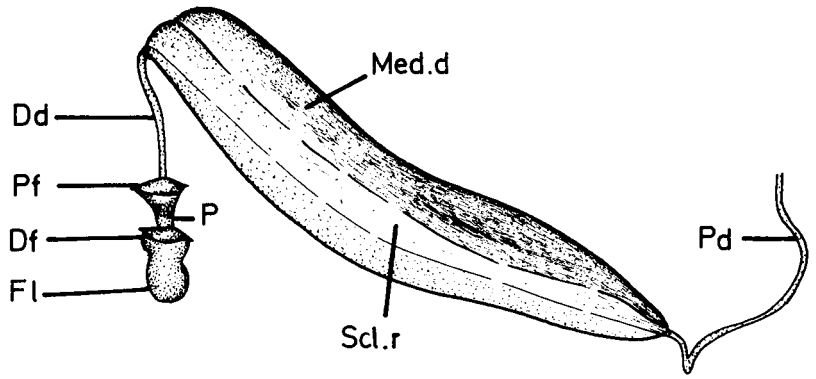


Fig. 4. *Lodosia gonocoxa*. Spermatheca, dorsal view. Abbreviations: Pd – proximal duct; Scl. r – sclerotized ring; Med. d – median dilation; Dd – distal duct; Pf – proximal flange; Df – distal flange; Fl – flange; P – pump.

ABDOMEN. Connexivum exposed; middle of abdomen convex ventrally, sides depressed; ventroposterior margin of 7th abdominal sternum medially smoothly concave following convexity at sides, slightly concave again and round at lateral corners.

FEMALE GENITALIA (Figs 3, 4). First gonocoxae with outer and inner margins remarkably concave, latter convex basally, tips round, areas adjacent to outer and posterior margins prominently depressed, tips and area adjacent to inner margins raised with a slight median depression basally, in addition to stout, dense setae on tips, scattered setae on posterodorsal and on area near outer margin; 2nd gonocoxae with distal margin concave; triangulin remarkably exposed, elongate; 9th paratergites with convex outer and faintly concave inner margins; proctiger with posterior margin substraight, partly medially visible (Fig. 3); proximal spermathecal duct slightly longer than distal duct, median dilation remarkably elongate, pump region elongate and slender, distal flange with corners prominent (Fig. 4).

COMPARATIVE NOTE AND ETYMOLOGY. The prominently raised tips of the first and second gonocoxae are very unusual features, features upon which this species' name is based.

HOLOTYPE: ♀. Turkey: Erzincan: Ahmediya, 883 km east of Ankara. On wild grass (Poaceae). In collection of Department of Entomology, Ege University, Izmir-Bornova, Turkey.

CLADISTIC ANALYSIS

Outgroups

The pentatomine tribes Caystrini and Sciocorini appear to be the most closely related to Myrocheini. All three share these apomorphies, each of which occurs sporadically if at all in other members of Pentatominae: antenniferous tubercles remote from margins of head, not distinguishable from above; first antennal segment not reaching apex of head; paramere with curved tip and median process; ventral rim of male's genital capsule bilobed medially. (These last two features cannot be checked on *Lodosia* for which we have no males).

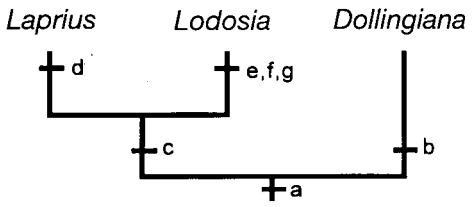


Fig. 5. Cladogram of *Lodosia, Laprius,* and *Dollingiana*. For characters see text.

We have examined members of the following genera: Myrocheini: *Aednus*, *Dorpius*, *Neodorpius*, *Laprius*, *Dollingiana*; Sciocorini: *Sciocoris*, *Eupododus*, *Menedemus*; Caystrini: *Riazocoris*, *Caystrus*. In addition, the two senior authors have over the course of some 30 years examined many representatives of the pentatomid world fauna, including representatives of the great majority of tribes.

Characters

Lodosia possesses so many of the characteristics of Myrocheini (see Introduction) that we do not hesitate to place it in this tribe. However, it lacks the spines of the forefemora and the processes of the spermathecal bulb. We believe these to be secondary losses, and note that the femoral spines may have been reduced to the granules found in *Lodosia* where, in other myrocheines, the spines occur.

Characters (see Fig. 5): Interocular distance and distance between eye and ocellus (character **a**). In the great majority of Pentatomidae (and indeed in most other pentatomoids), the interocular distance is rarely more than twice the distance between an eye and an ocellus; in *Dollingiana*, *Laprius*, and *Lodosia*, the interocular distance is at least three times the eye-ocellus distance, and in some species is four or five times this distance. We consider this greater distance to be apomorphic.

Similarly, the second and third antennal segments are equal or subequal in most pentatomines (including Caystrini and Sciocorini) (character **b**). In members of Myrocheini, the second segment is distinctly longer than the third and, in *Dollingiana*, it is twice as long, a state we consider an autapomorphy of this genus.

Relative length of anteocular region of head (character **c**): In most pentatomids, including most members of Myrocheini and Caystrini, this region is about equal in length to the remainder of the head. In *Laprius* and *Lodosia*, the anteocular region occupies about three-fourths of the head's length, an autapomorphy of this clade.

Development of peritreme of metathoracic scent gland (character **d**): The peritreme and the evaporative area are reduced in Myrocheini (an autapomorphy of the tribe), and are nearly or wholly lost in *Laprius*, a further apomorphy.

Spinosity of forefemora (character **e**): Pentatomines usually have smooth forefemora; myrocheines, however, have two spines on the forefemora (Schaefer, pers. observ.) (an autapomorphy of the tribe). However, in *Lodosia*, the forefemora are again smooth, or nearly so, with the spines apparently reduced to granules. We consider this a further autapomorphy of the genus.

Apices of first and second gonocoxae (character **f**): The apices of both gonocoxae are neither projected nor lobed in the Pentatomidae (including most Myrocheini). In *Lodosia*, however, they extend medially to form rounded lobes (Fig. 3).

Processes of spermathecal bulb (character **g**): The spermathecal bulb of most members of Pentatomidae is smooth, without processes. The few exceptions (e.g., in many members of Podopinae [see Schaefer, 1983], in most Caystrini and Myrocheini) are apomorphic states, probably independently arisen. Because the processes occur in all other members of Myrocheini except *Dorpius* (Ahmad & Afzal, 1989), we believe their absence in *Lodosia* could be a reversal and, therefore, an autapomorphy of the genus.

NOTE: Ahmad & Kamaluddin (1986) and Ahmad & Afzal (1989) remarked that a proximal constriction (or sudden narrowing) in the dilation of the spermathecal duct characterizes members of Myrocheini. However, although this constriction occurs in species of *Laprius* (Ahmad & Afzal, 1989) and *Dollingiana* (Ahmad & Kamaluddin, 1986), it does not occur in *Dorpius* (Ahmad & Afzal, 1989) and *Lodosia* (this paper, Fig. 4). Therefore it is not characteristic of the tribe as a whole. Because we know too little of the distribution of this character in Pentatomidae, we cannot polarize it and do not include it in the cladistic analysis.

Cladogram (Fig. 5)

Laprius appears to be the sister genus of *Lodosia* (Fig. 5), both having an unusually long anteocular region (character **c**). The interocular distance (character **a**) in *Dollingiana* and (presumably) the common ancestor of *Lodosia* + *Laprius* is also unusually large; and we conclude that these two are sister clades.

In addition, in at least one species of *Laprius* (*L. ikrami* Ahmad & Kamaluddin), and in *Lodosia, Dollingiana*, and *Neodorpius* (Ahmad & Afzal, 1989), the rostrum reaches the third (second visible) abdominal sternum, an advanced character state. This suggests that *Neodorpius* may be the sister genus of the ([*Laprius* + *Lodosia*] + *Dollingiana*) clade; but the facts that in several *Laprius* species the rostrum is short, and that a long rostrum occurs fairly often in other pentatomine groups, make this suggestion at best tentative.

Autapomorphies of *Lodosia, Laprius*, and *Dollingiana* are indicated on the cladogram (Fig. 5).

DISTRIBUTION

Myrocheini, as defined by Ahmad & Afzal (1989), is African and Oriental. Several genera (*Munshiana, Dollingiana*, and *Neodorpius*) are known only from the Indo-Pakistani subcontinent. The five species of *Laprius* occur throughout the Oriental Region. With the discovery of *Lodosia*, from eastern Turkey, the known range of the tribe is considerably expanded, into the Palaearctic Region.

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