

# Taxonomical Study of Family Cerambycidae in Aljabal Alakhder District, Libya

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## ABSTRACT

Taxonomical study was carried out on certain Cerambycid insects at Al-Jabal Al-Akhder governorate (Libya) for two years from July 2007 to October 2009. Twelve insects of the family were collected. The studied beetles were classified into three subfamilies: Prioninae, Lamiinae and Cerambycinae. The taxonomical characters of the collected species were indicated and illustrated. Two species were found belonging to Prioninae, one to Lamiinae and nine to Cerambycinae. Two of the species have been recorded for the first time in Libya, being *Rhesus serricollis* and *Stromatium unicolor*. Keys to subfamilies, genera and species were constructed.

## INTRODUCTION

To date, more than 30000 species of Cerambycidae have been described worldwide (Balachowsky, 1963 and Sama *et al.* 2010). Members of this family are xylophagous and phytophagous. Family Cerambycidae are characterized by the extremely long antennae hence one of their common names, longhorned beetles.

Taxonomical studies of family Cerambycidae were carried out in different countries of the world. For instance, in Egypt a total of 49 species was recorded in several investigations (Alfieri 1916, 1957, 1976; Nour, 1963; Moussa, 1977; Mohamed, 1984; Sama and Rapuzzi, 2006). The African longicorn beetles were surveyed with keys to subfamilies and the lower taxa by Villiers (1946), Duffy (1957), Quentin and Villiers (1978). They were listed in Greece by Dauber (2004), in Iran by Awal (2005), in Sicily by Romano (2007). Linsley (1961–1964) has published an extensive monograph of North American species.

In Libya coleopteran insects collected by scientific expeditions, including family Cerambycidae, have been listed in some literature (Zavattari, 1934; Peyerimhoff, 1948; and Damiano, 1961). These previous works were not supplied with a detailed taxonomical description, therefore, the present study aimed to study the cerambycid insects in AL-Jabal AL-Akhder district (Libya) during the period from 2007 to 2009 in the hope of finding any species or subspecies other than those recorded before.

## MATERIALS AND METHODS

The present investigation was carried out in Al-Jabal Al-Akhder governorate (Libya) from July 2007 to October 2009.

Concerning to the trees and shrubs in this area, the *Junipers phaenica* (Cupressaceae) was the highest recorded and represents 80% of the total trees, followed by *Arbutus pavarii* (Ericaceae), *Pistacia tentiscus* (Anacardiaceae) and *Olea europea* (Oleaceae) in addition to other trees, shrubs and plants.

The collecting methods of the wood borers were:

- 1-Light traps either hanged on trees or installed on ground.
- 2-White sheets provided with light source to attract insects and then collecting them.
- 3-Shaking the infested branches and receiving the dropped insects on a white sheet spread under the tree.
- 4-Preserving the branches infested with wood borers in carton boxes until the emergence of adult beetles.

Collected insects were identified with the help of stereoscopic binocular microscope. The following taxonomic keys were used: Britton (1979), Borror *et al.* (1989) and Booth *et al.* (1990) for the determination of families Moussa (1977) and Mohamed (1984) for the Cerambycids.

## RESULTS AND DISCUSSIONS

### Taxonomic position and characters of family Cerambycidae

Family Cerambycidae is classified together with Chrysomelidae and Bruchidae in the superfamily Chrysomeloidea (Booth *et al.* 1990). Some authors recognized Cerambycidae as a separate superfamily Cerambycoidea (Svacha and Danilevsky, 1987). The longhorn beetles were divided into several families (Crowson, 1981). Detailed examinations of their larval morphology led to further division of this group, and at least five families of them were considered to belong worldwide to the Superfamily Cerambycoidea: Vesperidae, Anoplodermatidae, Oxypeltidae,

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Disteniidae and Cerambycidae (Svacha and Danilevsky, 1987). Cerambycidae is divided into subfamilies: Prioninae, Lamiinae, Aseminae, Paradrinae, Spondylinae, Lepturinae and Cerambycinae (Borror *et al.* 1989).

Members of this family can be diagnosed as follows: body elongate and parallel sided, usually more or less depressed, and many are brightly coloured. Antennae eleven segmented, more than half as long as body, they arise from conspicuous tubercles on the front of the head. First antennal segment long, club-shaped, second small, third the longest, 4-6 sub equal, 7-11 attenuate. Eyes large, emarginated, their extension around the bases of antennae frequently pronounced. Palpi with terminal segments subcylindrical or fusiform. Tarsi actually 5- segmented, with few exceptions, the fourth segment reduced and concealed in a notch of the bilobed third segment, so that they appear 4-segmented. Fore coxae transverse or globular, separated, the cavities open behind or narrowly closed, a pair of small tibial spurs present on all legs.

#### Key to the subfamilies under study

- Sides of thorax distinctly margined laterally, armed with three or more teeth; front coxae transverse; prosternum appreciably produced in the form of a blunt process behind anterior coxae ;length at least 23mm .....**Prioninae**
- Sides of thorax not margined; lateral teeth usually absent but sometimes one pair; front coxae round, oval or conical,;prosternum not or scarcely produced behind anterior coxae.....2  
2(1) Last segment of maxillary palp pointed apically; face vertical or slanting backwards.....**Lamiinae**
- Last segment of maxillary palp blunt or truncate apically ;face slanting forwards subvertical.....**Cerambycinae**

#### A- Subfamily: Prioninae

This subfamily contains the largest Cerambycids, which are characterized by: head oblique or subvertical. Antennae inserted near base of mandibles, variable in length but always surpassing base of pronotum, segments glabrous, sometimes serrate with 12 or more segments. Eyes large, usually coarse faceted. Palpi with last segment truncate at apex. Pronotum with a produced lateral margin, sides often spinose or dentate. Anterior coxae transverse, coxal cavities open behind. Elytra with variable apices.

#### Key to the collected genera of subfamily Prioninae

- Anterior margin of prothorax narrow; thoracic margins with numerous spines; apices of elytra rounded, third antennal segment about 8-13 m....**Macrotoma**.
- Anterior margin of prothorax nearly as wide as posterior; thoracic margins less spinose; apices of elytra truncate, third antennal segment about 4- 6 mm.....**Rhesus**.

#### A-1- *Macrotoma palmata* Fabricius, 1792( Fig. 1A)

This cerambycid is greatly large in size and can be considered as a giant longhorned beetle. Female length about 56 mm. and 21 mm. in width,; while male about 55 mm. in length and 20 mm. in width. Body cylindrical and elongate; Colour dark-brown, slightly bright especially at the ventral surface with ;dense yellow pubescence on the ventral side of thorax and the anterior margin of pronotum. Head large, extending forward and bent slightly below; antenna inserted in the notch of eye; vertex coarse with V-shaped depression between eyes. Labrum large and transverse. Mandibles large, strong, curved and dentate. Maxillary palpi four segmented, terminal segment the largest one and blunt at tip (Fig.2 A). Labial palpi three segmented. Antennae about as long as body in male, shorter in female (Fig.2D,E) ..

Pronotum nearly trapezoid(Fig.2 G), anterior margin narrower than base and concave medially, armed laterally with sharp spines, about 8 spines on each side in female and more in male, the largest spines found at the posterior angles; dorsal side of pronotum rugous and granulated. Prosternum wide and short, prosternal process (Fig.2 M) narrow and extends between the fore-coxae, procoxal cavities opened behind. Mesosternum small while the metasternum large, broad, quadrate with longitudinal fine suture (Fig.2M). Metepisternum elongate. Fore coxae transverse, mid coxae conical and hind coxae transverse only in male. Femora and tibiae provided with sharp spines ventrally in males; while smooth in females. Tarsus long, five segmented (Fig.3A), apparently four segmented, first tarsal segment longer than both second and third together; second segment smaller; first and the second segments with a longitudinal groove ventrally, third segment bilobed and fourth very small. Last tarsal segment nearly equal to first one and has two simple claws. Abdomen five segmented, swollen, large, last segment truncate at the apical end. Scutellum broad, quadrate-shaped in female and somewhat triangular in male. Shoulders of elytra with deep depression at sides, elytra broadly rounded apically with sutural angle distinct(Fig.3C). There are longitudinal three or four ridges extending along the smooth surface of each elytron, sometimes more or less obscured.

Female head somewhat smaller; antennae less robust, without protrusions, reaching to the middle of elytra, prothorax less rugose, not much inclined, legs less spiny.

#### A-2- *Rhesus serricollis* Motschulsky, 1838 (Fig. 1B)

This species is nearly similar to the preceding species, *M. palmata*, in size and colour. It can be distinguished by the third antennal segment which is shorter than that of *M. palmata*. Pronotum of *R. serricollis* (Fig. 2H) transversely oblong, lateral spines fewer than *M. palmata*, posterior spine near hind angle large and curved. First segment of tarsus is shorter than *M. palmata*.

This species was not recorded in the lists of Cerambycid beetles in Libya (Zavattari, 1934; Damiano, 1961 and Sama et al. 2005) therefore this is the first record in Libya.

#### B- Subfamily Lamiinae

The members of this subfamily can be recognized by the pointed terminal segment of the maxillary palps and the rather vertical face. Pronotum rounded laterally often a little narrower than base of elytra. Fore coxae usually projecting either conical or globular, their cavities closed behind.

#### B-1- *Niphona picticornis* Mulsant, 1839 (Fig. 1C)

Body elongate, about 25mm. in length and 10 mm. in width, extremely flat at the posterior one-half of elytra and densely pubescent. Colour light-gray with some irregular orange spots on the pronotum and elytra. Antennae and legs with transverse strips of orange hairs. Tarsi dark-brown. Head broad, oval at the anterior view, retracted into prothorax, with a slight depression between compound eyes, coronal suture extends on the vertex and surrounded with reddish yellow pubescence mixed with white hairs. Eyes large, coarsely granulated and deeply emarginated, divided into two lobes. Labrum broad with dense long hairs on its border. Mandibles large, curved, sharp apically. Last joint of maxillary and labial palpi spindle-shaped (Fig. 2B). Antenna as long as body in male and shorter in female. Prothorax (Fig. 2I) oblong transverse, with rounded sides, surface rugose with irregular projections and dense pubescence. Scutellum semicircular with fine longitudinal line uncovered with pubescence. Base of elytra wider than base of the prothorax. Shoulders rounded and extending laterally, elytral angles covering metepisternum. Elytra convex, truncate apically, rugose with raised projections and coated with dense pale-gray pubescence and whitish m-shaped mark at the posterior half of elytra. Sutural angle with small spine (Fig. 3D), elytral apices divergent. Ventral side covered with a whitish dense pubescence varied with brown spots. Prosternum narrow, prosternal

process extends posteriorly between the fore-coxae then dilated behind them (Fig. 3I). Mesosternum small, narrow, raised, its process extends, between the middle-coxae. Meta-sternum broad, large and has a longitudinal suture. Legs covered with long dense pubescence, fore and middle coxae large globular while hind coxae transverse. Trochanters large and triangular. Femora broad, elongate. First and second segments of tarsus small, third deeply bilobed, fourth rounded and very small, terminal segment long and narrow (Fig. 3B).

#### C- Subfamily Cerambycinae

Head subvertical or prognathous, scarcely narrowed behind eyes, antennal insertion usually partly surrounded by eyes and far from base of mandibles; mandibles acute; palps with last segment more or less truncate at apex. Antennae, usually very elongate, 2nd segment short. Anterior coxae rarely prominent, usually rounded, cavities variable; tarsi with 3rd segment usually dilated, bilobed, concealing minute 4th segment; hind legs longer than mid legs.

#### Key to the genera under study of subfamily Cerambycinae

- 1- Pronotum with two lateral spines and covered with coarse transverse sculpture of different elevation; apex of each antennal segments 3 – 7 terminates with a sharp spine; apex of elytra spinose at apical end, elytra with pale patches at middle and apex..... *Phoracantha*
- Pronotal disc without coarse transverse sculpture with only slight elevations.....2
- 2-(1') Lateral margin of pronotum with a tubercle.....3
- Lateral margin of pronotum without a tubercle.....4
- 3-(2) Elytra coloured red and black..... *Purpuricenusa*.
- Elytra pale brown, unicolour..... *Dramaus*.
- 4(2')- Posterior margin of pronotum with two upright spines in the center..... *Penichroa*.
- Posterior margin of pronotum without such upright spines in the center.....5
- 5-(4) Pronotum as long as broad or longer, with three smooth lines..... *Icosium*.
- Pronotum wider than long.....6
- 6-(5') Elytra apex with a spine at sutural angle; antennal tubercle with an obtuse toothed process..... *Stromatium*.

- Elytra apex rounded ,without sutural spine; antennal tubercle without such process.....7

7-(6') Elytra with rounded bare spaces.....*Hesperphanes*.

- Elytra without such bare spaces.....*Trichoferus*.

***C-1-Phoracantha semipunctata* Fabricius,1775 (Fig. 1D)**

Body elongate and cylindrical in shape. Length 25 - 35 mm.;Colour entirely drak reddish brown except elytra with two straw-coloured, sinuate transverse median band on the basal half and an apical oval spot, sinuate and yellowish strips at antenna and legs . Head prognathous. Antenna,one and half body length in male, about equal to body in female. Antennal segments 3-8 with apical spine in inner angle (Fig.2F). Lateraly wider than the anterior margin of the pronotum. Mandibles triangular, swollen, not tooth and with acute curved and sharp tips.Maxillary palp four segmented, apical segment opliquely truncate (Fig.2C). Antennal socket with a process at the inner side. Prothorax sligtly elongate with sides bearing a pair of median spines(Fig.2J), there are elevated, smooth shiny tubercles on pronotum, one pair at both anterior and posterior margins and one triangular at the midline of the pronotum, otherwise with coarse punctures.

Sides of the pronotum provided with fine, long and whitish hairs.Scutellum small ,triangular, pubescent. Elytra shiny ,weakly constricted at basal third, very coarsely punctate on basal half, apical half smooth; apices truncate with outer and sutural angles strongly spined (Fig.3E).Prosternum elongate, mesosternum triangular and wide in front of the middle coxae and the metasternum nearly oblong with a longitudinal fine suture.Legs unequal in length, covered with yellowish hairs. Fore coxae small and globular, their cavities rounded and open behind(Fig.3J). Abdomen of the female more expanded than male and last abdominal segment tubular, elongate and exposed under the apices of elytra. Ventral side of thorax and abdomen with dense fine yellowish hairs.

***C-2-Purpuricenus desfontainii desfontainii* Fabricius,1792 (Fig. 1E)**

Body cylindrical, about 20 mm. in length; antenna twice as long as body. Ground color mostly black, prothorax orange in colour with three black rounded spots forming an inverted triangle, anterior margin black, a broad black band along the posterior margin, this band extends anteriorly on both sides, external margin of lateral tubercles of pronotum also black. Anterior half of elytra with a broad orange band. Shoulders and posterior half of elytra black. Legs and

antennae black. Dorsum closely and coarsely punctured, with mixture of fine and erect hairs.

Head hypognathous, slightly oplique forward. Front and vertex densely punctured and covered with yellow erected hairs, front with distinct long suture, clypeus smooth and labrum fringed with a row of yellow hair. Ventral sides of gena extended laterally above the base of mandibles. Antennal tubercle with a horn-like process at the inner side. Antenna finely punctured, terminal segment one and half as long as penultimate one and curved at apex. Terminal segment of palpi truncate at tip.Pronotum transverse, coarsely punctured, posterior margin narrower than base of elytra, lateral margin strongly convex with triangular tubercle on each side(Fig.2K). Scutellum small, triangular and black. Elytra elongate, rounded at apex, with 3 faint ridges on each elytron. Pygidium exposed .Ventral side of body black, punctured except the posterior end of the anterior four abdominal sternites.Metasternum large with a longitudinal suture.Fore coxal cavity opened behind and with external angle. Procoxa globular, mid and hind coxae conical. Anterior femure curved. Tibiae covered ventrally with dense hairs.

***C-3-Dramaus mehennii* Sama,1994 (Fig. 1F)**

Body elongate and narrow,about 13 mm. in length and 3 mm. in width .Colour pale brown, head, brothorax and base of elytra darker. Body punctuated and covered with golden pubscence.

Head prognathous, large, as long as prothorax, with deep depression between antennal sockets on vertex and distinct coronal suture. Mandiblels large, curved, their basal half provided with long erected golden hairs, terminal segments of maxillary and labial palpi large and truncate at tip.

Pronotum slightly wider than long, each lateral side extends to form a distinct tubercle, anterior and posterior margins nearly straight and provided with a row of golden hairs. Disc of pronotum flat, rugose, with a longitudinal depression on the midline surrounded with a rounded depression on both sides and a similar one near anterior margin and another short and transverse depression near posterior margin.Scutellum rounded posteriorly. Elytra parallel sided and rounded apically , shoulders wider than prothorax surface rugose and provided with golden erected hairs specially on sides, with three weakly elevated longitudinal ridges. Ventral surface provided with yellow hairs. Prosternum large with triangular process extends between fore coxae . Mesosternum narrow, extends between middle coxae in a nearly parallel-sided process. Metasternum large, glabrous, with a central depression and a fine longitudinal suture extends anteriorly along the midline reaching the midway of metasternum.Legs similar in

shape and nearly in size. Fore and middle coxae globular, hind coxa transverse. Fore coxae very close, their cavities opened behind with wide lateral angles (Fig.3K).

**C-4-*Penichroa fasciata* Stephens, 1831 (Fig. 1G)**

Body small, measuring 10-15 mm. in length and 2 mm. in width. Body colour dark brown except for straw-coloured triangular mark on the middle of each elytron, connected with another spot of the same colour on the shoulder; there are another oval spot on the outer side of the posterior part elytron. Dorsum coarsely punctured. Body and its appendages provided with short and long fine setae. Head with a longitudinal furrow on the front. Antenna eleven segmented, arise from a slightly elevated tubercle, first segment long and swollen apically, second segment small and conical, third segment is the longest, segment 4-11 subequal, the terminal segment rounded at tip. Eyes emarginated and coarsely faceted.

Thorax elongate with the sides dilated, disc with indistinct middle longitudinal swelling on the posterior half, surrounded by lateral furrows. Scutellum small and rounded apically. Elytra rounded at tips, with distinct sutural angles and without longitudinal ridges. Pygidium exposed.

Procoxal cavities angulated externally, open behind. Anterior and middle coxae globular while hind coxa transverse. Prosternal process parallel sided and narrow, so procoxae close to each other while mesocoxae widely separated. Legs moderately elongate, hind leg the longest, femora strongly clavate subapically, tibiae simple and slender ended with apical spurs, basal metatarsal segment elongate, tarsal claw with a blunt tooth at base (Fig.3H).

Abdomen five segmented, the last sternum rounded apically and provided with long whitish hairs.

**C-5-*Icosium tomentosum tomentosum* Lucas, 1854 (Fig. 1H)**

This species is one of the smaller cerambycids, it measured 12 mm in length and 2 mm in width. Body colour pale brown with dark brown narrow sutural band and another two lateral bands extending from shoulders along elytra. Body and its appendages covered with fine whitish setae.

Head slightly raised at the midline. Eyes emarginated and coarsely faceted. The insertion of antenna not close to the eyes notch. Antennal tubercles small. Antenna eleven segmented, first segment slightly swollen apically and curved in the inner side, second segment small and conical, the third the longest, segments 5-11 with longitudinal furrow along their ventral side. Terminal segment of palpi obliquely truncate. Pronotum longer

than wide, wrinkled, its disc bearing three distinct ridges, middle one does not reach the base of pronotum and surrounded by a pair of small tubercles. These ridges and tubercles smooth. Elytra irregularly punctured specially at base and covered with fine hairs, their apices rounded with sutural angles and fringed with longer hair. Legs long and slender, fore coxal cavities angulate externally, femorae antiapically swollen, tibiae slender, ending with two unequal dark brown spurs, the basal segments of middle and hind tarsi extremely long. Claws simple with blunt tooth at base.

**C-6-*Stromatium unicolor* Olivier, 1795 (Fig. 1I)**

Body elongate cylindrical about 18-24 mm in length and 6 mm in width. Female larger than male. Colour pale-brown or rusty, pronotum slightly darker. Body covered with mixture of fine and erect setae.

Head small, broad and slanting forward. Compound eyes black, deeply emarginated and coarsely faceted, almost entirely encircling base of antennae. Antennal socket with acute sharp process at the inner side and extends from above. Antennae inserted on elevated tubercles, in both sexes they are eleven-segmented, longer than body in males and nearly as long as body in female. First segment swollen and short, second segment very small and fusiform shaped, third cylindrical and the longest one, the eight terminal segments nearly equal in length, sides of antennae covered with dense, long yellowish hairs. Mentum corneous and wide, labrum narrow, mandibles very short, curved, sharp apically, the inner edges with raised projections.

Prothorax nearly oblong in shape, side borders slightly rounded. Apex fringed with yellow hairs. Pronotum covered with yellowish hairs which condensed at sides. Scutellum small, rounded apically. Elytra elongate parallel sided with four pairs of weakly elevated longitudinal ridges, surface moderately coarse, covered with fine yellowish and erect hairs, apex rounded with a small sharp spine at sutural angle (Fig.3F) and another small one close to it. Shoulders rounded and laterally extend to cover parts of the metepisternum. Prosternum (Fig.2N) broad in male with diagnostic large, tomentose pits on lateral margins with golden pubescence in addition to smaller ones near the anterior margin, prosternal process parallel sided not extended apically, mesosternum narrow, small and extends broadly between middle coxae and acutely angulated over coxae. Metasternum large, broad and raised, longitudinal suture of the metasternum extends forward but does not reach the mesosternum. Procoxal cavities angulated externally, open behind (Fig.2N). Legs covered with dense yellowish hairs; fore and middle coxae globose, moderate and separated, hind

coxal plates triangular, transverse, laterally acute, rounded and dilated at base, ventral margin curved; femur short, broad, tibia narrow and equal to femur with two small brown apical spurs. Tarsal segments broad, first segment larger than second, third bilobed and the terminal segment narrow, nearly as long as first one. Claws large, simple and curved. Abdomen five-segmented, the last abdominal segment narrow, long and nearly tubular in female while in male it is broad, short and, rounded with slight cleft at the outer margin. Sternites covered with dense yellowish pubescence.

According to the revision of the lists of Cerambycid beetles in Libya presented by Zavattari, (1934); Damiano (1961) and Sama *et al.* (2005) this species was not recorded, so this is the first record in Libya.

**C-7-*Hesperophanes sericeus* Fabricius, 1787 (Fig. 1J)**

Body elongate, 30 mm. in length and 10 mm. in width. Colour brown. Body covered with whitish pubescence more dense on the ventral side. Many small tubercles on base of elytra, these tubercles and three small spots on pronotum brown due to the absence of pubescence. Head hypognathous but slightly anteriorly deflected. Front with a distinct longitudinal suture. Compound eyes large, dark, deeply emarginated and coarsely granulated. Antenna arises from an elevated tubercle surrounded in its inner side by a brush of dense golden hairs in the notch of the compound eye. Condyle articulate with the antennal socket uncovered with pubescence. Antennae of male longer than that of female. Terminal segment of palps broad and truncate.

Prothorax globular in shape, sides rounded, anterior margin straight, posterior sinuate and narrower than base of elytra. Scutellum large, triangular with rounded apical angle and covered with dense whitish pubescence. Elytra elongate, rounded at tips, tuberculated at base and provided with scattered pits each has a central erected hair. Pygidium exposed. Prosternum large, wrinkled; mesosternum small, metasternum large, covered with long whitish hairs and with longitudinal suture. Legs similar in shape and covered with whitish hairs. Fore and hind coxae globular while the hind coxae transverse. Tibiae cylindrical with two apical spurs. Tarsi five segmented, first tarsal segment of hind leg much longer than second while in fore leg nearly equal to second. Third segment bilobed. A longitudinal furrow between the hairy pads on the three basal tarsal segments. Claws simple, swollen at base. Abdomen five-segmented, covered with long whitish hairs; last segment rounded apically and fringed with long hairs.

**C-8-Genus: *Trichoferus* Wollaston, 1854**

This genus is similar to genus *Hesperophanes* but differ in the lack of the bare spots uncovered with

pubescence and the presence of erected hairs on elytra seen in profile. Female of *Trichoferus* has a stouter form, smaller pronotum and shorter antennae than male. Punctures of pronotum larger than male, prebasal elongated area slightly elevated or at least not impressed, sides of pronotum with 2- 4 long and thin erect setae near the base, all tarsal joints usually longer than broad, occasionally joint two of protarsi as long as broad.

**Key to species under study of the genus *Trichoferus***

-Elytra covered with irregular punctuation that give them a shiny appearance; erect golden hairs seen in profile very long; tibiae with long hairs..... *fasciculatus*.

-Elytra covered with homogenous punctuation that give them a mat appearance; erect golden hairs seen in profile short; tibia little pilose..... *griseus*.

**C-8-1-*Trichoferus fasciculatus* Faidermann, 1837 (Fig. 1K)**

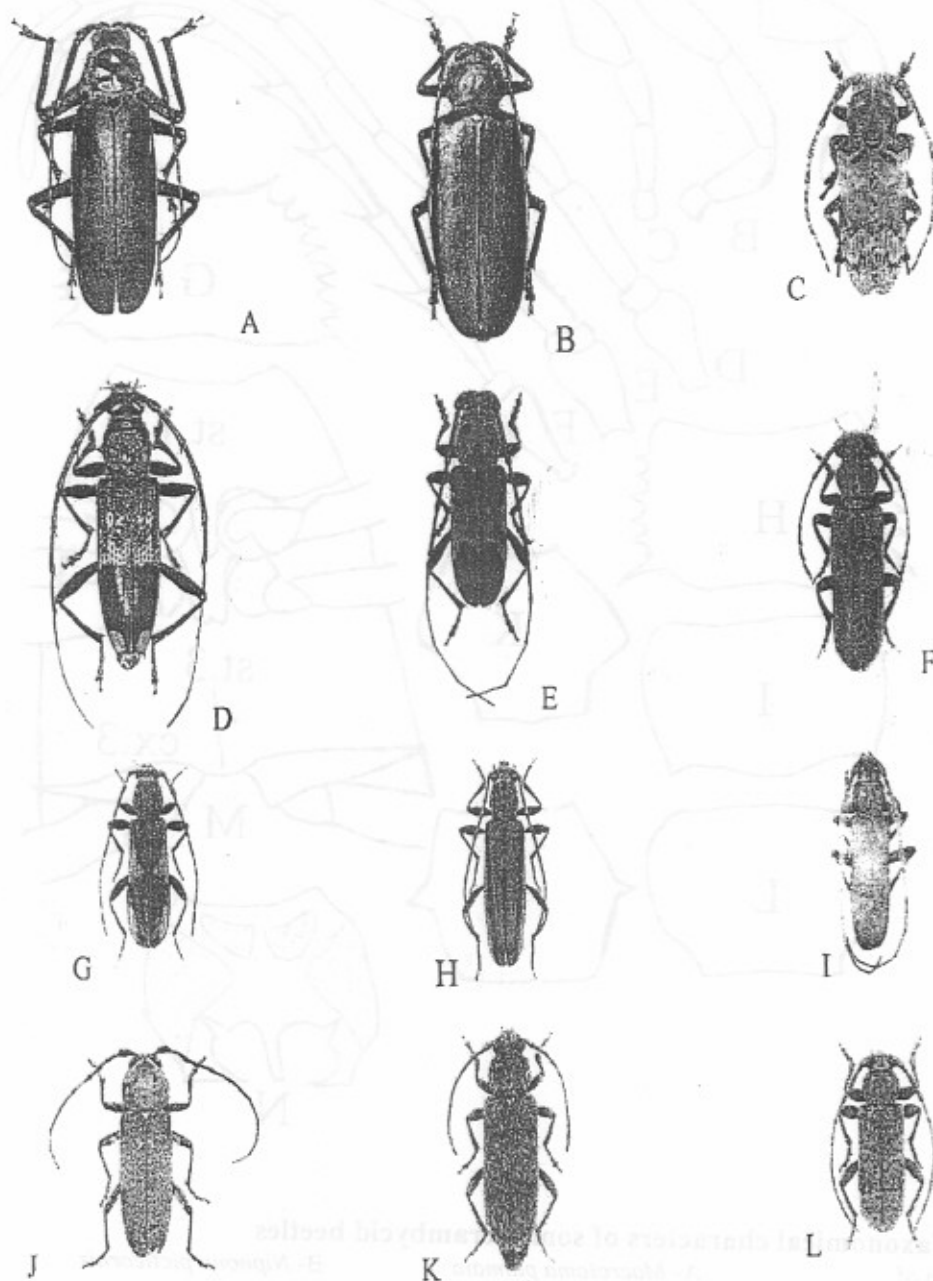
Body elongate 20 mm. in length and 5 mm. in width, brown in colour covered throughout with whitish pubescence. Head large and slanting forwards, somewhat darker in colour with a median longitudinal line uncovered with pubescence. Tubercle of antenna clothed with dense pubescence. Terminal segment of palpi truncate.

Prothorax globular in shape (Fig.2L), clothed with pubescence except two shallow tubercles on the anterior side of pronotum and another middle one which are shining brown and surrounded with dense pubescence. Another two smaller spots of dense pubescence on both sides. Scutellum equal sided triangular, densely covered with whitish pubescence. Elytra wider than pronotum; rounded apically (Fig.3G), punctured, with two pairs of dark brown spots, one on the anterior part of the apical half of elytra and the other on the tip of elytra; pygidium exposed.

Prosternum raised up in the midline, mesosternum narrow, metasternum long with a distinct longitudinal suture reaching to its anterior margin. Legs robust, hind leg the longest, fore and middle coxae globose and hind coxae transverse, fore coxae more close to each other than middle ones. Fore-coxal cavities opened behind and extending laterally in an acute angle (Fig.3L). Femora swollen near the terminal half.

**C-8-2- *Trichoferus griseus* Fabricius, 1792 (Fig. 1L)**

Body elongate about 15-20 mm. in length and 5mm. in width, males smaller than females and with longer antennae. Colour grey to deep-brown, covered with white pubescence, a pair of light spots on vertex and anterior part of pronotum, two brown spots on the anterior part of last third of



**Figure 1.**

A- *Macrotoma palmate* (55mm.)

C- *Niphona picticornis* (25mm.)

E- *Purpuricenus desfontainii desfontainii* (20mm.)

G- *Penichroa fasciata* (10mm.)

I- *Stomatium unicolor* (18mm.)

K- *Trichoferus fasciculatus* (20mm.)

B- *Rhesus serricollis* (63mm.)

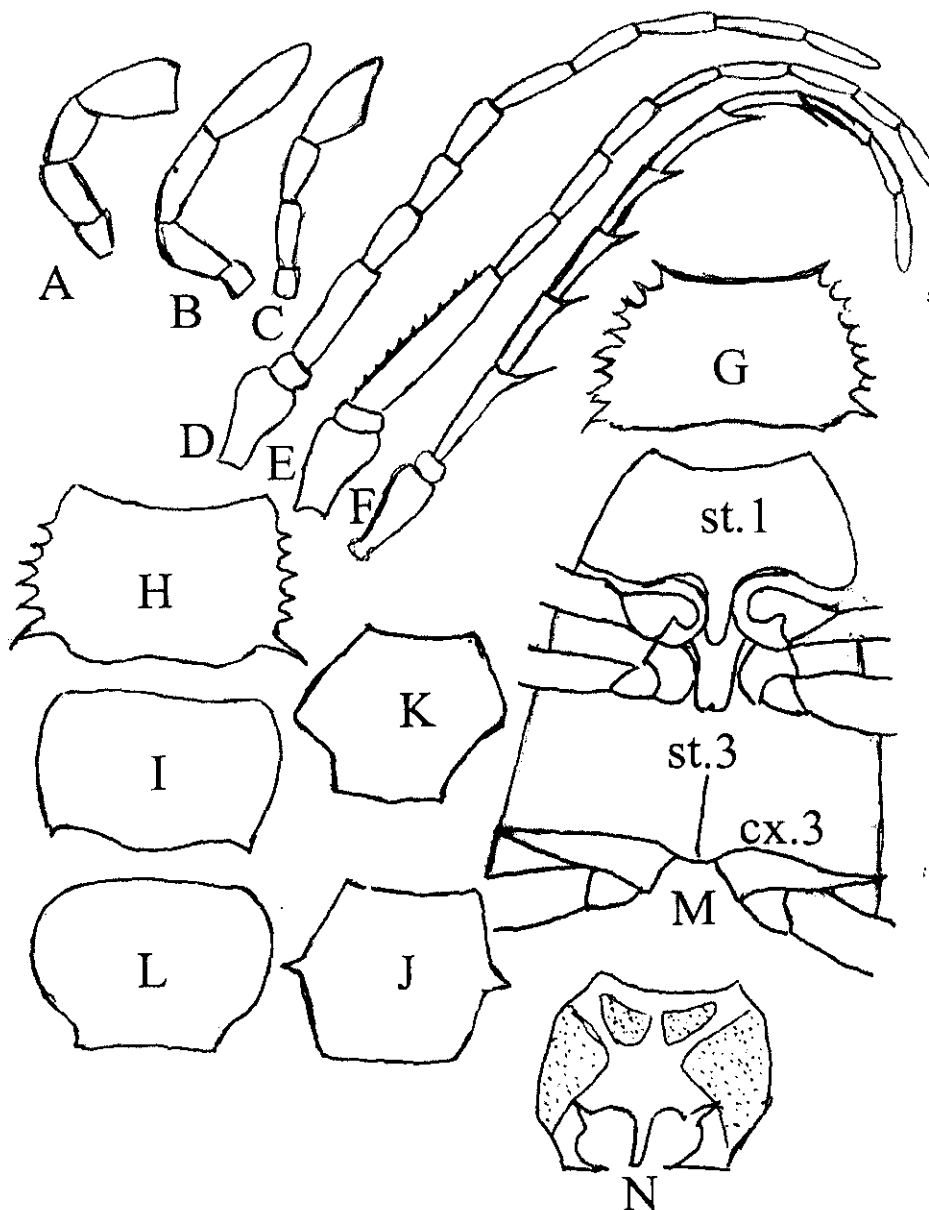
D- *Phoracantha semipunctata* (30mm.)

F- *Dramaus mehennii* (13mm.)

H- *Icosium tomentosum tomentosum* (12mm.)

J- *Hesperophanes sericeus* (30mm.)

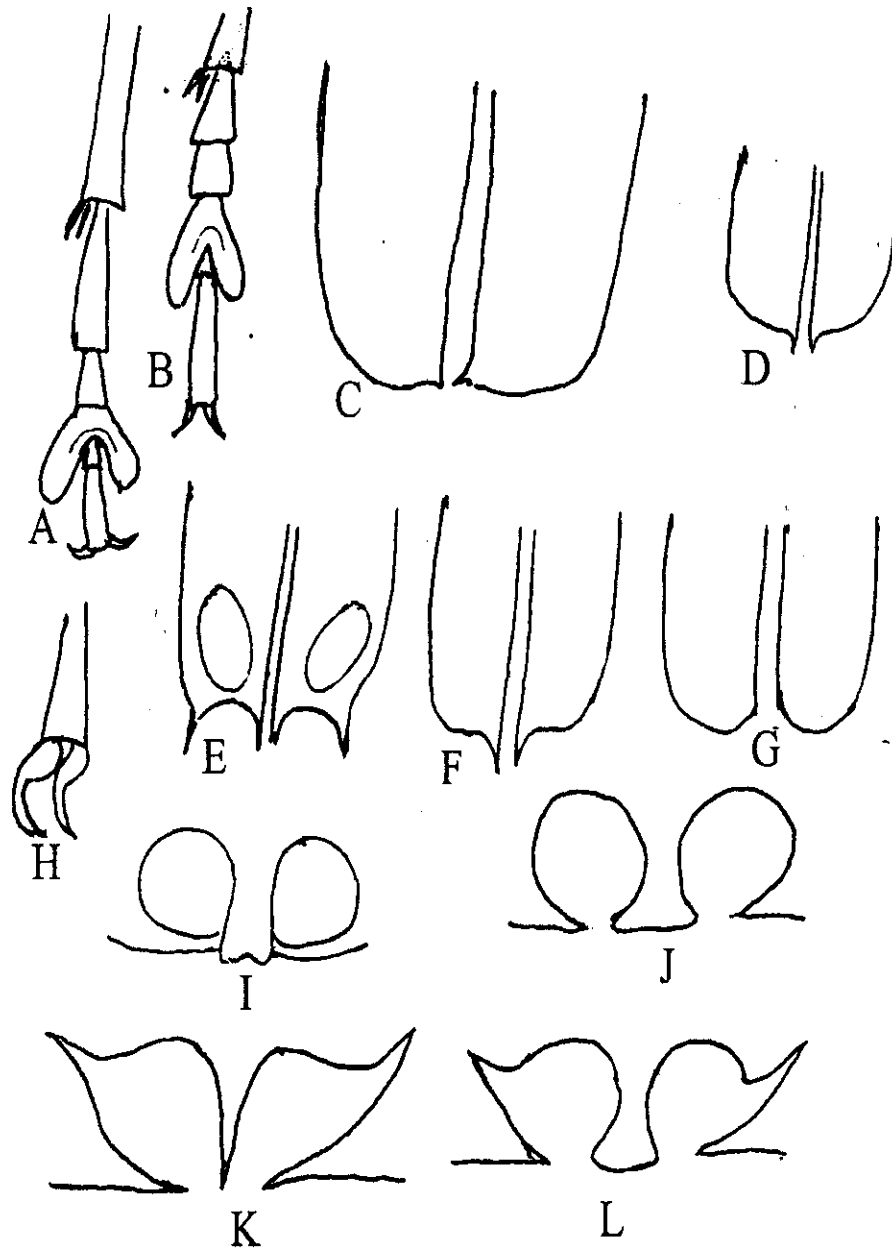
L- *Trichoferus griseus* (20mm.)



**Figure 2. Taxonomical characters of some cerambycid beetles**

- |                          |  |                               |
|--------------------------|--|-------------------------------|
| Maxillary palp of :      | A- <i>Macrotoma palmata</i>                      | B- <i>Niphona picticornis</i> |
|                          | C- <i>Phoracantha semipunctata</i>               |                               |
| Antenna of :             | D- <i>Macrotoma palmata</i> (Female)             | E- same species (Male)        |
|                          | F- <i>Phoracantha semipunctata</i>               |                               |
| Pronotum of :            | G- <i>Macrotoma palmata</i>                      | H- <i>Rhesus serricollis</i>  |
|                          | I- <i>Niphona picticornis</i>                    |                               |
|                          | J- <i>Phoracantha semipunctata</i>               |                               |
|                          | K- <i>Purpuricenus desfontainii desfontainii</i> |                               |
|                          | L- <i>Trichoferus fasciculatus</i>               |                               |
| Thoracic sternum of :    | M- <i>Macrotoma palmata</i>                      |                               |
| Prothoracic sternum of : | N- <i>Stomatium unicolor</i>                     |                               |





**Figure 3. Taxonomical characters of some cerambycid beetles**

Tarsus of : A- *Macrotoma palmata* B- *Niphona picticornis*

Apex elytra of : C- *Macrotoma palmata* D- *Niphona picticornis*

E- *Phoracantha semipunctata* F- *Stomatium unicolor*

G- *Trichoferus fasciculatus*

Claws of : H- *Penichroa fasciata*

Fore coxal cavities of : I- *Niphona picticornis* J- *Phoracantha semipunctata*

K- *Dramaus mehennii*

L- *Trichoferus fasciculatus*

elytra. Head large, covered with yellowish hairs. Terminal segments of maxillary and labial palpi truncate at tip. Prothorax large, nearly globular and the side borders rounded, anterior margin slightly concave posterior margin slightly sinuated narrower than base of elytra.

Scutellum small, semicircular, covered with dense and whitish hairs. Elytra elongate parallel sided, sutural side slightly oplique in the terminal fourth, apices rounded surface covered with dense long pubescence.; elytra with erect hairs laterally and little shining homogenous punctations. Prosternum and mesosternum, wide, anterior coxal cavities open medially, and externally angulate. Metasternum large, almost quadrate and extends forward between middle coxae, with incomplete longitudinal suture.

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## الملخص العربي

### دراسات تقسيمية لفصيلة الحفارات ذات القرون الطويلة بمنطقة الجبل الاخضر بليبيا

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واحد فقط. وتحت فصيلة Cerambycinae ويتبعها 9 أنواع. والنوعان *Rhesus serricollis* , *Stromatium unicolor* سجلا لأول مرة بليبيا. وقد اعدت مفاتيح تقسيمية للتمييز بين تحت الفصائل و الاجناس والانواع وكذلك وصف كامل للانواع موضع الدراسة موضحا بالرسومات و الصور.

اجريت هذه الدراسة خلال الفترة من شهر يوليو 2007 الى شهر اكتوبر 2009 في ليبيا بمنطقة الجبل الاخضر وهي منطقة غابات ولذلك فهي مأوى للعديد من حفارات الاحشاب. وقد تم جمع اثنا عشر نوعا تنتمي الى ثلاث تحت فصائل هي: تحت فصيلة Prioninae تضم نوعان وتحت فصيلة Lamiinae عرف منها نوع