CLASSIFICATION OF SUB FAMILY ALTICINAE (CHRYSOMELIDAE- COLEOPTERA) PART I- GENERA : *ALTICA, ANGULAPHTHONA, APHTHONA, CHAETOCNEMA, DIBOLIA, EPITRIX, HAERMEOPHAGA AND PSYLLIODES*

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Abstract

In Egypt, subfamily Alticinae represented by 44 species within 13 genera (Alfieri, 1976). The present work includes twenty one species in eight genera from this group. In addition to three species, *Altica bicarinata* (Kutschera), *Epitrix Priesneri* (Heikertinger) and *Psylliodes saulcyi* Allard, were added for the first time to the Egyptian fauna and introduced as new records in this study. Credit of determination of alticins is due to Dr. Furth (Smithsonian Institute, U.S.A.) and Dr. Doberl (Museum Slovania). This study was planned to identify and to determine the recent taxonomic status of this group of alticin species, with illustrated plates, for the first time in Egypt. Keys are given for all alticn genera and for the species of each genus represented in this work.

INTRODUCTION

The family Chrysomelidae is a very large family of phytophagus coleoptera, worldwide in distribution. The systematic of this family will remain attractive to entomologists due to its economic importance, feeding on a wide range of primitive to higher plant groups. The subfamily Alticinae, under investigation, is the largest chrysomelid group. Many alticins are economically important pests of cultivated plants. Meanwhile, certain alticins are considered beneficial, for acting as biological control agents of noxious weeds (Booth *et al.*, 1990).The most important investigation about the taxonomic status, geographical distribution and economic importance of alticins within the scope of this work were given by Porta (1934), Vitale (1935), Bechyne (1959b and 1960), Gressitt and Kimoto(1963), Mohr (1966), Bechyne and Springlova-Bechyne (1977), Furth (1980 a, 1983 and 1985), Gruev (1981 and 1992), White (1983), Warchalowski (1985), Medvedev and Roginskaya (1988), Biondi (1990), Bastazo *et al.* (1993), Doguet (1994), Biondi *et al.* (1995), Konstantinov and Vandenberg (1996) and Gruev and Doberl (1997).

MATERIALS AND METHODS

The present taxonomic work started by examination of the Egyptian Reference Insect collections for materials regarded as alticin beetles. Members of family Chrysomelidae were recorded in Egypt. on various plants including: cotton, maize, cabbage, jew's mallo, vegetable marrow, squash, sweet melon, alfalafa and white beet. During this work attention has been directed to this plants as well as some other related plants in searching for alticins. Also, field trips and excursions were made to localities where chrysomelids had been recorded as well as to some other localities searching for these beetles. The specimens belonging to chrysomelid species under investigation were collected either directly by hand from the host plants and sweeping vegetation or indirectly using light traps fixed in different regions including Sant Catherin (S. Sinai), Gabal Elba and Dokki (Giza). The specimens of most alticin species under consideration were collected during this work, these specimens were preserved in the private A. Torkey Collection. Other species were available depending on their preserved materials in Egyptian Insect Collections. Preliminary dtermination along with materials were confirmed by Dr. Furth (Smithsonian Institute, U.S.A.) and Dr. Doberl (Museum Slovania).

CLASSIFICATION

Subfamily Alticinae (Flea beetles)

Diagnosis :

It is the largest chrysomelid subfamily, commonly called the flea beetles because their size is usually small, o.5- 18 mm. in length and ability to jump.They vary in form from elongate to convex, usually glabrous but sometimes pubescent dorsally, and are extremely variable in colour, many are shiny and metallic (Pl. I, Fig. 1 A, B & C).

They are characterized by the prognathous to hypognathous head. Eyes oval or hemispherical, often with broad notch along inner margin, rarely deeply emarginated. Antennae usually 11- segmented (10-segmented in genus *Psylliodes* Latr. only) and filiform, with narrowly separated insertions. Labrum flat, rectangular structure, with numerous marginal setae on the anterior margin, and the upper surface has a number (usually six) of symmetrically placed setiforous pores. Mandibles often symmetrical structures with triangular bases, and each mandible with five teeth. Frons usually recognizable as a distinct ridge, separated from gena by frontogenal suture. Vertex situated dorsally to the frons and sometimes delimited by transfrontal suture. Usually there are two raised areas on the lower part of the vertex called antennal calli. Clypeus situated on the anterior margin of head and delineated from it by frontoclypeal suture. Pronotum in several genera, has a transverse antebasal

impression and or two short laterally placed impressions. Elytra exhibit a large diversity of surface sculpturing, sometimes covered by irregular punctures, or the punctures arranged in striae, and interspaces between striae (intervales) can be minutely punctate and or shagreened. Prosternum usually narrow, especially the intercoxal prosternal process, and the procoxal cavities are termed closed. The dorsal part of the abdomen composed of seven membranous tergites, and 8th and 9th segments are telescoped within the abdomen. Metafemora are usually strongly swollen and contain metafemoral spring, and the metatibiae are useful for generic identification. The external male genitalia consists of aedeagus and significantly reduced tegmen, that is one of the most important diagnostic features for species identification.

Key to the genera of subfamily Alticinae

1- Antennae 10-segmented, metatarsus inserted subapically of tibiae ---------- ***Psylliodes*** **Latreille**

- Antennae 11-segmented, metatarsus inserted apically of tibiae ---------- **2**

2- Base of pronotum with two longitudinal furrows or transverse impression or with both. ---------- **3**

- Base of pronotum without furrows or impression.---------- **7**

3- Dorsal surface covered with dense hairs ---------- ***Epitrix*** **Foudras**

- Dorsal surface without or with only very sparse and indistinct hairs.---------- **4**

4- Elytra with punctation arranged in rows (alytral striae).---------***Ochrosis*** **Foudras**

- Elytra with punctation confused.----------**5**

5- Pronotum with two longitudinal furrows and without antebasal transverse impression. Frontal aspect of head.----------***Podagrica*** **Chevrolat**

- Pronotum with two longitudinal furrows and antebasal transverse impression. Head variable ---------- **6**

6- Antebasal transverse impression of pronotum reaches posterolateral margins or posterior angles. Head variable.---------- ***Altica*** **Geoffroy**

-Antebasal transverse impression of pronotum limited laterally by short longitudinal furrows. Frontal aspect of head. --------- ***Hermaeophaga*** **Foudras**

7- Hind tibia with broad apical spine ending in two teeth.----------***Dibolia*** **Latreille**

- Hind tibia with apical spine simple or absent.---------- **8**

8- Middle and hind tibiae with obtuse tooth beyond middle, followed by excavation having marginal row of stiff bristles.----------***Chaetocnema*** **Stephens**

- Middle and hind tibiae without tooth and excavation.---------- **9**

9- Body shortened oval, metatibiae not dorsally canaliculate. Mesosternum very short, sometimes covered by pro- and metasternum.----------***Sphaeroderma*** **Stephens**

- Body narrow and oblong, metatibiae always dorsally canaliculate. Mesosternum of usual length.----------**10**

10- First segment of hind tarsus exceeding 1/2 length of tibia and always inserted on a small callosity at apex of tibia.----------***Longitarsus*** **Latreille**

- First segment of hind tarsus shorter than half length of tibia and never inserted on a callosity at apex of tibia.---------- **11**

11- Antennal calli poorly defined, hind tibia with apical spine inserted medially. Body oblong and flat. ----------***Phyllotreta*** **Chevrolat**

- Antennal calli prominent, hind tibia with apical spine inserted laterally. Body oval and convex.---------- **12**

12- Epimeres of prothorax with a deep groove near hind angles. Lateral margin of prothorax strongly angulate behind anterior angles. Body metallic.----------
----------***Angulaphthona*** **Bechyne**

- Epimeres of prothorax without deep groove near hind angles. Lateral margin of prothorax not or feebly angulate. Body not metallic.------- ***Aphthona*** **Chevrolat**

Genus *Altica* Geoffroy, 1762

Altica Geoffroy, 1762, *Haltica* Fabricius, 1775, *Graptodera* Chevrolat, 1845.

Key to the species of genus *Altica* Geoffroy

1- Head superficially punctate in general and deeply punctate near margin of eyes, frontal ridge narrow, pronotum with shallow transverse impression basally.----------
----------***Altica ampelophaga*** **Guerin-Meneville**

- Head superficially punctate in general and not deeply punctate near margin of eyes, frontal ridge wide, pronotum with deep transverse impression basally.---
----------***A. bicarinata*** **(Kutschera)**

***Altica ampelophaga* Guerin-Meneville, 1858** (Pl.I, fig. 2 A & B)

Synonyms (after Gruev & Doberl, 1997).

Altica ampelophaga Guerin-Meneville, 1858, *Altica consobrina* Foudras, 1860, *Haltica ampelophaga* Bach, 1866, *Graptodera hispana* Allard, 1869.

Diagnosis : Body metallic blue, antennae, fore- and mid legs, tibiae and tarsi of hind legs brown. Elytra finely, densely and irregularly punctate, humeral callus developed, epipleura wide basally and thin subapically.

Material examined : 3 specimens from Algeria**{Coll. Society}.**

World distribution : Croatia, France, Germany, Greece, Italy, Motenegro, Portugal, Spain, Switerland, Tunisia, Algeria and Morocco.

Remark : This species was recorded from Egypt (Alfieri, 1976).

***Altica bicarinata* (kutschera, 1860)** (Pl. I, fig. 3 A & B)

Synonyms (after Gruev & Doberl, 1997).

Haltica bicarinata Kutschera, 1860 , *Aulacophora bicarinata* Shalapy, 1962 , *Graptodera bicarinata* Allard, 1866, *Haltica ciliciensis* Weise, 1897.

Diagnosis : Body metallic blue. Elytra with fine sparse irregular punctation.

Material examined : 2 specimens from Sinai, during March **{Coll. Agr.}.**

World distribution : Cyprus, Greece, Iran, Palastine, Lebanon, Saudi Arabia, Syria and Turkey.

Genus *Angulaphthona* Bechyne, 1960 {New record}

Angulaphthona Bechyne , Explor. Parc. Natn. Upemba. Miss.G. F. de Witte, 59 (3), 1960, p. 39 – 114.

Diagnosis : Body small to moderate in size, oblong-oval, more or less convex. Colour black, dark brown or yellow sometimes with metallic lustre, without stripes or spots.

Head pro-hypognathous, convex from lateral view, frontal ridge narrow, usually joining at an abrupt angle with apical margin of head capsule; antennal calli raised, with or without furrow between them and vertex. Interantennal space narrower than transverse diameter of eye, vertex more or less convex, eye small, first antennal segment of male broad, flattened, with dense erect hairs. Pronotum with curved transverse groove more deep in the the middle, narrowly explanate laterally. Procoxal cavity open behind. Intercoxal prosternal process and mesosternum narrow. Elytra dorsally more or less convex, rarely flat, usually oval, with or without humeral calli. Elytral punctation confused, rarely with irregular punctures on disk. Epipleuron broad, more or less vertical, horizontal at level of humeral callus, reaching posterolateral elytral margin. Femora typical. Metatibia with apical ½ flat, basal part usually thickened with spine inserted laterally. First metatarsal segment comparatively long, as long as the following two segments combined. Pygidium of female long and triangle-shaped.

***Angulaphthona latipennis* (Pic, 1921)** (Pl. I, fig. 4)

Aphthona latipennis Pic, L'Echange Rev. Linn., 37, 1921, p. 5.

Angulaphthona latipennis (Pic)- Bechyne Explor. Parc. Natn. Upemba. Miss.G. F. de Witte, 1960, 59 (3), 39 – 114.

Diagnosis (after Medvedev, 1996). 3.6 – 4.0 mm. in length. Body elongate–oval, with metallic blue colour and black antennae. Pronotum finely punctate, elytra strongly punctate. Aedeagus (after Gruev, 1981).

World distribution : Sudan, Nigeria, Somalia, Congo, Chad, Saudi Arabia and North Yemen .

Remark : This species was recorded from Egypt (Alfieri, 1976).

Genus *Aphthona* Chevrolat, 1836

Synonyms (after Konstantinov & Vandenberg, 1996).

Aphthona Chevrolat, 1836, *Ectonia* Weise, 1922, *Heyrovskya* Madar & Madar, 1968.

Key to the species of genus *Aphthona* Chevrolat

1- Antenna with 2nd segment subequal each other one, elytra with fine superficial sparse punctation and without wrinkles, colouration yellow ---------- ***Aphthona fuentei* Reitter**

- Antenna with 2nd segment smaller than other segment, elytra with large sparse punctation and with fine wrinkles, colouration not as such ---------- **2**

2- Hind tibia with small cavity, aedeagus, colouration metallic dark brown ---------- ***A. pygmaea* (Kutschera)**

- Hind tibia with large cavity, aedeagus, colouration yellow testaceous ---------- ***A. flaviceps* Allard**

Aphthona fuentei Reitter, 1901 (Pl. I, fig. 5 A & B)

Aphthona funtei Reitter, Wein. Ent. Z., 20, 1901, p. 102.

Diagnosis : Body yellow, 6th – 11th antennal segments, labrum and venteral surface of the body testaceous, femora of hind legs dark brown. Head superficially punctate, labrum curved, clypeus concave, frontal ridge narrow, short, not forming ridge of anterior part of head. Pronotum finely punctate, with fine narrow edge, sinuated anteriorly and posteriorly at lateral margin. Elytra convex, with fine superficial sparse punctation, humeral callus indistinct, epipleura wide basally and narrow apically.

Material examined : 4 specimens from Maadi (Cairo) during Sep.**{Coll. Agr.}**. Hawamdia (Giza), Oct.**{Coll. Alfieri}**. Wadi El-Lega (Sinai), June (2002), on *Euphorbia peplus* L.**{Coll. A. Torkey}**.

World distribution : Greece, Italy, spain, Iran, Palastine, Turkey, Algeria, Burundi, Chad, Congo, Ethiopia, Guinea, Morroco, Nigeria, Sudan, Tanzania and Tunisia.

Aphthona pygmaea (Kutschera, 1861) (Pl. I, fig. 6 A - F)

Synonyms (after Gruev & Doberl, 1997).

Haltica pygmaea Kutschera, 1861, *Haltica nigella* Kutschera, 1861, *Aphthona pygmaea nigella* Heikertinger, 1944, *Aphthona pygmaea orientalis* Kral, 1967.

Diagnosis : Body metallic dark brown, fore and mid legs, tibiae and tarsi of hind legs brown, 1st – 5th antennal segments light brown. Vertex with fine punctures, labrum and clypeus straight. Pronotum with fine sparse punctation in some specimens or elongate punctation in others. Elytra oval and convex, with large sparse punctures

and fine wrinkles, humeral callus strongly distinct . Aedeagus and spermatheca (after Konstantinov & Vandenberg, 1996).

Material examined : 5 specimens from Beirut, Lebanon**{Coll. Society}.**

World distribution : Europe, Asia and North Africa.

Remark : This species was recorded from Sinai, Egypt (Alfieri, 1976).

***Aphthona flaviceps* Allard, 1859** (Pl. I, fig. 7 A - C)

Synonyms (after Gruev & Doberl, 1997).

Aphthona flaviceps Allard, 1859, *Haltica pallida* Boieldieu, 1859, *Aphthona straminea* Foudras, 1860, *Haltica flaviceps* Letzner, 1870.

Diagnosis (after Konstantinov & Vandenberg, 1996). Body yellow testaceous, thorax, posterior legs and base of abdomen dark . Body ovoid, elongate and contiguous, frontal ridge low more or less narrow, anterior ridge of head capsule low, clypeus more or less long with small denticle at middle, pronotum with extremely fine and sparse punctation, elytra with large sparse punctation and fine wrinkles, Aedeagus.

World distribution : Europe, Asia, North Africa.

Remark : This species was recorded during May, from Wadi Helal (Sinai) (Alfieri, 1976).

Genus *Chaetocnema* Stephens, 1831

Synonyms (after Konstantinov & Vandenberg, 1996).

Chaetocnema Stephens, 1831 , *Plectroscelis* Chevrolat, 1836, *Tlanoma* Motschulsky, 1845, *Udorpes* Motschulsky, 1845, *Hydropus* Motschulsky, 1860, *Brinckaltica* Bechyne, 1959.

Key to the species of genus *Chaetocnema* Stephens

1-Elytra regularly punctate, punctation arranged in striae ----------**2**

- Elytra irregularly punctate ----------**7**

2-Frontal ridge wide, aedeagus, colouration black ------***Chaetocnema latipennis* Pic**

- Frontal ridge narrow, aedeagus not as such, colouration variable, not dark ----------**3**

3-Insect body unicolour ----------**4**

- Insect body multicolour----------**6**

4-Head shagreen, aedeagus, colouration copper brilliant ------- ***Ch. aerosa* (Letzner)**

- Head not shagreen, with few punctures near margin of eyes, aedeagus and colouration not as such ----------**5**

5-Head with eight deep punctures near margin of eyes, aedeagus and spermatheca, colouration bronze copper ----------***Ch. delarouzeei* (Brisout)**

- Head with more than eight deep punctures near margin of eyes, aedeagus and spermatheca, colouration metallic black----------***Ch. tibialis* (Illiger)**

6-Elytra dark brown, with large apical yellow spot, aedeagus and spermatheca ---------- ----------***Ch. bilunulata*** **Demaison**

- Elytra testaceous, with area along the suture line and one spot on humeral callus dark brown, aedeagus and spermatheca ----------***Ch. conducta*** **(Motschulsky)**

7-Head with frons separated from vertex by a distinct furrow, eyes somewhat kidney-shaped, elytra irregularly punctate and with two regular rows of punctation near margin along the basal half, body metallic black ----------***Ch. hortensis*** **(Geoffroy)**

- Head without such furrow, eyes not kidney-shaped, elytra irregularly punctate and with three regular rows of punctation near margin along the basal half, body black ---- ----------***Ch. aridula*** **(Gyllenhal)**

Chaetocnema aridula **(Gyllenhal, 1827)** (Pl. II, fig. 1 A & B)

Synonyms (after Gruev & Doberl, 1997).

Haltica aridula Gyllenhal, 1827 , *Plectroscelis aridula* Redtenbacher, 1849.

Diagnosis : Body black, 1st & 6th – 11th antennal segments and femora dark brown, tibiae and 2nd –5th antennal segments brown. Head and pronotum with fine dense punctation, clypeus slightly curved, frontal ridge wide. Mid and hind tibiae without teeth, hind tibia with a short spine apically.

Material examined : 4 specimens from Germany**{Coll. Society}.**

World distribution : Europe, Asia and North Africa.

Remark : This species was recorded during April, from Saqqara (Giza, Egypt) (Alfieri, 1976).

Chaetocnema bilunulata **Demaison, 1902** (Pl. II, fig. 2 A - D)

Synonyms (after Gruev & Doberl, 1997).

Chaetocnema bilunulata Demaison, 1902 , *Chaetocnema vincenti* Reitter, 1906 , *Chaetocnema bilunulata* var. *praescutellaris* Pic, 1911.

Diagnosis : Body dark brown, 1st – 3rd antennal segments, tibiae and tarsal segments light brown, large apical area of elytra yellow. Head with scattered deep points, labrum and clypeus straight, frontal ridge narrow. Elytral punctation deep, dense and arranged in ten rows of striae, scutellar stria individual,. Hind legs with long spine inserted medially at apical part, mid and hind tibiae with teeth. Aedeagus and spermatheca.

Material examined : 138 specimens from Kafr Hakim & Saft (Giza), during Aug. - Oct. on *Saccharum officinarum*L., Helwan (Cairo), Aug. – Sep. on *Saccharum officinarum*L. and *Gossypium barbadense* L.**{Coll. Agr.}.** Giza, May – Sep. , Kafr el-Sheikh, Sep., Naga Hammadi & Luxor (Qena), June – Aug. **{Coll. Alfieri }.** Marg & Ezbet el-Nakhl (Qalioubiya), May, July & Sep., Abu Rawash (Giza), March & July - Oct.,

Cairo, May – Nov. , Luxor (Qena), June **{Coll. Society}.** El-Saff (Giza), Sep. (2002), on *Beta perennis* v. *foliosa* (Ehrenb.) **{Coll. A. Torkey}.**

World distribution : Chad, Congo and Sudan.

***Chaetocnema conducta* (Motschulsky, 1838)** (Pl. II, fig. 3 A - D)

Synonyms (after Gruev & Doberl, 1997).

Haltica conducta Motschulsky, 1838, *Plectroscelis foudrasi* Bauduer, 1874 , *Chaetocnema conducta* var. *ahngeri* Heikertinger, 1930, *Chaetocnema conducta* Heikertinger, 1951.

Diagnosis : Body dark brown, 1st – 7th antennal segments, fore legs, tibiae, tarsi of mid- and hind legs and elytra all testaceous, area along suture line of elytra until 2nd stria and small spot on humeral callus dark brown. Each elytron with ten rows of deep dense regular punctation arranged in regular striae. Aedeagus and spermatheca.

Material examined : 19 specimens from Beni Youssef (Giza), during May – Sep.**{Coll. Agr.}.** Cairo, June – Sep., El-Wasta (Asyut), March, Beni Youssef (Giza), May – Sep., Amriah (Alex.), June **{Coll. Alfieri}.** El-Saff (Giza), Sep. (2002), on *Beta perennis* v. *foliosa* (Ehrenb.) **{Coll. A. Torkey}.**

World distribution : Europe, Asia and Africa.

***Chaetocnema hortensis* (Geoffroy, 1785)** (Pl. II, fig. 4 A - D)

Synonyms (after Gruev & Doberl, 1997).

Altica hortensis Geoffroy, 1785, *Galeruca aridella* Paykull, 1799, *Chaetocnema hortensis* var. *brenskei* Pic, 1910, *Chaetocnema hortensis* Csiki & Heikertinger, 1940.

Diagnosis : Body metallic black, 6th – 11th antennal segments and femora of hind legs dark brown, 1st - 5th antennal segments and legs light brown. Pronotum and elytra with deep dense punctures. Aedeagus and spermatheca.

Material examined : 27 specimens from Tomas Island (Aswan), during April, Cairo, July, Beni Youssef & Mansouria (Giza), May and June, Kharga Oasis (W.El-Gedeid), March **{Coll. Agr.}.** Fayoum, Sep., Cairo, June &Sep.**{Coll. Alfieri }.** Cairo, April, Beni Mazar (Miniya), May **{Coll. Society}.** Wadi El- Talha (Sinai), Aug. (1999), on *Juncus bufonius* L.**{Coll. A. Torkey}.**

World distribution : Europe, Asia, North Africa and Sudan.

***Chaetocnema latipennis* Pic, 1911** (Pl. II, fig. 5 A - D)

Synonyms (after Gruev & Doberl, 1997).

Chaetocnema latipennis Pic, 1911, *Chaetocnema aerosa* var. *latipennis* Heikertinger, 1930.

Diagnosis : Body black, 5th – 11th antennal segments and femora of hind legs dark brown, 1st – 5th antennal segments, fore and mid legs, tibiae and tarsi of hind

legs brown. Head and Pronotum with numerous deep punctures. Each elytron with ten rows of deep, dense regular punctation, scutellar stria double. Aedeagus and spermatheca.

Material examined : 6 specimens from Mansouria (Giza), during May **{Coll. Agr.}.** Giza, Jan. **{Coll. Society},** W. Aideib (Gabal Elba), Jan. (2000), on *Rumex vesicarius* L.**{Coll. A. Torkey}.**

World distribution : Ethiopia.

***Chaetocnema tibialis* (Illiger, 1807)** (Pl. III, fig. 1 A - D)

Synonyms (after Gruev & Doberl, 1997).

Haltica tibialis Illiger, 1807, *Plectroscelis pumila* Allard, 1859, *Plectroscelis tibialis* Allard, 1860, *Chaetocnema caesaraugustana* Fuente, 1909, *Chaetocnema obscuripes* Pic, 1909 .

Diagnosis : Body black, 7^{th} – 11^{th} antennal segments and femora dark brown, tibiae and tarsi light brown. Pronotum deeply and densely punctate. Each elytron with ten rows of deep, dense punctation arranged in regular striae. Mid and hind tibiae with teeth. Aedeagus and Spermatheca.

Material examined : 130 specimens from Qantara (Sinai), during Sep., Kerdasa (Giza), Sep., Baltim (Kafr El-Sheikh), July, Fayoum, May **{Coll. Agr.}.** Ismailia, June, Qantara (Sinai), Sep., King Mariout (Alex.), June, Cairo, June & Sep.**{Coll. Alfieri }.** Kerdasa (Giza), July, Sep., Nefisha (Ismailia), June & Aug., Ras El-Bar (Damietta), Jan. & June, Fayoum, July & Sep., Qantara (Sinai), Dec., Luxor (Qena), May, Cairo, Jan. - July, Marg (Qalioubiya), July **{Coll. Society}.** Giza, May, Baltim (Kafr El-Sheikh), Aug. **{Coll. Ain Shams}.** Wadi El- Lega (Sinai), July (2001), on *Juncus bufonius* L.**{Coll. A. Torkey}.**

World distribution : Europe, Asia and North Africa.

***Chaetocnema aerosa* (Letzner, 1846)** (Pl. II, fig. 7)

Synonyms (after Gruev & Doberl, 1997).

Plectroscelis aerosa Letzner, 1846 , *Plectroscelis punctatissima* Graells, 1888 , *Chaetocnema laevilinea* J. Sahlberg, 1903.

Diagnosis (after Allard, 1866). Body copper brilliant , 6^{th} – 11^{th} antennal segments dark brown. Head shagreen, pronotum deeply and densely punctate, elytral punctation deep, dense and arranged in regular striae, and with confused punctures near scutellum extending past middle of elytra. Aedeagus (after Lopatin, 1984b).

World distribution : Europe and Asia .

Remark : This species was recorded during May, from Helwan (Cairo, Egypt) (Alfieri, 1976).

***Chaetocnema delarouzeei* (Brisout, 1884)** (Pl. II, fig. 6 A & B)

Synonyms (after Gruev & Doberl, 1997).

Plectroscelis delarouzeei Brisout, 1884 , *Chaetocnema tibialis* var. *delarouzeei* Heikertinger, 1930, *Chaetocnema tibialis* heikertinger, 1951.

Diagnosis (after Allard, 1866). Body bronze copper, apical antennal segments, tibiae and tarsi dark brown, basal antennal segments testaceous. Head with few fine punctures near margin of eyes, pronotum finely densely punctate, elytra deeply, densely and regularly punctate, with superficial points on intervales. Aedeagus and spermatheca (after Furth, 1985).

World distribution : Tunisia, Algeria, Morroco, Jordan and Palastine.

Remark : This species was recorded from Cairo, Egypt (Alfieri, 1976).

Genus *Dibolia* Latreille, 1829

Synonyms (after Konstantinov & Vandenberg, 1996).

Dibolia Latreille, 1829 , *Petalopus* Motschulsky, 1845, *Pseudodibolia* Jablokoff-Khnzorian, 1968, *Eudibolia* Jablokoff-Khnzorian, 1968.

Diagnosis : Body small to medium sized, very convex and cylindrical. Colour dark brown or black, with or without metallic lustre, sometimes pronotum and elytra differently coloured. Head hypo-opistognathous, broadly oval, flat from lateral view, deeply inserted in pronotum and sometimes hardly visible from above. Frontal ridge wide to narrow, short, forming elevated, angular T-shaped ridge with apical margin of head capsule. Antennal calli slightly raised, broadly connected, well delineated from frontal ridge by furrow, with or without furrows delineating them from vertex. Orbital line present only near antennal calli. Eye large. Pronotum wide, convex, posteriorly not narrower than elytral base. Prosternum very convex ventrally, forming so called collar. Prosternal cavity open behind. Intercoxal prosternal process comparatively narrow, long. Mesosternum very short, more or less wide. Elytra oval, with or without humeral calli. Elytral punctures sometimes arranged in irregular striae, interspaces very broad and covered with numerous small punctures. Epipleuron horizontal, very short, notably tapering in basal 1/3. Metafemora greatly swollen. Metatibia curved ventrally and comparatively short with wide, flat bifid apical spur, dorsally flat with two longitudinal lateral ridges, outer ridge with large denticles along length, inner ridge broadly impressed at middle. First metatarsal segment inserted subapically, comparatively long, as long as the following three combined.

Dibolia chevrolati Allard, 1861

Dibolia chevrolati Allard, 1861.

Diagnosis (after Allard, 1866). Body blue, antennae, fore- and mid legs black . Head finely punctate. Pronotum short, deeply densely punctate. Elytra convex, wider than pronotum, with deep dense punctation, confused basally and regular in posterior part of elytra on sides, intervales with fine wavey wrinkles. Hind tibia with bifid spur medially at its apex.

World distribution: Tunisia, Algeria, Greece, Palastine, Italy, Spain and Morocco.

Remark: This species was recorded during May, from King Mariout (Alex.) (Alfieri, 1976).

Genus *Epitrix* Foudras, 1859

Epitrix Foudras, 1859 (I860), *Epithrix* Heikertinger, 1924a.

Key to the species of genus *Epitrix* Foudras

1-Last abdominal sternite with deep groove at apex, aedeagus, body shiny black-------
----------***Epitrix abeillei* (Bauduer)**

- Last abdominal sternite with deep groove along its length, aedeagus, body black-----
----------***E. priesneri* (Heikertinger)**

***Epitrix abeillei* (Bauduer, 1874)** (Pl. III, fig. 2 A - D)

Synonyms (after Gruev & Doberl, 1997).

Crepidodera abeillei Bauduer, 1874, *Crepidodera judaea* Allard, 1876, *Epithrix abeillei* var. *testaceipes* Pic, 1909, *Epithrix abeillei* Heikertinger, 1930.

Diagnosis : Body shiny black, 1st – 6th antennal segments, fore and mid legs, tibiae and tarsi of hind legs brown, labrum, mandibles and femora of hind legs dark brown. Head with numerous fine punctures, labrum straight, clypeus slightly curved. Pronotum deeply densely punctate, anterior angles slightly rounded, posterior angles obtuse, lateral margins edged and dentated anteriorly, basal margin sinuated medially . Elytra with deep dense punctures, arranged in rows, intervales finely punctate, humeral callus slightly developed, epipleura wide basally and slightly thin apically. Aedeagus.

Material examined: 22 specimens from Sinai, during May **{Coll. Agr.}.** Wadi Isla, wadi Firan, Abu hamadi & Abu Arabian (Sinai), April – July **{Coll. Alfieri}.** Wadi Aideib (Gabal Elba), Jan. (2000), on *Lycium shawii* Roem. & Sch., Wadi El-Lega (Sinai), July (2001), on *Hyoscyamus muticus* L.**{Coll. A. Torkey}.**

World distribution: Afganistan, China, Iran, Iraq, Palasina, Jordan, Kazakhstan, Lebanon, Mongolia, Syria, Turkey, Turkmenistan and Uzbekistan.

***Epitrix priesneri* (Heikertinger, 1950)** (Pl. III, fig. 3 A - D)

Synonyms (after Gruev & Doberl, 1997).

Epithrix priesneri Heikertinger, 1950, *Epitrix integricollis* Bryant, 1957.

Diagnosis : Body black, antennae, fore and mid legs, tibiae and tarsi of hind legs brown, labrum and femora of hind legs dark brown. Head finely punctate, labrum curved. Pronotum deeply densely punctate, distinct laterally and with fine wrinkles medially. Aedeagus.

Material examined : 3 specimens from Gabal Elba (Red Sea), during Jan. (2000), on *Lycium shawii* Roem. & Sch.**{Coll. A. Torkey}.**

World distribution : Iran, Oman, Saudi Arabia and Yemen.

Genus *Hermaeophaga* Foudras, 1859

Synonyms (after Konstantinov & Vandenberg, 1996).

Hermaeophaga Foudras, 1859 (I860), *Orthocrepis* Weise, 1882-1893 (1888).

Diagnosis : Body small to medium sized, broadly oval or elongate. Colour dark metallic blue or green, yellow to brown. Head hypognathous, oval. Frontal ridge wide, forming angular T-shaped ridge with anterior margin of head capsule. Antennal calli slightly raised, weakly delimited from vertex, suture delineating them and vertex sometimes indistinct. Orbital line present, closely situated to eye. Pronotum wide, convex, with transverse and longitudinal furrows basally. Procoxal cavity open behind. Intercoxal prosternal process narrow. Elytra oval, convex, irregularly punctate. Epipleuron wide subhorizontal, almost reaching elytral apex. Metafemora typical. Metatibia cylindrical, slightly thickened and flat apically. Metatarsus inserted apically. First metatarsal segment shorter than the following two segments combined. Fourth protarsal segment longer than first one.

***Hermaeophaga ruficollis* (Lucas, 1849)** (Pl. III, fig. 4 A - E)

Synonyms (after Gruev & Doberl, 1997).

Haltica ruficollis, Lucas, 1849, *Graptodera ruficollis,* Allard, 1859, *Orthocrepis ruficollis,* Weise, 1888, *Orthocrepis ruficollis bamakoensis,* Bechyne, 1955.

Diagnosis: Body testaceous, mandibles, labrum and 7^{th} – 11^{th} antennal segments dark brown. Head with fine punctures, labrum curved, clypeus wide and concave, 1^{st} antennal segment prolonged, 2^{nd} swollen than 3^{rd} and 4^{th} and the three segments subequal in length, 5^{th} –10^{th} gradually broadened apically. Pronotum finely punctate, anterior angles rounded, posterior angles sharp and pointed. Scutellum triangular. Elytra with irregular, fine and dense punctation, epipleura wide basally and narrow subapically. Legs densely pubescent . Last abdominal sternite with two sinuations and curved in between medially in male, rounded in female. Aeadeagus and spermatheca.

Material examined : 186 specimens from Rashid (Beheira), during Feb., Qena, June, Kerdasa, Abu Rawash, Magdalah, Kafr Hakim and Beni Youssef (Giza), Feb., March & Aug.- Dec.on *Parkinsonia aculeata* L.**{Coll. Agr.}.** Masarra (Cairo), Jan., Tabiya (Giza), Jan. and May, Kafr El Sheikh, Sep. – Nov.**{Coll. Alfieri}.** Marg (Qalyubiya), Jan. and Dec., Ras el Bar (Damietta), july and Dec., Abu rawash, Kerdasa, Birgash and Badrashin (Giza), Jan. – Dec., Tura, Zeitoun, Matariya, maadi and Shoubra (Cairo), Jan. – Dec.**{Coll. Society}.** Abu Rawash (Giza), Aug. (2000), on *Capparis aegyptia* Lam., Wadi El Lega (Sinai), Sep. (2002), on *Capparis aegyptia* Lam., Mansouria (Giza), March and Dec. (2002), on *Mercurialis annua* L.**{Coll. A. Torkey}.**

World distribution : Worldwide .

Genus *Psylliodes* Latreille, 1825

Synonyms (after Konstantinov & Vandenberg, 1996).

Psylliodes Latreille, 1825 , *Psylliodes* Berthold, 1827, *Psyltomima* Bedel, 1898, *Phyllomima* Waterhouse, 1902, *Semicnema* Weise, 1886-1893 (1888), *Psyllobactra* Lopatin, 1958.

Key to the species of genus *Psylliodes* Latreille

1- Elytra with obvious regular punctation, arranged in nine striae ----------**2**

- Elytra with regular punctation at 2/3 basally and irregularly apically ---------- **4**

2- Each elytron with 3rd , 6th and 7th striae connected together, insect body metallic black, aedeagus ----------***Psylliodes peyerimhoffi* Heikertinger**

- Elytron with 4th , 5th and 6th striae connected together, body colour not as such ---**3**

3- Head and pronotum brown and elytra yellow, frons and vertex finely and densely punctate, labrum curved ----------***P. saulcyi* Allard**

- Head and pronotum black and elytra testaceous, frons and vertex deeply and densely punctate, labrum straight ---------- ***P. hospes* Wollaston**

4- Pronotum finely and densely punctate, aedeagus and spermatheca, body colour testaceous ----------***P. maculatipes* Pic**

- Pronotum deeply and densely punctate, body colour metallic brown ----------
---------- ***P. cupreus* (Koch)**

***Psylliodes cupreus* (Koch, 1803)** (Pl. IV, fig. 1 A &B)

Synonyms (after Gruev & Doberl, 1997).

Haltica cuprea Koch, 1803, *Psylliodes laevata* Foudras, 1860, *Psylliodes cupronitens* Allard, 1860, *Psylliodes cuprea* ab. *herbacea* Everts, 1903, *Psylliodes cuprea* ab. *obscura* Porta, 1934.

Diagnosis : Head, elytra and ventral surface of the body metallic brown, pronotum black, 1st – 5th antennal segments, fore- and mid legs, tibia and tarsus of hind legs light brown, apical antennal segments dark brown. Frons and vertex finely and sparsely punctate, clypeus straight, frontal ridge narrow. Pronotum with anterior angles rounded, posterior angles obtuse, lateral margin sinuated anteriorly. Elytra oval, basal 2/3 finely and regularly punctate and apical 1/3 deeply and irregularly punctate. Humeral callus prominent, epipleura wide basally and thin apically.

Material examined : 2 specimens from Wadi Hoff (Cairo), during March **{Coll. Alfieri},** Sinai, April **{Coll. Society}.**

World distribution : Worldwide.

***Psylliodes hospes* Wollaston, 1854** (Pl. IV, fig. 2 A & B)

Synonyms (after Gruev & Doberl, 1997).

Psylliodes hospes Wollaston, 1854 , *Psylliodes hospes* var. *leprieuri* Pic, 1911 , *Psylliodes hospes aridissima* Peyerimhoff, 1941 , *Psylliodes hospes* var. *aridissima* Furth, 1983.

Diagnosis : Head, pronotum and ventral surface black, elytra testaceous, 1st – 3rd antennal segments, fore- and mid legs, tibiae and tarsus of hind legs brown, apical antennal segments and hind femora dark brown. Pronotum finely and densely punctate. Elytra with nine rows of regular distinct striae of punctation, slightly deep, intervales with indistinct very fine punctures.

Material examined : 16 specimens from Wadi Hoff (Cairo), during March, April **{Coll. Agr.}.** Suez, April, Rashid (Beheira), Dec. **{Coll. Alfieri}.** Cairo, May **{Coll. Society}.** Wadi Gbal (Sinai), May (1999), on *Lolium rigidum* Gaudin, Wadi el Lega (Sinai), June (2002), on *Lepidium sativum* L.**{Coll. A. Torkey}.**

World distribution : Tunisia, Algeria, Morocco, Saudi Arabia, France, Italy, Spain, Portugal and Cape Verde Islands.

***Psylliodes maculatipes* Pic, 1924** (Pl. IV, fig. 3 A - E)

Psylliodes maculatipes Pic, 1924.

Diagnosis : Body testaceous, Head and femora of hind legs dark brown. Frons and vertex densely punctate, labrum straight, clypeus slightly curved. Elytra deeply, densely and regularly punctate basally, confused at apical part. 1st abdominal sternite as long as the following three sternites together, in male, the last abdominal sternite sinuated laterally and convex medially, in female, with curved margin. Aedeagus and spermatheca.

Material examined : 17 specimens from Wadi Arabian & W. Isla (Sinai), during April **{Coll. Alfieri}.** Gabal serbal (Sinai), May (2000), on *Lepidium sativum* L., Wadi Shalal (Gabal Elba), Jan. (2000), on *Hyoscyamus muticus* L., Mersa Matrouh, June (2001), on *Sinapis arvensis* L. **{Coll. A. Torkey}.**

World distribution : Algeria and Palestine.

***Psylliodes peyerimhoffi* Heikertinger, 1916** (Pl. IV, fig. 4 A - D)

Psylliodes peyerimhoffi Heikertinger, 1916.

Diagnosis : Body metallic black, head, 1st – 4th antennal segments, fore and mid legs, tibia and tarsus of hind legs all brown, 5th – 11th antennal segments, labrum and femora of hind legs dark brown. Frons, vertex and pronotum with deep dense punctation, fine apically in pronotum, labrum straight. Elytra with deep, dense and regular punctation, arranged in nine striae on each elytron, 1st stria connected with 9th, 2nd with 8th , 3rd with 6th and 7th , 4th with 5th, intervals finely punctate. Aedeagus .

Material examined : 5 specimens from Wadi Baathran (Sinai), during March (2000), on *Lolium rigidum* Gaudin **{Coll. A. Torkey}.**

World distribution : Saudi Arabia.

***Psylliodes saulcyi* Allard, 1867 {New record}** (Pl. IV, fig. 5 A &B)

Synonyms (after Gruev & Doberl, 1997).

Psylliodes saulcyi Allard, 1867 , *Psylliodes atriplicis* Jacobson, 1922.

Diagnosis : Head, pronotum and scutellum brown, elytra yellow, antennae, fore- and mid legs, tibiae and tarsus of hind legs light brown, labrum, mandibles and femora of hind legs dark brown. Labrum curved, frontal ridge wide. Pronotum deeply and densely punctate. Elytra with fine dense regular punctures, arranged in nine striae, 1st connected with 9th, 2nd with 8th, 3rd with 7th and 4th - 6th connected together.

Material examined : one specimen from Wadi Isla (Sinai), during May (2002), on *Lepidium sativum* L.**{Coll. A. Torkey}.**

World distribution : Palestine, Jordan, Iraq, Iran, Cyprus, Ukrania, Russia, Kazakhistan and Mongolia.

***Psylliodes instabilis* Foudras, 1860**

Synonyms (after Gruev & Doberl, 1997).

Psylliodes instabilis Foudras, 1860, *Psylliodes picipes* Waterhause, 1858.

Diagnosis (after Allard, 1866).Body bronze, mouth parts and fore- and mid legs brown. Frons and vertex with indistinct punctures, slightly distinct in pronotum, posterior angles very rounded. Elytra with slightly deep dense punctures, arranged in regular striae, intervales with very fine wrinkled punctation.

World distribution : Worldwide.

Remark : This species was recorded during Feb. - April, from Helwan (Cairo), Qouseir (Red Sea), Kosseima and W. Isla (Sinai, Egypt) (Alfieri, 1976).

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PLATE I

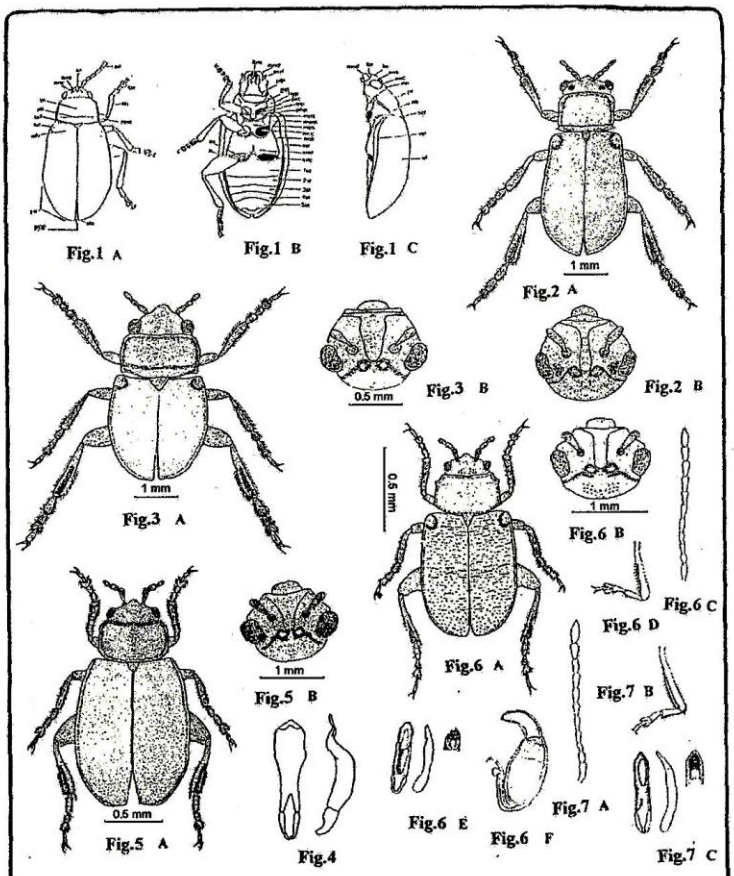

Fig 1 (A,B&C) Dorsal view, Ventral view & Lateral view of adult alticins. an. antennae, anc. antennal calli, ans. antennal socket, ati. antibasal transversal impression, cx. coxa, el. elytron, fem. femora, he. humeral calli, ipp. Intercoxal prosternal process, lbm. labium, lbr. labrum, mes. mesosternum, met. metasternum, mnd. mandible, mxl. maxilla, pr. pronotum, pst. prosternum, pyg. pygidium, sct. scutellum, tar. tarsus, tib. tibia, tr. trochanter, ver. vertex, 1^{st}. – 5^{th}. visible abdominal sternites. Fig. 2 (A&B) Adult & head of *Altica amelophaga*. Fig. 3 (A&B) Adult & head of *Altica bicarinata*. Fig. 4 Aedeagus of *Angulaphthona latipennis*. Fig. 5 (A & B) Adult & head of *Aphthona fuentei*. Fig. 6 (A - F) Adult, head, antenna, hind leg, aedeagus & spermatheca of *Aphthona pygmaea*. Fig. 7 (A - C) Antenna, hind leg & aedeagus of *Aphthona flaviceps*.

PLATE II

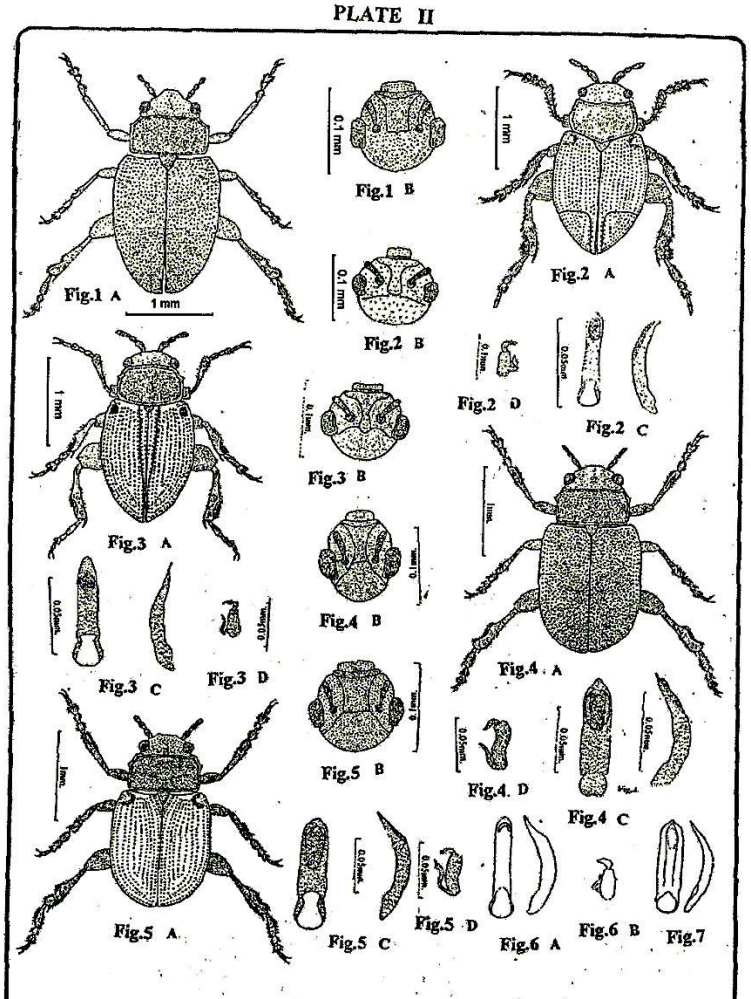

Fig. 1 (A&B) Adult & head of *Chaetocnema aridula*. Fig. 2 (A- D) Adult, head, aedeagus & spermatheca of *Chaetocnema bilunulata*. Fig. 3 (A-D) Adult, head, aedeagus & spermatheca of *Chaetocnema conducta*. Fig. 4 (A-D) Adult, head, aedeagus & spermatheca of *Chaetocnema hotensis*. Fig. 5 (A-D) Adult, head, aedeagus & spermatheca of *Chaetocnema latipennis*. Fig. 6 (A& B) Aedeagus & spermatheca of *Chaetocnema dellarouzeei*. Fig. 7 Aedeagus of *Chaetocnema aerosa*.

PLATE III

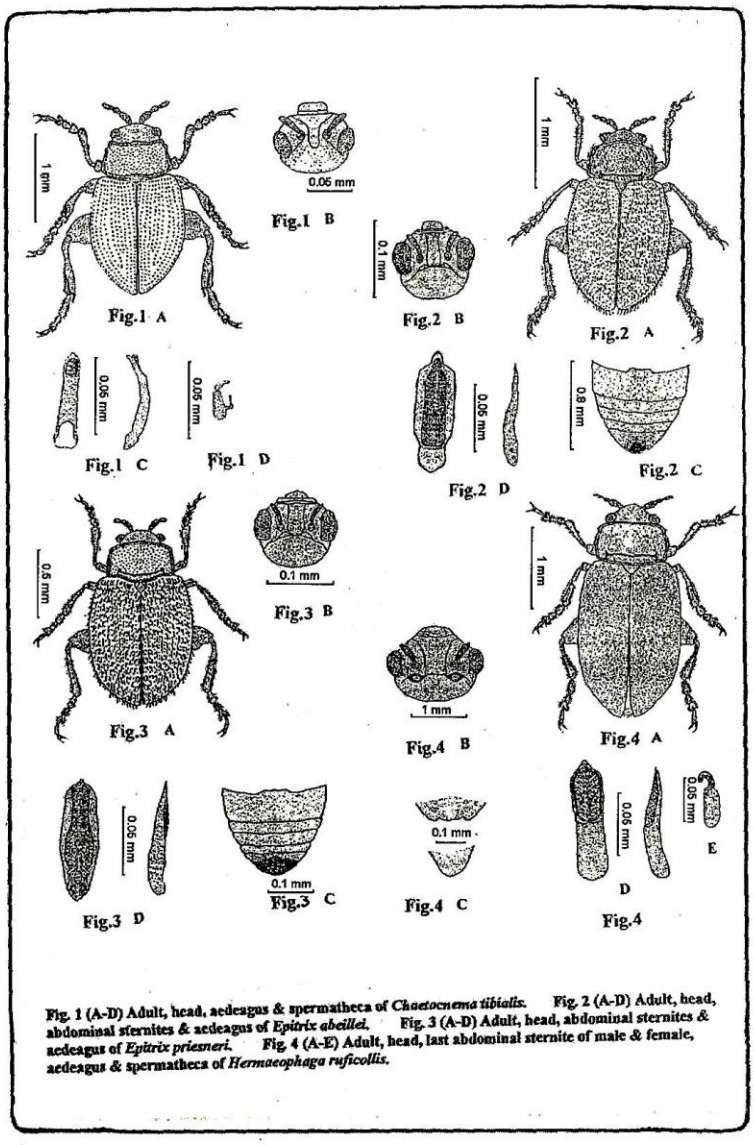

Fig. 1 (A-D) Adult, head, aedeagus & spermatheca of *Chaetocnema tibialis*. Fig. 2 (A-D) Adult, head, abdominal sternites & aedeagus of *Epitrix abeillei*. Fig. 3 (A-D) Adult, head, abdominal sternites & aedeagus of *Epitrix priesneri*. Fig. 4 (A-E) Adult, head, last abdominal sternite of male & female, aedeagus & spermatheca of *Hermaeophaga ruficollis*.

PLATE IV

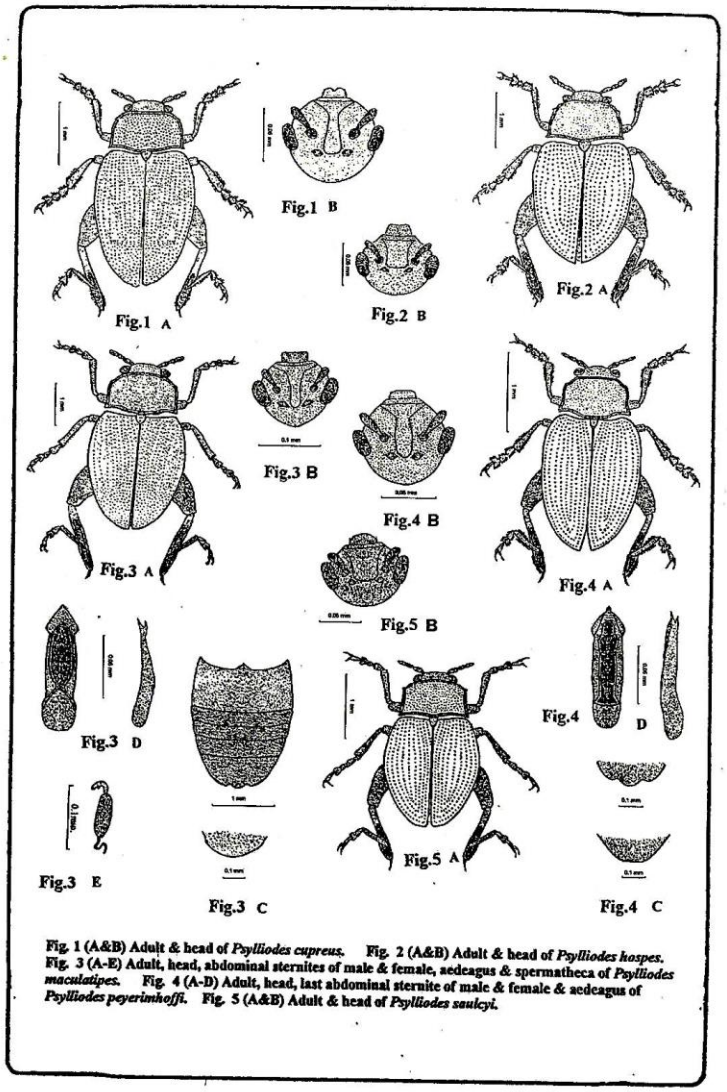

Fig. 1 (A&B) Adult & head of *Psylliodes cupreus*. Fig. 2 (A&B) Adult & head of *Psylliodes hospes*. Fig. 3 (A-E) Adult, head, abdominal sternites of male & female, aedeagus & spermatheca of *Psylliodes maculatipes*. Fig. 4 (A-D) Adult, head, last abdominal sternite of male & female & aedeagus of *Psylliodes peyerimhoffi*. Fig. 5 (A&B) Adult & head of *Psylliodes saulcyi*.

تصنيف تحت فصيلة ألتيسينى (كريزوميليدى- غمدية الأجنحة)
الجزء الأول- الأجناس: ألتيكا، أنجلوافسونا، أقسوتا، كيتوسينيما، دايبوليا، إبتركس، هيرميوفاجا و بسلويدس

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تمثل تحت فصيلة ألتيسينى مجموعة كبيرة من خنافس الأوراق، عالمية الأنتشار، تتغذى الأطوار الكاملة و يرقاتها على العديد من العائلات النباتية المختلفة شاملة بعض المحاصيل الزراعية الهامة إقتصاديا فى مصر مثل القطن، الذرة، البنجر، قصب السكر و بعض الخضروات، بينما يستخدم بعض أنواعها فى المكافحة البيولوجية لبعض الحشائش السامة و الضارة بالنبات. فصيلة ألتيسينى ممثلة فى مصر بأربعة و أربعين نوعا فى ثلاثة عشر جنسا طبقا لمصادر المعلومات المختلفة. يمثل هذا العمل (الجزء الأول) احدى و عشرون نوعا فى ثمانية أجناس من هذه المجموعة، هذا بالاضافة إلى ثلاثة أنواع تم تسجيلها لأول مرة فى مصر خلال هذه الدراسة. تم عرض أوصافا مختصرة دقيقة مدعمة برسوم إيضاحية للأنواع المدروسة، كما تم إنشاء مفتاح للفصل بين جميع الأجناس الممثلة فى الفصيلة، و مفتاح للفصل بين الأنواع فى كل جنس، و من خلال هذه الدراسة تم تحديد الوضع التصنيفى الحديث لهذه المجموعة من فصيلة ألتيسينى.