

## TAXONOMIC STUDY ON SUBFAMILY COSSONINAE (CURCULIONIDAE: COLEOPTERA) OF EGYPT WITH SOME ECOLOGICAL NOTES

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### ABSTRACT

Subfamily Cossoninae is distributed worldwide, with 287 genera based on latest literatures. Species of Cossoninae is found mainly in dead or dying plant parts of trees from pteridophytes to gymnosperms, and dicots, in case of feeding on alive or still sound tissues, the host specificity is high. In Egypt, it has seven genera including ten species. Those genera and species based on their latest position and changes according to latest literatures are *Melicius gracilis* (Rosenhauer), *Melicius cylindrus* (Boheman), *Hexarthrum culinaris* (Germar), *Mesites pallidipennis* Boheman, *Mesites cunipes* Boheman, *Mesites cunipes* var. *cribratus* Fairmaire, *Choerorhinus squalidus* Fairmaire, *Amaurorhinus bonnairii* Fairmaire, *Pselactus spadix* (Herbst), *Micromesites deplanatus* Pic. The species of these genera, which recoded in Egypt, is distributed in Mediterranean basin countries except the last species, which recoded only from Egypt. All those species collected from four regions, Maryut, Cairo, Ismailia and Alexandria, which located at North Egypt. They were found under the bark of old trees of willow, plane, mulberry, fig and *Tamarix* sp. during the whole year except the months of February, October and November. The fauna of Cossoninae probably are not reflecting the reality of which in Egypt, since those are not distributed throughout the country. So many weevil collections are required particularly from Middle and South Egypt in the next studies.

**Keywords:** Taxonomy, Weevils, Curculionidae, Cossoninae, Egypt.

### INTRODUCTION

Earlier, sub-family Cossoninae was treated either as a separated family of the Rhynchophora, subfamily of the Calandridae or a group under sub-family Curculioninae. In 1825, Schoenherr built up sub-family Cossoninae based on the genus *Cossonus* Clairville and Schellenberg, 1798, with a type *Cossonus* (= *Curculio*) *linearis* (Fabricius, 1775).

Cossoninae are not large sub-family in the family Curculionidae, include 1,300 described species in the world (Konishi, 1962). Moreover, O'Brien and Wibmer (1978) reported that Cossoninae are distributed in all bio-geographic regions of the world, with 301 genera and 1,666 species known. Kuschel (1995) documented that Cossoninae comprise 1,665 described species and 300 genera, but several times these numbers still await description. Based on Alonso-Zarazaga & Lyal (1999) Cossoninae have 18 tribes with 283 genera; this number is increased to be 287 after figured out other genera, which recently added to the fauna of Cossoninae. Those are *Dibionus* from New Caledonia; *Coptonus* and *Dissostomus* both from New Guinea by Kuschel *et al.* (2000) and *Melicius* Alonso-Zarazaga (2002) from Iberia.

O'Brien and Wibmer (1978) found that Cossoninae have 21 genera with 117 species in Palearctic region and 92 genera with 475 species in

Oriental region but Morimoto (1973) stated a key for 122 genera from the Oriental region including Pacific islands.

Alfieri (1976) in his catalogue about the Coleoptera of Egypt stated that subfamily Cossoninae has six genera including ten species but he did not give any information about which except their capture time and distribution in Egypt.

Therefore, this work is considered a first study of Egyptian Cossoninae aimed to update the position of the species regarding to the genera, to provide a key and some illustrations for them, to give diagnoses of genera and species, and to present some ecological notes about either genera or species.

## **MATERIALS AND METHODS**

This study was done based on the genera and species, which stated by Alfieri (1976). Synonymies, world and local distribution, ecological information and illustrations were extracted from the following literatures: Fairmaire, 1857; Hustache, 1931; Csiki, 1936; Hoffmann, 1954; Voss, 1954/55; Folwaczny, 1960&1973; Morimoto, 1973; Alfieri, 1976; Dieckmann, 1983; Osella *et al.*, 1993; O'Brien, 1997; Alonso-Zarazaga & Lyal, 1999; Anderson, 2002; Kuschel *et al.*, 2000; Kojima and Morimoto, 2004. The diagnosis characters of the genera and species was also extracted from their original description and then compared with the Egyptian reference insect collections as following: Ministry of Agriculture collection, Plant Protection Research Institute (MAC), Egyptian Entomological Society collection (EESC), Alfieri collection, Faculty of Agriculture, Al-Azhar University (ALFC), Ain Shams University collection, Department of Entomology, Faculty of Science (ASUC) and Cairo University collection, Department of Entomology, Faculty of Science (CUC).

The classification, which was followed here, is based on Alonso-Zarazaga & Lyal (1999). Genera and species were arranged chronologically and if the same time is found the arrangement became alphabetically. Standard terms of weevil taxonomy which used in the key or text are generally known by the taxonomists and follow that used by previous authors (e.g. Torre-Bueno, 1937; Nichols and Schuh, 1989 and Snodgrass, 1935).

## **RESULTS AND DISCUSSION**

### **Subfamily Cossoninae Schoenherr, 1825**

**Diagnosis:** Cossoninae are distinguished from other sub-families of curculionidae especially Scolytinae and Platypodinae in having the following characters: habitus long, slender and soventrally compressed; size small; color usually black or dark sparsely brown or yellow; lack scales; sculpture of integument punctate or rugulous, not granulous, not tuberculous; covered with appressed or erected/sub-erected setae or almost naked; rostrum usually shorter than prothorax; deep mandibular sockets limited below by a prominent hypostomal tooth; a pharyngeal process that is at least as long as the mandible measured from the insertion point of the process to the tip of the

mandible; a long foregut with the proventriculus located beyond the mesothorax in the metathoracic lumen; all cossonines have sclerolepidia; postmedian fore coxae and a prothorax that is only slightly inclined forward; most have the meso- and metasternum flat at the same level (although sloped in *Araucarius*, and in most Onycholopini, a tribe also known under junior names of Brachytemnini, Hexarthrini and Stereocorynini); most have a rectal loop and widely separated fore, middle and hind coxae, and on an overwhelming majority have distinctive grinding plate anteriorly to the proventricular blade, a head anteriorly extended into a rostrum and totally normal male and female genitalia with an apically pointed spermatheca; a grooming device on the inner margin of fore tibia always bears long and erected setae towards the apex as viewed from the outero-lateral side (Figs 1-8); hind tibia without an apical comb of setae (Konishi, 1962; Morimoto, 1973; Borror, *et al.*, 1981; Kuschel, 1995; Kuschel *et al.*, 2000; Anderson, 2002 and Lyal *et al.*, 2006).

**Ecology of Cossoninae:** The broad-nosed snout beetles (subfamily Cossoninae) are living in wood, leaves, under bark and in litter, which may vary from very moist to rather dry. In those media they are to be found in the trunks of diseased, dying and dead trees, which has been subjected to fungal attack, in old tree stumps, in stacks of fire-wood, in discarded pieces of wood piled up in cellars and caves, and not seldom in drift-wood. They are generally drab and small and of no or little economic consequence (Kalshoven 1962; Thompson, 1989 and Kuschel *et al.*, 2000). Both larvae and adult of this subfamily burrow within their hosts; adults normally live and feed inside plant tissues but can also surface to browse temporarily on the outside. They are found mainly in dead or dying plant parts, going largely for wood in all stages of preservation from sound to thoroughly decayed and very rotten wood, and for the fibrous tissues of monocots, ferns, dead fern fronds, palm fronds, agaves leaves, yucca stalks, as well as from soggy substratum, fruits and seeds to leaf, from indiscriminate choice to high host-specificity over most of the plant spectrum from pteridophytes to gymnosperms, and dicots, but not in fungal fruit bodies. A number of taxa are found on sandy beaches in association with driftwood. When feeding on live or still sound tissues, the host specificity is high. Thus, many Cossonine species are restricted to a particular group of plants, especially ferns, cycads, conifers, and monocots (Konishi, 1962; Kuschel, 1966a&b; Rühm, 1977; O'Brien, 1997; Kuschel *et al.*, 2000 and Anderson, 2002).

**Key to genera of subfamily Cossoninae of Egypt**

1-Funicle	5	or	6
segments.....			2
-	Funicle		7
segments.....			4
2- Scutellum visible; pronotum much more narrower than elytra, not constricted at front, densely punctured; second stria of elytra reached to base.....		<b>Hexarthrum</b>	Wollaston, 1860

- Scutellum invisible; pronotum wider than or as wide as elytra.....3

3- Eyes normal, round, prominent; rostrum as long as wide; pronotum oblong, truncated at apex and base; intervals costate.....**Choerorhinus** Fairmaire, 1858

- Eyes markedly reduced in size to 3 or 4 facets; rostrum about twice as long as wide; pronotum as long as wide, truncated at base; second interval slightly convex, striae fine, not deeply sulcate.....**Amaurorhinus** Fairmaire, 1860

4- Scutellum invisible; vestiture with obvious long fine hair like setae; pronotum markedly narrower than elytra, truncate apex and base; third tarsal segment expanded and lobate.....**Pselactus** Broun, 1886

- Scutellum visible; vestiture without long fine hair like setae; third tarsal segment not expanded and not lobate.....5

5- Front coxae separated by distance wider than diameter of coxa; pygidium slightly protruded; striae fine with punctures wider than stria width; intervals wide, sometimes with transverse cracked sculpture, that incise stria margins.....**Micromesites** Pic, 1920

- Front coxae separated by distance less than 2/3 diameter of coxa; pygidium covered.....6

6- Pronotum as long as wide; scrobes started at apical one-third to slightly before eyes, with upper edge directed towards eyes and parallel to upper edge of rostrum; pronotal base straight.....**Melicius** Alonso-Zarazaga, 2002

- Pronotum longer than wide; scrobes located at base, slant, widened behind and reaching eyes; pronotal base slightly bisinuate.....**Mesites** Schoenherr, 1838

**Genus *Melicius* Alonso-Zarazaga, 2002**

**Type species:** *Phloeophagus gracilis* (Rosenhauer, 1856).

**Diagnosis:** Body cylindrical in cross section. Rostrum in dorsal view longer than wide, at least as long as half of pronotal length, in dorsal view sides subparallel, slightly narrowed towards apex, apex narrower than interocular distance. Scrobe started at apical one-third to slightly before eyes, with upper edge directed towards eye, parallel to upper edge of rostrum. Funicle with seven segments. Pronotum not longer than wide or as long as wide; pronotal base straight. Scutellum present. Elytra usually slender (ratio Length / Width = 1.85 -2.12), humeral calli more or less developed. Usually winged. Procoxae separated by distance less than half of procoxal diameter. Mesosternum and metasternum approximately in same level in profile, without noticeable step at fore level of mesocoxae; mesocoxae separated by distance approximately equal to its diameter or greater.

**Distribution:** Spain, France, Italy, Yugoslavia, Bulgaria, Egypt, Algeria, Morocco, Hungary, Austria, Syria, the Caucasus, Switzerland, Greece, South Russia, Lebanon, Czechoslovakia, Iran, Turkey, Albania, Turkistan,

Mauritius, USA (California), Ukraine, Netherlands, Poland, Portugal mainland, Germany, Croatia, Andorra, Balearic Islands and Iberia.

**Key to the species of Genus *Melicius***

1- Pronotum as long as wide; eyes slightly prominent, temple very short; 9<sup>th</sup> interval not raised posteriorly; front coxae subcontiguous.....***gracilis*** (Rosenhauer)

- Pronotum much more longer than wide; eyes weakly prominent, temple long; 9<sup>th</sup> interval raised posteriorly; front coxae widely separated.....*cylindrus* (Boheman)

***Melicius gracilis* (Rosenhauer, 1856)**

(Figs 9-11)

= *P. angustus* Fairmaire, 1859

**Diagnosis:** Head not constricted behind eyes. Frons with fovea between eyes. Eyes slightly prominent, temple very short. Rostrum notably longer than head, more than twice as long as wide, thin, glossy, very finely and densely punctured, slightly curved; male rostrum thicker than female rostrum. Antennae rather slender, inserted behind middle of rostrum; scape slightly longer than rostrum width; funicle 7 segments, as long as scape; club moderately strong, oval, longer than wide. Pronotum not longer than wide or as long as wide, base twice as broad as anterior margin, with strong and dense punctures, puncture spaces wider than puncture diameter, widest part at base, tapered towards front, constricted at front margin. Scutellum evident. Elytra as broad as pronotum at base, 2.5x as long as wide (2: 0.8), dorsum slightly convex, parallel-sided, from middle down weakly narrowed and rounded; punctures of striae rather big (three times as big as those of pronotum), striae run deeper towards apex; intervals barely as wide as striae, interval punctures very small, becoming more numerous and dense on declivity; 9<sup>th</sup> interval not raised posteriorly. Tarsi very short, same width. Front coxae sub-contiguous. Mesocoxae widely separated. Metacoxae very widely separated, with distance wider than coxal diameter. Metasternum furrowed. Base of abdomen impressed, strongly in (♂). Color: Reddish brown to dark brown, tarsi and club lighter. Size: 2.2 - 3.5 mm

**Ecology:** species is widely spread mainly in the basin of the western Mediterranean, while seems to be more localized to the eastern basin. The species derive from ornamental plants, those which are not in perfect vegetative conditions and in dead wood of *Populus*, *Acer*, *Quercus suber*, *Juglans regia*, *Fagus sylvatica*. It also found on *Aesculus hippocastanum*, *Celtis australis*, *Populus pyramidalis*, *Ulmus campestris*, *Acer negundo*, *Populus nigra*. However, it prefers the poplars where it is sometimes present in numerous colonies of all developmental stages during all months of the year (Osella *et al.*, 1993). Moreover, it found in dead hardwood, elm, poplar, ash, maple, oak, Cork oak, beech, walnut, *Fraxinus oxyphylla*, and also in *Quercus juglans*, *Ulmus*, *Populus nivea*, *Fraxinus oxyphylla* (Folwaczny, 1973).

**World distribution:** Spain, France, Italy, Yugoslavia, Bulgaria, Egypt, Algeria, Morocco, Hungary, Austria, Syria, the Caucasus.

**Local distribution and capture time:** Cairo vicinity, captured during August in trunk of old willow tree.

***Melicius cylindrus* (Boheman, 1838)**

(Figs 12-14)

= *cylindricus* Boheman, 1845

= *turbatus* Reitter, 1887

= *longicollis* Boheman, 1838

= *cylindrirostris* Thomson, 1865

= *gracilis* Redtenbacher, 1849

= *grandicoillis* Brisout, 1863

**Diagnosis:** head dorsally constricted behind eyes. Eyes weakly prominent, temple long. Rostrum short, slightly longer than head, approximately 1.5 times as long as broad, robust, cylindrical, finely punctured; difficult to distinguish male from female without dissection. Scrobe touches upper margin of eyes, so that eyes appear imbedded in the scrobe. Antennae robust, inserted at apex of widest part of scrobe which remote from rostrum base. Scape arch, gradually thickened, slightly longer than rostrum width, funicle and club together slightly longer than scape; first funicle segment big, twice as long as second one, 3-7 funicle segments transverse; club oval, compact, nearly twice as broad as 7 funicle segment. Pronotum much longer than wide, gradually narrowed towards apex, punctures rather fine and sparse, spaces between punctures smooth and glossy, often with smooth median line. Elytra barely 1.5x times as long as pronotum; striae with strong punctures; intervals broader than striae, with fine row of punctures, slightly convex, 7 and 9 intervals united behind and forming fine keel, 9<sup>th</sup> interval raised posteriorly. Front tibiae strongly bi-sinuate at inner side. Front coxae widely separated. Distance between mid-coxae sub-equal to that one of hind-coxae and equal to diameter of coxa. Base of male abdomen deeply impressed, anal segment with depression, and dense, thick and yellow hairs. Color: pitch brown to black, antennae and legs brown, club pale. Size: 3 - 4.2 mm.

**Ecology:** *Melicius cylindrus* is sporadic species, just more common in the Mediterranean regions both internal and on the coast. Adult and larva found in dead wood, oak, willow, hornbeam, elm, oak tree, *Rossa*, *Papulus nigra* and rotting wood-leaved trees of *Ficus carica*, *Ulmus*, *Acer campestre*, *Populus*, *Quercus suber*. Also it was found in *Pinus halepensis* and *P. silvestris* (Caillol, 1954 and Folwaczny, 1973). It was also collected from bark and/or in the wood of *Populus nigra*; adult was obtained from larva collected from *Fagus sylvatica*. Probably, it has two generations per year and larvae, pupae and adults can be found simultaneously in the same wood. Adults can be caught during months of January, February, June, July, August, September, October and December. Adults are emerged in early June and in early January. According to investigations larvae and adults of *M. cylindrus* damage poplars and willows in Egypt, of which transforming branches and gills wood into sawdust. When infestations are heavy, the branches are broken and the tree dies. In Egypt, what was observed appears to be different from Italy, where the Cossonine attacks only the dead wood of the trees and tree stumps (Osella *et al.*, 1993). The larva has been described by Hammad and El Deeb (1955) on the basis of materials of Alexandria, Egypt,

always in the wood of *Populus nigra*. The morphology and anatomy of the adult was subject to a careful study by Nabila-Zamy (1958).

**World distribution:** France, Spain, Switzerland, Italy, Austria, Yugoslavia, Bulgaria, Greece, Russia, Syria, Lebanon, Egypt, Czechoslovakia, Caucasus, Iran, Turkey and Albania.

**Local distribution and capture time:** Alexandria (Ramleh); captured during April in old willow tree; Cairo vicinity, captured during May to August in trunks of old willow, plane and mulberry trees.

**Genus *Hexarthrum* Wollaston, 1860**

(*Rhyncolus* Germ. Part.)

**Type species:** *Hexarthrum compressum* Wollaston, 1860

= *Rhyncolus capitulum* (Wollaston, 1858)

**Diagnosis:** Body sub-cylindrical, rather depressed, slightly shining; vestiture entirely appearing quite bald but beneath under microscope looks very sparingly besprinkled with short and most minute pubescence, punctured. Head spherical. Eyes not projected. Rostrum short but longer than broad, narrowly sub-triangular; female rostrum longer than male. Antenna short, thick, glabrous; scape, strongly short, robust; funicle 6 segments, basal one enlarge, others closely pressed; club extremely solid, not perceptibly annulated, very obtuse at apex, hairy. Pronotum usually much more narrower than elytra, relatively robust, densely punctured, not constricted at front, unmarginated at base; scutellum arranged same level with sutural intervals. Elytra parallel, short, cylindrical, obtusely rounded behind, sub-asperated, without raised scales; striae with strong punctured, 2<sup>nd</sup> stria of elytra reached to base, somewhere closed with 1<sup>st</sup> one; intervals with fine row of puncture, basal sutural interval not deep, 2<sup>nd</sup> and 3<sup>rd</sup> intervals not protruded; posterior half dentate at declivity; four anterior coxae sub-contiguous; femora wide and flat; tarsi with unexpanded antepenultimate tarsomeres; third segment not bilobed. First and second abdominal segments divided by an unusual distinct line; underneath punctured. Male and female underside without clear discernible differences.

**Distribution:** Chile, East West Canada; North East, North West, South East USA; Europe, Madeira, Kazakhstan, Kirgizia, Tajikistan, Turkmenia, Uzbekistan, East Siberia, China, Japan, Tanzania, Egypt.

**Ecology:** it found in different needle and hardwood, inter alia, *Celtis australis* and *Aesculus hippocastanus*. Also, it was found in buildings of wood parts, which are large exposed to moisture, in outer parts of window frames, with wooden houses dampened with rain and snow and lying on the ground surface bars. It has occurred underground mines and requires 14-26% moisture content. It hibernates as imago and larva throughout the year.

***Hexarthrum culinaris* (Germar, 1824)**

(Figs 15-18)

= *exiguus* Boheman, 1838

= *ferrugineus* Walth, 1839

= *cribripennis* Graells, 1858

**Diagnosis:** Cylindrical, short, sub-glabrous (pubescent very short and visible only under strong magnification), bran brown. Head spherical. Eyes completely flat. Rostrum straight, as long as broad (♂) or nearly 1.5 times

more long than broad (♀) and less wide than head, less broad than front, sub-cylindrical, wrinkled with fine and dense punctures, more finer than that of prothorax; scrobe starting slightly in front of rostrum middle, attaining behind lower margin of eye. Antennae inserted medially, very short, glabrous; scape very short, barely half as long as rostrum width; funicle 6 segments, 1<sup>st</sup> segment slightly longer than wide, as long as 2+3 together, segments 2-6 very short, very compact; club compact, compressed, obliquely truncated and pubescent at end. Pronotum about as long as broad, weakly constricted in front, gradually narrowed forwards, greatest width at third basal, base slightly wider than anterior margin, with circular punctures, rather big, dense, more fine at front. Scutellum evident. Elytra parallel-sided, slightly broader than pronotum; twice as long as broad; striae with big, circle, sparse punctures; intervals flat, narrower than striae, uniserrate, with punctures more strong and wrinkled backwards, declivity covered with fine sharp asperity; apex semicircle rounded. Tibiae with parallel margins, anterior side finely pubescent and short setae on their internal margin. Tarsi filiform, first segment as long as 2+3 together, 3rd segment narrow, as wide as 2<sup>nd</sup> one. Front coxae contiguous, medcoxae not clearly separated. Second ventral segment equal to fifth one. Color: red to dark brown, antennae and tarsi reddish. Length: 2.4-3.5 mm.

**Ecology:** It prefers dry wood of dead trees outdoors, more rarely trusses in the houses as well as it is polyphagous species probably to coniferous and deciduous trees. According to Parfentjev (1938) about 60% of the houses, in towns and villages around Volga River were attacked by this species which is designated as harmful to wood. Its host plants are *Aesculus hippocastanum* and *Celtis australis*

**World distribution:** Europe, North Africa, Egypt, Caucasus, Turkistan, Afghanistan, Kazakhstan, USA, Ukraine, Caucasian Regions, Greece, Bulgaria, Libyan.

**Local distribution and capture time:** Alexandria (Ramleh); captured during May in trunk of old fig tree.

**Mesites Schoenherr, 1838**

**Type species:** *Mesites pallidpennis* Boheman, 1838

**Diagnosis:** Body more parallel, cylindrical and convex. Head conical, short, wider than long, behind eyes more or less spherical, dilated; front with deep fovea, in male sometimes continues as furrow until middle of rostrum. Eyes moderately arched. Rostrum (in male) broad, flat, with dense, rather strong punctures, punctures at apex rather fine, often along midline partly wrinkled, weakly curved, more than half as long as pronotum; (in female) cylindrical, shiny, sparsely punctured, widened at or slightly behind antennal insertion point, at apex slightly widened, at base strongly widened; scrobes slant, located at base, widened behind and reaching eyes. Antennae moderate long, scape more swollen, robust, gradually and strongly thickened, weakly curved in male, strongly curve in female; funicle 7 segments, very compact, strongly and gradually widened; club not velvety, reddish, testaceous; male antenna inserted at middle of rostrum. Pronotum oblong, longer than wide, laterally more or less rounded, constricted at apex to compose collar, sometimes with depression in front of scutellum; anterior margin truncate,

base slightly bi-sinuate. Scutellum evident, smooth. Elytra as wide as pronotum, straight, parallel, narrowed at apex; striae strongly punctured. Femur in the subgenus *Odontomesites* clearly serrated inside. Front tibiae at inner side of apex emarginated and with comb of setae. 3<sup>rd</sup> tarsal segment not bi-lobed, not wider than previous ones. Front coxae separated by about 2 / 3 diameter of coax. Metasternum furrowed. Abdomen base impressed.

**Distribution:** North East, South East USA; South Europe, Caucasus, Kazakhstan, Canary Island, North Africa, Turkey, Lebanon, Cyprus, Syria, Iran, Congo, New Zealand, Sri Lanka, Egypt.

**Key to the species of Genus *Mesites* Schoenherr**

1- Rostrum cylindrical; front with big, large deep fovea; antenna inserted near to rostrum base; pronotum with shallow circular punctures, spaces between punctures longer than 2.0-3.0x puncture diameter; striae with big circular punctures, separated by distance longer than 0.5x puncture diameter; intervals slightly wider than striae, flat.....*pallidipennis*

Boheman

- Rostrum flattened; front with fovea connected to longitudinal furrow between antennal insertion point; antenna inserted about middle of rostrum; pronotum with moderate dense punctures, distance between them 1.0-2.0x puncture diameter; intervals convex, narrower than striae; striae with strong, deep, sub-square punctures, distance between punctures less than 0.5x puncture diameter..... *cunipes*

Boheman

- pronotum with very large, rather dense punctures on both sides (more denser and stronger punctures than in *cunipes*).....*cunipes* var. *cribratus* Fairmaire

*Mesites pallidipennis* Boheman, 1838

(Figs 19 & 21)

**Diagnosis:** Body oblong. Head small, constricted laterally. Front with big large deep fovea. Eyes big large, very prominent, with clear facets. Rostrum cylindrical, (in male) strongly punctured, at antennal point insertion roundly broadened; (in female) rostrum shiny, with sparse fine punctured, apex widened. Scrobes located at base, slant, short, deep, touch eyes. Antennae long, in female inserted slightly away from base; male antennae inserted close to base. Scape short, strongly clavate; funicle 7 segments, compact, clearly segmented, first funicle segment longer than wide, longer than others, second conical, almost as long as wide, following segments strongly transverse, gradually increased in width; club oval, wider than funicle, tomentiert, short, with small yellowish setae at apical 2/3, basal third glossy with sparse fine setae. Pronotum longer than wide, flat, with shallow circular punctures, spaces between punctures longer than 2.0-3.0x puncture diameter, sub rounded laterally, narrowed towards apex, constricted at apex which clear laterally and obscure dorsally, base slightly bi-sinuate, apex much more shorter than base. Scutellum evident, black, circular, glossy. Humeri slightly swollen. Elytra long, sub-parallel sided, apex rounded, base truncate, slightly wider than pronotum base; striae with big circular punctures, distance between them longer than 0.5x puncture diameter; intervals slightly wider

than striae, flat, with single row of fine punctures. Legs long; femure strong; tibiae straight from outside, with distal comb of setae at inner side; tarsi normal, 1<sup>st</sup> tarsal segment long, as long as 2<sup>nd</sup> + 3<sup>rd</sup>, third tarsal segment normal, neither widened, nor bi-lobed. Color: Pitch-brown to reddish brown; elytra rusty brown, venter black to rarely dark brown, legs pitch-brown; antennae and tarsi reddish brown. Size: 4-7 mm.

**Ecology:** it develops in littoral, mainly in the rich sea water periodically moistened old wood, beams, poles, sleepers and embankments as well as in driftwood and old trunks of pines and poplars. It appears from June to August (Folwaczny, 1973). Adults and larvae gathered under the bark of trunks, shipwrecked, conifers or deciduous trees. The adult frequently caught during flight (flight rather slow at a height from the ground between 1.5 -2.5 m) in the summer months and available in the months from April to October, with maximum frequency in the middle of the year. The larva excavates tunnels for a few cm in heartwood. Mainly the host plants include *Salix*, *Populus* and *Pinus*. This species is indicated by Parfentjev (1960) as harmful to the wooden buildings of the southern Russia. It probably has one generation per year (Osella *et al.*, 1993).

**World distribution:** France, Corsica, Spain, Italy, Yugoslavia, Greece, Bulgaria, Russia, Turkey, Syria, Egypt, Algeria, Caucasian region, New Zealand, Cyprus.

**Local distribution and capture time:** Maryut, captured during April; Alexandria (Ramleh), captured during June; and Cairo, captured during April in house.

***Mesites cunipes* Boheman, 1838**

(Figs 22 & 23)

**Diagnosis:** rostrum flattened; male rostrum finely shagreened, basal part stronger and denser than apex, with longitudinal furrow between antennal insertion point, and continued until front fovea, slightly before anterior one-third moderately robust; female rostrum cylindrical, shiny, sparsely, very finely punctured, canaliculated between antennal insertion point, strongly robust short distance before base; antennae inserted about middle of rostrum. Scape short, robust; first funicle segment slightly elongated, second one conical, mostly shorter than wide, following segments transverse, increasing in width towards apex; club short, acuminate, slightly thicker than funicle. Pronotum long, laterally evenly rounded, more narrowed towards apex, greatest width in basal quarter (this feature is not constant), moderately robust, with moderate dense punctures, distance between them 1.0-2.0x puncture diameter; base truncate. Elytra elongate, curved; intervals convex, narrower than striae, with fine and sparse row of punctures; striae with strong, deep, sub-square punctures, distance between punctures less than 0.5x puncture diameter. Color: dark brown; legs, base and apex of antenna rust; female rostrum lighter. Size: 4-6 mm. fig. 23

**Ecology:** it develops in old wood, mainly willow and poplar, under dead bark wickers, and *Populus alba*. It appears during May, July to September (Folwaczny, 1973). Also, adults gather under the bark of one year death of the host plant and prefers compact wood but not too dry.

Fig1-12



fig26-31

The adult seems to be exclusively present during July-August exceptionally September; and found in small colonies under the bark. It has never been observed in flight but there is no doubt that even this species uses to search for their host plants. The larva develops in dead tree trunks of *Salix* and it can be found in lopped decaying of the willows, if which has the feature traces of larval attack. It is typical fit to riparian environments mesophilic currently diminishing for killing more and more generalized of host plants. It recovered from the sea level up to about 1000 m., probably it has only one generation per year. The host plants mentioned in the literature are *Ficus carica*, *Prunus dulcis*, *Fagus sylvatica*, *Populus* (Caillol, 1954) but it has always and exclusively collected from *Salix*, especially *S. viminalis* (Osella et al., 1993).

**World distribution:** France, Spain, Italy, Switzerland, Yugoslavia, Greece, Russia, North-western Iran, Turkey, Asia Minor, Egypt, Algeria, Kurdistan, Kazakhstan, Caucasus, Cyprus, Albania, Bulgaria.

***Mesites cunipes* var. *cribratus* Fairmaire, 1856**

(Figs 24 & 25)

**Diagnosis:** Body elongate. Rostrum slightly depressed, rather expanded between antennae, fairly densely punctated on sides and base; in middle with furrow towards base; ending between eyes by deep fovea. Antennae reddish; club pale, pilose with reddish color. Pronotum elongate, 0.5x longer than wide at middle, narrowed at base and slightly robust at front, depressed, with very large, rather dense punctures on both sides (more denser and stronger punctures than in *cunipes*). Scutellum smooth. Elytra parallel, elongated, reddish along external margins; striae with sub-square large punctures; intervals slightly convex. Apex rounded, slightly tucked back. Underneath same color, strongly and densely punctated; abdomen with large, deep impression on first and second segments. Legs short, moderately robust; tibiae large, strongly angled, almost toothed before end. Color: dark brown, rather bright, almost smooth. Size: 5 mm.

**World distribution:** Spain, Greece, South Europe, Cyprus, Caucasus, Egypt.

**Local distribution and capture time:** Alexandria (Ramleh); captured during March; and Cairo vicinity, capture time unknown.

***Choerorhinus* Fairmaire, 1858**

= *Chacrorhinus* Schaum, 1859

= *Choerorhinus* Stein & Weise, 1877

= *Choerorhinus* Reitter, 1913

= *Pentacoptus* Wollaston, 1873b; *Pentacoptus gronopiformis* Wollaston, 1873b

= *Choerorhynus* Bajtenov, 1968

**Type species:** *Choerorhinus squalidus* Fairmaire, 1858

**Diagnosis:** Body elongate, strongly convex. Frons as broad as rostrum base. Eyes round, prominent. Rostrum short, as long as wide, robust, almost as wide as head. Scrobes short and deep, arced, posterior margin running below eyes. Antennae short, thick, inserted before middle of rostrum; scape short, robust, shorter than funicle and club together; funicle 5 short segments, compact, widened towards club, which not clearly separated from funicle; club oval, acuminate, indistinguishable articulated. Pronotum oblong,

truncate at base and apex. Scutellum invisible. Elytra oblong, almost parallel, with angled shoulders; with costate intervals; slightly narrowed towards apex, rounded and strictly marginate. Legs short, robust; tibiae armed in end of external margin with strong arched tooth; tarsi 4 articles, short, robust, 3<sup>rd</sup> segment large, cordiform, notched.

**Distribution:** Mediterranean basin, Afghanistan, Japan; Ethiopia, Tanzania, Zaire, Egypt.

***Choerorhinus squalidus* Fairmaire, 1858**

(Figs 26-28)

= *brevirostris* Chevrolat, 1860

= *intrusus* Rey, 1895

**Diagnosis:** Head transverse, with coarse, close punctures. Eyes small strongly protrude. Rostrum rather broad, flat, longer than wide, with short longitudinal impression at base, female rostrum slimmer than male, more than 1.5x as long as wide, male rostrum slightly shorter and wider. Antenna slightly longer than rostrum, inserted almost in middle, in female before middle as seen from above; scrobes directed obliquely towards lower edge of rostrum base; scape robust, conical, 0.5x as long as rostrum wide; funicle 5 articles; club flattened, not wider than last funicle segment. Pronotum dorsum wrinkled; with dense, strong, big punctures, slightly narrower than elytra; as long as wide or slightly wider; laterally slightly rounded, then strongly narrowed towards apex, strongly constricted before apex, with strong transverse impression behind constriction; in middle of basal half often with very short longitudinal impression. Scutellum invisible. Elytra 2x as long as wide, striae broad, coarsely punctuate; intervals narrow, finely keeled and crenate at sides and top. Pro-coxae separated by distance less than 0.5x diameter, Mesocoxae little more separated, metacoxae separated by 2x coxal diameter. Third tarsal segment dilated, not bi-lobed; claws gradually tapering to apex. Color: rusty red to dark brown, dull; almost entirely covered with dirty grey fur-like. Size: 2.3-3.2 mm

**Ecology:** This species, rather than rare anywhere, collected in the wood and tree stumps of decayed logs and in wounds of old trees. It is also located in dry wood used for domestic heating. In nature, it is found sometimes in the company of *Reticulitermes lucifugus* Rossi (Isoptera) (Caillol, 1954). Adult found during May- June and October - November. The reported host plants are: *Quercus suber*, *Q. sessiflora*, *Juglans regia*, *Ulmus* and *Ficus carica* (Caillol, 1954), *Populus* (Hoffmann, 1954). It was also collected from decay logs of *Platanus occidentalis*, *Populus nigra*, *P. pyramidalis*, *Celtis australis* and *Quercus* sp. (Osella *et al.*, 1993). It found in hornbeam, elm (*Ulmus campestris*), White poplar (*Populus alba*), holly, sycamore, and dead wood fig (Folwaczny, 1973).

**World distribution:** Europe, Egypt, France, Italy, Yugoslavia, Asia Minor, Lebanon, Tunisia, Algeria, Turkey, Greece, Egypt.

**Local distribution and capture time:** Alexandria (Ramleh); captured during September.

**Gattung *Amaurorhinus* Fairmaire, 1860**

**Type species:** *Amaurorhinus bonnairii* Fairmaire, 1860

= *Pentarthrum bewickianum* Wollaston, 1860

**Diagnosis:** Head conical, slightly broader than long, rather rounded, not distinctly constricted dorsally behind eyes. Eyes markedly reduced in size to 3 or 4 facets, located on head or at junction of head and rostrum. Rostrum not exactly twice as long as wide, at apex slightly wider than base, basal half with fine and dense punctures. Antennae inserted about middle of rostrum; scape slender, slightly clavate, more than 1.50x as long as rostrum base width; funicle 5 segments, funicle and club together as long as scape; club short, oval. Pronotum as long as wide, slightly conical, widest part slightly before base, with fine constriction shortly before front margin; punctures moderately strong but very dense, base truncate. Scutellum invisible. Elytra 1.50x as long as wide, widest part at apical third, moderately rounded, generally striae fine, not deeply sulcate, second interval slightly convex (strength of striae punctures and interval punctures differ according to species and subspecies). Front coxae narrowly separated, hind coxae separated by coxal diameter; Metasternum rather strongly and densely punctured; abdomen with fine punctures. Femur moderately clavate; tibiae straight, slightly strong and stubby. Tarsi normal. Sexual Dimorphism: male (?♂) with deep pit on anal segment to back; at the same time pronotum sides widened and more circularly. The other gender (?♀) distinguishes by shallow across impression on anal segment.

**Distribution:** Mediterranean basin, Madeira, Sahara, Canary Island, Selvagens Island, South East USA, Egypt.

***Amaurorhinus bonnairii* Fairmaire, 1860**

(Figs 29 & 30)

= *bewickianum* Wollaston, 1860 (*Pentarthrum*)

= *constrictus* Reitter, 1884

= *narbonnensis* Brisout, 1863

= *crassiusculus* Fairmaire, 1869

= *andalusicus* Dieck, 1869

= *genuensis* Fairmaire, 1883

= *lostiae* Fairmaire, 1883

**Diagnosis:** Head very finely shagreened; front not or little finer than the rostrum, densely, moderately finely punctured. Female rostrum from antennal point to apex slightly wider than the base, in male rostrum more wider than base. First funicle segment 1.50x as long as broad, second segment slender, as long as broad, 3-5 transverse, increasing in width. Pronotum shagreened, with strong punctured, greatest width near base, sometimes near middle, laterally rounded, slightly narrowed in anterior half; in both sexes considerably wider than elytral base. Elytra elliptical, parallel-sided; interval punctures finer than puncture of striae, wrinkled; striae finely punctured. Fore tibiae elongated, more than twice as long as wide. Underside shagreened. Meso- and metasternite strongly, densely punctured; 1<sup>st</sup> sternite sparse, rather fine punctured, 2<sup>nd</sup> fine punctured, 3<sup>rd</sup> and 4<sup>th</sup> moderately fine punctured; middle free of punctures or sparse in rows, laterally with irregular punctures. Male anal sternite tightly punctured; abdomen sternite punctured, with large, slightly oblong fovea with raised margins, nearly sub-squared; fovea occupied 3/4 sternite length, then sparse punctured. Female anal sternite with moderate strong, dense punctures, fovea with large sparse

punctures, fovea with slightly raised edge near to posterior margin of sternite. Male with hollow-shaped impression exists on the underside, from metathorax until 2<sup>nd</sup> abdomen sternite. Color: Chestnut brown. Length 1.9-2.7mm.

**Ecology:** *A. bonnairii* seems to prefer coastal areas where it lives in dead wood on the ground. It can be also lived in dark cellars and wetlands where it is likely that multiple generations can be grown in the same piece of wood. It has been collected from homes in Florence (northeast South Carolina), in cellars, debris flooding (Hoffmann, 1954), under manure, littoral, detritus of a river and rotten wood (Folwaczny, 1973) and many specimens were collected from beach roots of *Salicornia*.

**World distribution:** Spain, France, Italy, Greece, Egypt, Sardinia, Corsica, Madeira, Algeria.

**Local distribution and capture time:** Ismailia captured during May; Alexandria (Ramleh) captured during January and June; Cairo vicinity captured during July. It has been found occasionally under wrappings of mummies, but certainly these are recent infestation (Alfieri, 1976).

***Pselactus* Broun, 1886**

= *Phloeophagus* Redtenbacher, 1849

= *Codiosoma* Bedel, 1885

= *Phloeophagia* Aurivillius, 1924

= *Pselachus*: Hoffmann, 1954

**Type species:** *Pselactus punctatus* Broun, 1886 = *Curculio spadix* Herbst, 1795

**Diagnosis:** Body stout, transversely convex; dorsal vestiture with obvious, long, fine, hair-like setae, each at least as long as striae or longer. Rostrum parallel; scrobes oblique. Eyes oviform, depressed. Antennae implanted medially; scape short, much curved, its extremity incrassate; funicle longer than scape, 7-articulate; club distinct, ovate. Head convex, not constricted behind. Thorax as long as broad, base and apex truncate, sides obtusely rounded. Scutellum invisible. Elytra with vestiture of long, erected, fine, hair-like setae, each much longer than striae, rather short, broader than thorax, oblong, abruptly deflexed behind. Legs moderate, laterally compressed; tibiae nearly straight, their hooks strongly developed; tarsi elongate and slender, sparsely pilose below, basal and apical joints equally elongate, 3<sup>rd</sup> tarsal segment slightly expanded and lobate; claws small. Anterior coxae prominent and narrowly separated by much less than one-half width of coxa; posterior distant. Metasternum not elongate. Epipleura very narrow. Two basal segments of abdomen large, the suture much sinuated, third and fourth short, with deep sutures (A form approaching the Scolytidae, somewhat similar to *Inosomus*).

**Distribution:** Argentina, Chile, Uruguay, Mexico; North Central, North East, South East, South West USA, Australia, New Zealand, Europe, Madeira, Acores, Canary Island, North Africa, Turkey, Egypt.

**Ecology:** it discovered in dead and rotten coniferous wood, (especially pine trees) bark of old pastures and species of the Canaries found in the dilapidated wood of old bay trees. It prefers wood with humidity not below 35% and, in some places, is harmful to wooden parts of buildings and

particularly in piles of port facilities; also in willow, elm, maple, *Celtis*, *Populus*, *Cotinus coggygria* and littoral. It presented the whole year. It can be transferred by driftwood and timber trade as well as in parts of wooden ships.

***Pselactus spadix* (Herbst, 1795)**

(Figs 31-32)

= *piceus* (Genus *Rhyncolus*) Stephens, 1831

= *sculptus* Gyllenhal, 1838

= *scalptus* Boheman, 1845

= *pilosus* Bach, 1854

= *punctatus* (Genus *Pselactus*) Broun, 1886

**Diagnosis:** Body covered with short fine yellowish sub-erected setae arranged in rows. Head rounded. Eyes located laterally, flat. Forehead as wide as rostrum. Rostrum approximately 2.5x as long as wide in male, in female 3x as long as wide. Male rostrum shorter and thicker than female rostrum. Punctuation very fine and dense. Scrobe run obliquely under the rostrum base. Antenna slender; funicle 7 segments, which gradually increasing in thickness, except the last, which not or slightly transverse or at most slightly transverse in males; 1<sup>st</sup> segment big, longer than others; club relatively narrow, oval, acuminate. Pronotum narrower than elytra, not quite as long as wide, laterally rounded, more narrow in front, closely and strongly punctured, widest part before middle; pronotum dorsum with hair except in basal part, but setae extended to elytra which located in interval punctures; pronotum not or not much shagreened, densely covered with big punctures, which fine near front margin; base truncate. Scutellum invisible. Elytra 1.50 - 2.0x as long as wide, oval, in middle part rather parallel, or slightly rounded, greatest width in middle, slightly deep; intervals slightly convex, as wide as striae, with very fine irregular punctures, upper side appears wrinkled. Tibiae cuneiform, widened towards apex; 3<sup>rd</sup> tarsal segment slightly widened and lobate; front tibiae in their inner side at its apex covered with dense hairs and without clear indentation. Front coxae narrowly separated; middle slightly wider than front; hind coxae widely separated. Underside strongly and densely punctuated. Color: pitch brown to pitch black; head, rostrum, elytra and tarsi brighter. Size: 2.7-3.8 mm.

**Ecology:** the species is wide ecologically distributed, often present in abundant populations. It found in conifers such as sawmills, also collected from decayed logs (especially of poplars and limes) and wine cellars (where attacks staves of barrels, planks resting on the ground, jambs and ceilings), from old trunks discarded from the sea (often in the company of *Mesites pallidipennis*) and in natural cavities and artificial. It was also found during examining sand areas in Sardinia (Gregori and Osella, 1989) and under *Salicornia europaea*. It also lives in the roots of herbaceous and arboreous plants. The larval development, with regard to the duration, probably depends on the moisture of the host. It is reported as particularly damaging to the wooden buildings in the region of the Volga (the longest river in Europe) (Parfentjev, 1960). It discovered in the bark of old pastures, in driftwood, wharfs and their pilings, stumps covered by water from rising tides; in furniture and timbers inside houses; species of the Canaries found in the dilapidated wood of old bay trees (Folwaczny, 1973). In nature, it probably

has one generation per year. The host plants are *Tilia cordata*, *Ulmus*, *Celtis australis*, *Salix*, *Fraxinus*, *Populus pyramidalis*, *P. nigra*, and *Quercus* and *Abies*. In the literature, it attacks also *Ailanthus glandulosa*, *Cotynus coggygia*, *Agave* and *Acer* (Osella *et al.*, 1993).

**World distribution:** Europe, Algiers, Morocco, Madeira, North America, Australia, New Zealand, Madagascar, Asia Minor, Egypt, Argentina, Iran, Turkey, southern Russia, the Caucasus, Greece, Bulgaria.

**Local distribution and capture time:** Maryut, captured during March and Alexandria (Ramleh); captured during September.

***Micromesites* Pic, 1920**

**Type species:** *Micromesites deplanatus* Pic, 1920

**Diagnosis:** Body elongate, slender, dorsally and ventrally flat. Head long; forehead rather densely, moderate fine punctured, with small fovea at posterior margin of eyes; occiput sparsely punctured. Eyes very distinct slightly projected. Rostrum finely punctured, rather long sub-cylindrical, rather robust, curved, distance from base to antennal insertion point narrower than apex. Antenna robust, inserted in basal quarter of rostrum; scape rather long, thick; funicle 7 segments, first two segments conical, second segment as long as wide, following five strongly transverse; club thick, oval. Pronotum depressed, about one-third longer than wide, slightly narrowed and rounded towards apex, constricted at apex, sparsely punctured, in middle with smooth longitudinal keel-like line. Scutellum small. Elytra flattened, not wider than pronotum base; striae fine, sharply razed, puncture rather wider than width of stria; intervals wide, sometimes with transverse cracked sculpture, that incise stria margins. Winged. Pygidium slightly protruded. Legs flat; femur strongly clavate, un-serrate, seemed short, widened at apex, inner side of anterior half indented with setae. Third tarsal segment not expanded; claw more broader at apex. Front coxae separated by distance wider than diameter of coxa. First and second male abdominal segments clearly separated, in female unclear. Color: reddish brown, shinny, head dark; antennae and legs rather bright; elytra with very fine pale hairs. Underside more hairy. Size: 3 mm.

**Distribution:** Egypt, Libya.

***Micromesites deplanatus* Pic, 1920**

**Diagnosis:** Head sparsely punctated. Rostrum rather long, cylindrical, slightly robust, curved. Eyes very distinct but not prominent. Antennae robust, inserted near base of the rostrum; scape rather long, not very thick. Pronotum depressed, long, very narrow at front, slightly widened backward; punctation not very strong, sparse. Elytra not broader than posterior part of the prothorax, depressed, sub-parallel; intervals depressed; striae distinct. Legs flat; femur robust; tibiae short.

**Ecology:** it captured during April under bark of *Tamarix* sp.

**World distribution:** Egypt, Libya.

**Local distribution and capture time:** Cairo vicinity during April.

Browsing the literatures (e.g. Wollaston, 1860, 1861 a&b and 1973 a&b; Morimoto, 1973; O'Brien and Wibmer, 1978; Broun, 1908; Kuschel *et al.*, 2000; Alonso-Zarazaga, 2002...) confirms that, the subfamily Cossoninae is distributed worldwide across all zoogeographical regions. In Egypt, this subfamily has nine species and one variety belonging to seven genera. The

species *gracilis* (Rosenhauer, 1856) and *cylindrus* (Boheman, 1838) were described under subgenus *Rhyncolus* (s. str.) [= *Phloeophagus* Schoenherr (1838) in Csiki (1936):186 and Hoffmann (1954): 773].

Later, *Phloeophagus* Schoenherr (1838) detached from the genus *Rhyncolus* Germer (1817) and treated as a valid genus until now (e.g. Voss, 1954/55; Folwaczny, 1973; Dieckmann, 1983; Osella *et al.*, 1993; Alonso-Zarazaga & Lyal, 1999; Anderson, 2002) which includes these two species. In 2002, Alonso-Zarazaga described *Melicius* as a new genus base on *Phloeophagus gracilis* (Rosenhauer, 1856), as a type species, in which he moved seven species of genus *Phloeophagus* to the new genus, *Melicius*, those species also includes *Phloeophagus cylindrus* (Boheman, 1838). Based on this clue, Egypt has two species of genus *Melicius* instead of either *Rhyncolus* or *Phloeophagus*. The species *culinaris* (Germar, 1824) was described under the subgenus *Hexarthrum* Wollaston, 1860 which later treated as a valid genus by the previous authors until now. So this species is treated here based on the new literatures. The species *bewickianum* Wollaston, 1860 was originally described under the genus *Pentarthrum* Wollaston, 1854; it was considered as a synonymy of the species *bonnairii* Fairmaire (1860) by Csiki (1936); Hoffmann (1954) and Voss (1954/55). Folwaczny (1973) and Alonso-Zarazaga & Lyal, (1999) considered the species *bonnairii* Fairmaire (1860) as a type species due to its description at the same time with the genus by Fairmaire. Therefore, it is more plausible to interchange the names between these two species. So the Egyptian species label should be *A. bonnairii* Fairmaire (1860) in lieu of *A. bewickianum* Wollaston (1860). Other genera have no modifications in their taxonomical position or naming.

All genera studied here are widely distributed with different species except the genus *Micromesites* which was discovered in Egypt and literature mentioned that is distributed in Libya. All species in Egypt is mainly distributed in Mediterranean basin except *Micromesites deplanatus* is only in Egypt not all Mediterranean basin.

Until now, the precise composition of Cossoninae is therefore still unclear (Oberprieler *et al.*, 2007) and as in most groups of Curculionidae the whole subfamily or many of its genera is in acute need of revision (Zimmerman, 1956 and Anderson, 2002). The Egyptian Cossoninae needs also an acute revision and recollecting a new specimens from whole Egypt. Since, the preserved specimens in the Egyptian reference collections were collected from only four places, Cairo, Maryut, Alexandria and Ismailia, which these places are located in North Egypt, in contrary other places in Egypt had no chances to be carefully searched for more Cossonine specimens and it maybe has either new record or species waiting for discovery.

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**دراسة تقسيمية على تحت عائلة Cossoninae (عائلة Curculionidae)**  
**رتبة غمدية الأجنحة (Coleoptera) في مصر بعض الملاحظات البيئية**  
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تعتبر تحت فصيلة *Cossoniae* ذات انتشار عالمي واسع ويقع تحتها 287 جنس وفقاً لما ذكر أخيراً في المراجع العلمية. والأنواع التابعة لتحت هذه العائلة توجد غالباً في الأجزاء الميتة من أشجار النباتات السرخسية وخصوصاً العارى منه سواء كانت الحية أو الأنسجة غير الحية وهي عالية التخصص. وفي مصر يوجد سبعة أجناس تقع تحت هذه العائلة يتبعها عشرة أنواع، وهذه الأجناس والأنواع طبقاً للوضع التسجيلي الأخير كالآتي:

*Melicius cylindrus* (Behoman), *Melicius gracilis* (Rosenhauer), *Mesites pallidipennis* (Boheman), *Hexarthrum culinaris* (Germar), *Mesites cunipes* var. *cribratus* (Fairmaire), *Mesites cunipes* (bohenman), *Arnaurorhimus bonnairii* (Fairmaire), *Choerorhimus squalidus* (Fairmaire), *Micromesites deplanatus* (Pic.), *Pselactus spadix* (Herbst).

والأنواع التي تقع في هذه الأجناس والتي سجلت في مصر متوسطة الانتشار وكذلك في الأقطار التي توجد بها برك مائية ماعدا النوع الأخير فقد تم تسجيله في مصر فقط وهذه الأنواع تم جمعها من أربعة مناطق هي مريوط، والقاهرة، والاسماعيلية، والاسكندرية والتي تقع في شمال مصر وهي موجودة تحت الأشجار القديمة حول البرك المائية مثل الصفصاف، الدلب، والتوت، والتين وكذلك *Tamarix sp.* وهي موجودة طول العام ماعدا أشهر فبراير، وأكتوبر، ونوفمبر. والفونة لتحت عائلة *Cossoninae* من المحتمل لايعكس حقيقة تواجد الأنواع التابعة لها في مصر لأنها غير منتشرة في كل القطر المصري ولذلك سوف يتطلب ذلك جمع حشرات السوس الصغيرة خاصة من وسط وجنوب مصر في الدراسة القادمة.

**بتحكيم البحث**

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