

## Systematic studies on the species of *Cyrtosoma* Perris from Turkey and descriptions of some new species (Hymenoptera, Ormyridae)

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### Summary

From some parts of Turkey 4 new species i.e. *tschami* n.sp. in the subgenus *Monobaeus* Foerster, *ardahanensis* n.sp. in the subgenus *Tribaeus* Foerster, *yeshilirmaka* n.sp. and *kazovaensis* n.sp. in the subgenus *Cyrtosoma* s.str. of the genus *Cyrtosoma* are described. Nine old species of *Ormyrus*, viz. *cingulatus* (Foerster), *destefani* (Mayr), *diffinis* (Fonscolombe), *gratiosus* (Foerster), *hegeli* (Girault), *langlandi* (Girault), *longicornis* (Boucek), *speculifer* (Erdoes), *whactli* (Mayr), are regarded as species of *Cyrtosoma* (all comb. n.).

Some species of *Cyrtosoma* from Turkey are illustrated. Some biological informations for the species are given and an identification key for the Turkish species is provided.

### Introduction

The genus *Cyrtosoma* was established by Perris for the monobasic type species *C. papaveris* Perris in 1840. Later, the genus was regarded as a synonym of *Ormyrus* by several authors (Mayr, 1904; Nikolskaya, 1952; Erdoes, 1955; Boucek, 1965; 1970; 1977; 1988; Wall, 1984). Recently, Doğanlar (1990) reestablished the genus and divided the genus into three subgenera viz. *Monobaeus* Foerster, *Tribaeus* Foerster and *Cyrtosoma* s.str.

In this work nine species of *Cyrtosoma* are found from some parts of Turkey. Four of them are regarded as new species which are named and described. Diagnostic characters of the species of the genus are studied by following Doğanlar (1990), and an identification key for the species from Turkey is provided.

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## Genus *Cyrtosoma* Perris

(Figs. 1-47)

*Cyrtosoma* Perris, 1840, Ann. Soc. Ent. France, 9 : 96. Type : *C. papaveris* Perris, monobasic.

*Tribaeus* Foerster, 1860, Verhandl. Naturhist. Ver. Preuss. Rhe. u. Westfal., 17 : 94. Type : *T. punctulatus* (Ratzeburg), monobasic.

*Monobaeus* Foerster, 1860, Ibid, 17 : 95. Type : *M. cingulatus* Foerster, desig. by Ashmead (1904).

*Cyrtosoma* was placed as synonym of *Ormyrus* Westwood (Mayr, 1904 : 568) on the basis of antenna with two annelli. Foerster (1860) created the genera, *Tribaeus* and *Monobaeus* in having the antennae with three annelli and one annellus respectively, by separating them from *Siphonura* Nees which is now a synonyme of *Ormyrus*. Mayr (1904) also placed these two genera in synonymy with *Ormyrus* and Nikolskaya (1952) accepted this opinion. Later, the genera *Ormyrus*, *Tribaeus* and *Monobaeus* were recognized as distinct from each other (Erdoes, 1955; Peck, 1963; Peck et al., 1964). Boucek (1965) regarded *Tribaeus* and *Monobaeus* as subgenus of *Ormyrus* and later Boucek (1986) stated that the generic separation of them by using antennal formula was not acceptable and regarded all of them as synonyms of *Ormyrus*, at most as its species groups.

In this work it is found that the species of Ormyridae having 3.-4. gastral terga of male and 4.-5. terga of female with one row of deep foveolae; gaster without median keel or lateral carinae on both sexes present a different genus, *Cyrtosoma*, based on the type species, *Cyrtosoma papaveris* Perris, Monobasic, distinct from *Ormyrus* as seen in the generic key of Doğanlar (1990). *Tribaeus* Foerster and *Monobaeus* Foerster became synonyms of *Cyrtosoma* as its subgenera (New synonymy).

The genus is recognized in having the following characters :

Antennae have 1-3 annelli i.e. antennae with three annelli and five funicular segments in the subgenus *Tribaeus*, two annelli and six funicular segments in the subgenus *Cyrtosoma* s. str., and one annellus and seven funicular segments in the subgenus *Monobaeus*; clava of male without micropilosity; 4.-5. gastral terga of female and 3.-5. terga of male with only one row of deep foveolae which are covered by preceding tergite (in other genera terga of both sexes with at least two or more rows of deep foveolae); gaster of female without median keel, that of male without distinct lateral carinae (in *Ormyrus* and *Avrasyamyus* female gaster with median keel, and male gaster with distinct lateral carinae).

Biology : The species of the genus were reared from the galls of Cynipidae and Tephritidae on herbaceous plants.

Distribution : All continents.

Species of *Cyrtosoma* :

- ardahanensis* n.sp. - Turkey, Kars, Ardahan, 3 females, 7. VIII. 1987 (Doğanlar), swept from pastures.
- cingulatus* (Foerster) comb. n. - *Monobaeus cingulatus* Foerster, 1860, 97. Europe. Transferred to *Ormyrus* by Mayr, 1904 : 567. Reared from galls of *Aylax rogenhoferi* Wachtl on *Centaurea sadleriana* and *C. scabiosa*.
- destefanii* (Mayr) comb. n. - *Ormyrus destefanii* Mayr, 1904 : 566. W. Europe.
- diffinis* (Fonscolombe) comb. n. - *Cynips diffinis* Fonscolombe, 1832 : 287, W. Europe = *Siphonura punctulata* Ratzeburg, 1848 : 151, transferred to a new genus as *Tribaeus punctulatus* (Ratz.) by Foerster, 1860 : 94. Later again transferred to *Ormyrus* by Mayr, 1904 : 565. Parasitic on gall wasp, *Xestophanes potentillae* Retzius ex *Potentiella reptans* (Nikolskaya, 1952); reared from the galls of *Aylax salviae* Gir. on fruits of *Salvia officinalis*, *S. silvestris* (Györfi, 1962; Boucek, 1977). Swept from flowers of *Salvia* spp. in Erzurum (Doğanlar, 1984), and from herbaceous plants in Taşlıçiftlik, Tokat, 8.VI.-24. VIII. 1989 (Çam).
- gratiosus* (Foerster) comb.n.-*Monobaeus gratiosus* Foerster, 1860 : 97, W. Europe, transferred to *Ormyrus* by Mayr, 1904 : 567. Reared from galls of *Aylax rogenhoferi* and *A. scabiosae* on *C. sadleriana* and *C. scabiosa* and of *Diastrophus mayri* Reinh. on *Potentilla* sp. (Nikolskaya, 1952; Boucek, 1977; Wall., 1984); swept from fields of *Onobrychis sativa* and *Medicago sativa* in Erzurum (Doğanlar, 1984); swept from *Centaurea* spp. in Adana, 7 females, 1 male, 25. VII. 1987 (Doğanlar); Adana, Kozan, 2 females, 5. VIII. 1980 (Beyarslan).
- hegeli* (Girault) comb. n. - *Monobaeus hegeli* Girault, 1917 : 106, USA, Michigan (Peck, 1963).
- kazovaensis* n. sp. - Turkey, Tokat, Taşlıçiftlik, 3 females, 2 males, 18. V. -1. VIII. 1989 (Çam), swept from herbaceous plants.
- langlandi* (Girault) comb. n.,- *Ormyrus langlandi* Griault, 1915 : 309, Australia, Queensland, *Tribaeus decaryi* Risbec, 1955 was synonymized by Boucek, 1988 : 156; recorded from India, S. Africa and he also stated as probably it is the same species, *Ormyrus longicornis* Bck. from S. Europe.
- longicornis* (Boucek) comb.n.- *Ormyrus longicornis* Boucek, 1970: 42-44, Bulgaria, Transcausia (Boucek, 1970); Turkey, Adana, Yumurtalık, 4 males, 20. VIII. 1982 (Doğanlar); swept from the plants on sea shore (New record from Turkey).
- papaveris* Perris- *Cyrtosoma papaveris* Perris, 1840: 96, W. Europe, transferred to *Ormyrus* by Mayr, 1904 : 568, and this view accepted by some authors (Nikolskaya, 1952; Erdoes, 1955; Boucek, 1977; Wall, 1984); reared from galls of *Aylax papaveris* Perris on *Papaver rhoeas*, *R. dubium* (Gyoerfi, 1962; Boucek, 1977), many specimens reared from *Papaver* spp. Tokat, Turkey. July, 1990.

- speculifer* (Erdoes) comb. n. - *Ormyrus speculifer* Erdoes, 1955:244, Hungary.
- tschami* n.sp. - Turkey, Tokat, Taşlıçiftlik, 10 females, 17 males, 17. VIII. - 7.IX.1989 (Çam), swept from herbaceous plants.
- whactli* (Mayr) comb.n.-*Ormyrus whactli* Mayr, 1904 : 569, Europe, W. Siberia, (Nikolskaya, 1952; Erdoes, 1955; Boucek, 1977; Wall, 1984); reared from galls of *Aylax salviae* Gir. on fruits of *Salvia officinalis* and *S. silvestris*, and of *Phanacis centaureae* Foerster on fruits of *Centaurea jacea*, *C. scabiosa*, *C. rhenana* and *C. stenolepis* (Nikolskaya, 1952; Erdoes, 1955; Boucek, 1977; Wall, 1984); Turkey, Tokat, Gümenek, 3 females, 17. VIII. 1989, Tokat, Taşlıçiftlik, 1 female, 1 male, 24.VIII.1989 (Çam), swept from lower herbs; many specimens reared from *Papaver* spp. Tokat, Turkey. July, 1990.
- yeschilirmaka* n. sp.- Turkey, Tokat, Fidanlık, 1 male, 14.VI.1989, 1 female, 5.VII.1989 (Çam), swept from herbaceous plants.

#### Key to the species of *Cyrtosoma* from Turkey

1. Antennae with one annellus and seven funicular segments .....  
..... Subgenus *Monobaeus* Foerster ..... 2
- Antennae with 2-3 annelli ..... 3
2. Female : gaster (figs. 10, 11) almost 2.5 times longer than broad, 1.5 times as long as head plus thorax combined; epipygium shorter than broad; hind coxae 2.3-3.0 times as long as exerted portion of ovipositor; hypopygium as seen fig. 12; antennae (fig. 7) with pedicellus 1.75 times as long as broad, and as first three flagellar segments combined; clava as long as four preceding segments together; apex of scutellum slightly but distinctly emerginated. Male : antennae (fig. 8) with first funicular segment with four sensillae, twice longer than annellus; pedicellus distinctly longer than first three flagellar segments together; gaster 1.5 times as long as broad .....  
..... *Cyrtosoma (Monobaeus) gratusus* Foerster
- Female : gaster (figs. 4,5) about 4 times as long as broad, and twice as long as head plus thorax combined; epipygium longer than broad; hind coxae at most 1.3 times as long as exerted portion of ovipositor; hypopygium as seen fig. 6; antennae (fig. 1) with pedicellus 2.25 times as long as broad, and 1.2 times as long as first three funicular segments together; clava distinctly shorter than four preceding funicular segments combined; apex of scutellum truncate. Male : antennae (fig.2) with first funicular segment with one sensilla, and slightly longer than annellus; pedicellus as long as first three flagellar segments together; gaster twice as long as broad ..... *Cyrtosoma (Monobaeus) tschami* n. sp.
3. Antennae with 3 annelli and five funicular segments .....  
..... Subgenus *Tribaeus* Foerster ..... 4
- Antennae with 2 annelli and six funicular segments .....  
..... Subgenus *Cyrtosoma* s.str. .... 5
4. Female : First tergum smooth; occiput between hind ocelli distinctly bulging; mouth opening twice the malar space; the latter one-third the length of eye; head at most 1.23 times wider than height; antennae (fig.18) with funicular segments strongly transverse, first two funicular segments 2.5 times, the others twice as broad as long; clava slightly shorter than funicular segments combined; forewing (fig. 20) with marginal vein 2.66 times as long as post marginal; submarginal

- vein 4 times as long as postmarginal vein and 7.5 times stigmal vein; sixth gastral tergum (figs. 21, 22) about 2.3 times as long as dorsal length of epipygium; hypopygium as seen fig. 23 .....  
*Cyrtosoma (Tribaeus) diffinis* Fonscolombe
- Female : First tergum distinctly reticulated; occiput between hind ocelli truncate; mouth opening 4 times the malar space; the latter one-fifth length of eye; head at least 1.3 times wider than height; antennae (fig.13) with funicular segments less transverse, first twice, the others 1.7 times as broad as long; clava about 0.7 times as long as funicular segments combined; forewing (fig. 14) with marginal vein 3.4 times as long as postmarginal vein; submarginal vein 5.6 times as long as postmarginal and 9 times stigmal vein; sixth gastral tergum (figs. 15, 16) 1.8 times as long as epipygium dorsally; hypopygium as seen fig. 17 .....  
*Cyrtosoma (Tribaeus) ardahanensis* n. sp.
5. Flagellum plus pedicellus combined as long as width of head in female and more than that in male (Boucek, 1970); first two funicular segments longer than breadth, the others subquadrate in female, distinctly longer than breadth in male; funicular segments of male with 3-4 rows of short sensillae (fig. 34); epipygium in female very short, steeply sloping (Boucek, 1970) .....  
*Cyrtosoma (Cyrtosoma) longicornis* (Boucek)
- Flagellum plus pedicellus combined distinctly shorter than width of head in both sexes; funicular segments transverse, with at most one row of sensillae; epipygium longer, not steeply sloping (figs. 27, 28, 32, 33) ..... 6
6. Half of sixth tergum, epipygium and exerted portion of ovipositor combined as long as the length of hind coxae; epipygium slightly but distinctly longer than broad; mid and hind tarsi dark brown; flagellum filiform in female, slightly expanded distally in male, with one row of sensillae (figs. 41, 42); malar space about half length of eye; mouth opening 1.7 times malar space; marginal vein 2.5 times as long as postmarginal vein, the latter less than twice as long as stigmal vein (fig. 43); hypopygium as seen fig 46 .....  
*Cyrtosoma (Cyrtosoma) papaveris* Perris
- Half of sixth tergum, epipygium and exerted portion of ovipositor combined as long as half length of hind coxae; epipygium distinctly shorter than broad (figs. 27, 28, 32, 33, 39, 40); mid and hind tarsi pale yellow; the other characters not all present in combination ..... 7
7. Postmarginal vein half length of marginal vein (fig. 38); flagellum filiform, much wider than pedicellus (figs. 36, 37), funicular segments with at least 8 sensillae on one position; half of basal cell closed apically by some hairs along cubital hair line; mesoscutum and 5th tergum densely hairy .....  
*Cyrtosoma (Cyrtosoma) yeschilirmaka* n. sp.
- Postmarginal vein at most one-third as long as marginal vein (figs. 26, 31, 35, 38, 43); flagellum at most slightly expanded distally, at most as wide as pedicellus basally (figs. 24, 25, 29, 30, 41, 42); funicular segments with at most 6 sensillae on one position; basal cell open below; mesoscutum and 5th tergum sparsely hairy, at most 3 rows of hairs dorsally ..... 8
8. Female flagellum strongly expanded distally; first four funicular segments 1.4 times as broad long, with a few sensillae (fig. 29); malar space about half length of eye; mouth opening 1.3-1.4 times the malar space; second annellus at most twice as broad as long; postmarginal vein more than twice as long as stigmal vein; speculum with one row of hairs above cubital hair line on upper surface (fig. 31)..  
*Cyrtosoma (Cyrtosoma) kazovaensis* n. sp.
- Female flagellum slightly expanded distally; first two funicular segments 2.3 times, the others twice as broad as long in female, more than twice in male; funicular segments with at least 6 sensillae on one position (figs. 24, 25); malar

space one-third the length of eye; mouth opening twice as breadth as the malar space; second annellus 3 times as broad as long; postmarginal vein less than twice (7:4) as long as stigmal vein; speculum with two rows of setae above cubital hair line (fig. 26); hypopygium as seen fig. 47 .....  
..... *Cyrtosoma (Cyrtosoma) whactli* (Mayr)

*Cyrtosoma (Monobaeus) tschami* n.sp.

(Figs. 1-6)

Female : Length of body (including ovipositor sheaths) 2.8-3.8 mm. Body black with bluish-green reflection; scape, clypeus, mouth margin, mandibulae, hind tibiae, apices of mid and fore tibiae, basal part of gaster ventrally and epipygium brown; knees, tarsi pale testaceous; wings hyaline; venation almost blackish, submarginal brown.

Head strongly reticulated on sides of frons and face, scrobes cavity almost smooth, minutely reticulated; vertex around ocellus and upper half of sides of frons with distinct punctures which are twice own diameter far from each other; relative measurements: width of head 30 ; height 24; length 15; width of frons 17; OOL 3; POL 8; eye 16 : 11, malar space 7; mouth width 13; length of scapus 12 (this not reaching median ocellus); flagellum plus pedicellus 23. Antenna (fig. 1) inserted at level of ventral edge of eyes; pedicellus in lateral view 2.25 times as long as broad; ring segment twice as broad as long; flagellum barely thickened apically, funicle segments subequal in length, the first slightly, the others distinctly transverse, the sixth about twice as broad as long, clava distinctly shorter than four preceding segments combined (11:13), its sutures perpendicular.

Thorax strongly convex, 1.33 times/as long as width of mesoscutum; mesoscutum and scutellum transversely and finely reticulated; mesoscutum medio-dorsally, scutellum basally with distinct piliferous punctures; scutellum about as long as broad (17 : 16), slightly convex dorsally, its apex truncate, distinctly jutting above dorsellum; the latter smooth, about half of propodeum in middle; propodeum longitudinally striate all over, median part sloping about vertically, distance between spiracles 3 times greater than length of propodeum in middle; posterior margin of propodeum with broad foreman. Forewing (fig. 3) with basal cell bare, open beneath; speculum closed below, on upper surface with a few hairs above cubital hair line; marginal vein 2.7-3.2 times as long as post marginal and 6.4 times stigmal vein.

Gaster (figs. 4,5) about twice as long as head plus thorax combined, about straight dorsally, without any carina medio dorsally; 4 times as long as broad; first tergum short covering about one fourth the gaster, shallowly reticulate punctured; the following two segments without coarse deep foveolae, 4th and 5th terga with a row of deep foveolae basally, which are covered by preceding tergum; terga 3th - 5th with two rows thin hairs arising from low longitudinal tubercles; second tergum narrowly visible dorsally, third tergum slightly shorter than the first, fourth about half length of the third; apical margin straight; fifth tergum about as long as the third, its apical margin deeply and broadly emarginate; sixth tergum the longest, twice as long as the third, its apical one-third smooth, basal part with piliferous punctures; epipygium longer than broad, about as long as exerted portion of the ovipositor; the latter slightly shorter than the hind coxae (21 : 25). Hypopygium as seen fig. 6.

Male : Length of body 1.5-2.0 mm. Similar to female, except as follows : Scape black with bluish reflection; eye 1.5 times as long as broad; antenna (fig. 2) with first funicular segment having only one sensillae; gaster slightly shorter than twice as long as broad (45 : 25), without any carinae laterally; 3.-5. terga with one row of deep foveolae basally, which are covered by preceding tergum.

Biology : Unknown. Swept from herbaceous plants.

Holotype (Female) : Turkey, Tokat, Taşlıçiftlik, 31.VIII.1989 (Çam leg.), deposited in the museum of the Plant Protection Department, Tokat Agriculture Faculty.

Paratypes : 9 females, 17 males, Turkey, Tokat, Taşlıçiftlik, 17. VIII .- 7. IX. 1989 (Çam leg.). 3 females and 3 males are deposited in the British Museum (N. H.) in London, and the other paratypes in the museum of the same faculty in Tokat.

*Cyrtosoma tschami* n.sp. belongs to subgenus *Monobaeus*. In the subgenus the new species closes to *Cyrtosoma gratiosus* (Foerster) in having the forewing hyaline. It differs from *C. gratiosus* in having longer and narrower gaster which is twice as long as head plus thorax combined, and about four times as long as broad (in *C. gratiosus* 1.5 times as long as head plus thorax combined, and about 2.5 times as long as broad), and by far exerted ovipositor which is slightly shorter than hind coxae (in *C. gratiosus* it is about half to one-third as long as hind coxae), and some more characters as seen in the key.

*Cyrtosoma (Tribaeus) ardahanensis* n.sp.

(Figs. 13-17)

Female : Length of body (including ovipositor sheaths) 2.2 mm.

Body black with metallic reflection, tarsi dark brown, almost black, wings hyaline, venation pale brown.

Head distinctly reticulated on sides of frons and face, scrobes cavity transversely, finely reticulated; vertex and upper part of frons with shallow piliferous punctures; relative measurements : width of head 25; height 19; length 12; width of frons 15; OOL 2; POL 7; eye 14 : 10; malar space 3; mouth width 12; length of scapus 9 (this not reaching median ocellus); flagellum plus pedicellus 23. Antenna (fig. 13) inserted well above level of ventral edge of eyes; pedicellus in lateral view 1.43 times as long as broad; ring segments from first to third gradually lengthening and widening, the first 4 times, the second 3 times, the third 2.33 times as broad as long; flagellum barely thickened apically, first funicle segment slightly wider and longer than third ring segment, with two sensillae, twice as broad as long; second and third funicle segments subequal in size, slightly wider and longer than the first funicle segment; 4th and 5th funicle segments equal in size, 1.66 times as broad as long; clava about 0.7 times as long as funicular segments combined, its sutures perpendicular.

Thorax strongly convex, 1.43 times as long as width of mesoscutum, finely reticulated with some piliferous punctures; scutellum slightly longer than broad, narrowing apically, its apex rounded, distinctly jutting above dorsellum, the latter smooth, narrow,

about one-fourth of propodeum in middle; propodeum reticulated at sides of median part and smooth above foreman; distance between spiracles 2.4-3.0 times length of propodeum in middle. Forewing (fig. 14) on basal cell with some hairs on under surface, bare on upper surface; speculum closed below; marginal vein 3.4 times as long as postmarginal and 5.4-5.7 times as long as stigmal vein; submarginal vein 1.64 times marginal, 5.6 times postmarginal and 9 times as long as stigmal vein.

Gaster (figs. 15, 16) 1.15 times as long as head plus thorax combined, slightly convex dorsally; gastral dorsum without any carina, reticulate-punctured all over; first tergum covering about one-fourth the gaster, the second narrowly visible dorsally; the third about two-third of the fourth; 4th tergum about half of the fifth, the latter longest; sixth slightly longer than the fourth, its apical half smooth without any hairs, basal half with three rows of hairs; 4th and 5th terga with only one row of deep foveolae basally, which are covered by preceding tergum; epipygium about half of sixth tergum; ovipositor sheaths slightly exerted; hypopygium as seen fig. 17.

Male and biology unknown. Swept from pastures.

Holotype (female): Turkey, Kars, Ardahan, 7.VIII.1987 (Doğanlar), deposited in the museum of Plant Protection Department, Tokat Agriculture Faculty.

Paratypes : 2 females, same data as holotype.

*Cyrtosoma ardhanensis* n. sp. belongs to subgenus *Tribaeus* in having the antennae with three annelli. In the subgenus the new species differs from *Cyrtosoma diffinis* (Fonscolombe) in having the first tergum distinctly reticulated (in *diffinis* it is smooth); occiput between hind ocelli distinctly truncate (in *diffinis* it is distinctly bulging); mouth opening 4 times the malar space (in *diffinis* it is twice as wide as the malar space); malar space one-fifth length of eye (in *diffinis* one-third length of eye); head 1.3 times wider than height (in *diffinis* head at most 1.23 times wider than height). The new species closes to *Cyrtosoma destefani* (Mayr) in having sculptured first tergum. It differs from *destefani* in having the body metallic blue in color, and the legs concolorous with the body (in *destefani* body is brown and mid and hind legs light yellow) (Nikolskaya, 1952).

*Cyrtosoma (Cyrtosoma) kazovaensis* n. sp.

(Fig. 29-33)

Female : Length of body (including ovipositor sheaths) 1.7-2.1 mm.

In many respects it is similar to *ardahanensis* Doğ. except as follow : Antennae dark brown front and hind tibiae brown, infuscated dorsally; tarsi pale yellow, pretarsi black; forewings hyaline, venation variable in color from yellow to brown.

Relative measurements : Width of head 22; height 19; length 11.5; width of frons 13; OOL 2; POL 6; eye 12.5:10; malar space 6; mouth opening 9; length of scapus 7; flagellum plus pedicellum 17. Antenna (fig. 29) inserted above level of ventral edge of eyes; pedicellus in lateral view twice as long as broad; flagellum distinctly expanded distally; width of clava twice width of first funicle segment; annelli twice as long as broad,



the second slightly longer and wider than the first; first four funicular segments with a few sensillae, equal in size, 1.4 times as broad as long and distinctly narrower than 5th and 6th funicular segments and pedicellus; fifth funicular segment 1.66, sixth 1.8 times as broad as long; clava 1.5 times as long as broad and about as long as three preceding segments combined; eye 1.25-1.27 times as long as broad; scapus distinctly shorter than width of eye; mouth opening 1.5 times the malar space; the latter about half of length of eye.

Thorax 1.5 times as long as broad; pronotum and basal half of mesoscutum strongly, distal half of mesoscutum and scutellum slightly convex; scutellum slightly longer than broad, with rounded apex which is distinctly jutting above dorsellum, the latter about one-third of propodeum in middle; propodeum longitudinally striate; distance between spiracles twice length of propodeum in middle. Forewing (fig. 31) on basal cell with a few hairs on under side; speculum closed below, with an extra hair line above cubital hair line; marginal vein about three times as long as postmarginal vein, the latter twice stigmal vein; submarginal vein 1.5 times as long as marginal vein.

Gaster (figs. 32, 33) about 1.24 times as long as head plus thorax combined, slightly convex dorsally; gastral dorsum punctate all over; first tergum covering one-fifth the gaster; the second tergum dorsally covered by the first; the third about half of or slightly shorter than the fourth; the fifth tergum about twice as long as the fourth in middle, with sparse hairs, some of them arising from low longitudinal tubercles which are slightly elevated above irregular punctations, the tubercles forming distinct rows; the sixth one-third of the fifth, its surface smooth apically, with some hairs basally, distinctly concaved dorsally; epipygium very short, about half of the sixth; ovipositor sheaths slightly exerted.

Male : Length of body 1.3-1.4 mm. Similar to female except as follow : tibiae infuscate, basally and apically brown; antenna (fig. 30) slightly expanded distally; first four funicle segments equal in length, the first 1.5 times as broad as long, second and third 1.7 times, fourth twice as broad as long; 5th and 6th equal in size, 1.6 times as broad as long; clava twice as long as broad; eye 1.30-1.37 times as long as broad; funicular segments with 3-6 sensillae; gaster about 1.7 times as long as broad, without carina laterally; 3th-5th terga with a row of deep foveolae basally, they are covered by preceding tergum.

Biology : Unknown. Swept from herbaceous plants.

Holotype (female) : Turkey, Tokat, Taşlıçiftlik, 8.VI.1989 (Çam leg.), deposited in the museum of Plant Protection Department, Tokat Agriculture Faculty.

Paratypes : 1 female, same data as the holotype; 1 female, Tokat, 1. VIII. 1989 (Çam); 1 male, 18.V.1989 (Çam); 1 male, Tokat, 4. VII.1989 (Çam). All deposited in the same museum as the holotype.

*Cyrtosoma kazovaensis* n. sp. belongs to the subgenus *Cyrtosoma* s.str. In the subgenus the new species closes to *Cyrtosoma whactli* (Mayr) in having epipygium shorter (in *Cyrtosoma papaveris* Perris it is much longer); the first tergite

reticulated (in *Cyrtosoma specularifer* (Erdoes) it is smooth (Erdoes, 1955)), and shorter antennae (in *longicornis* (Boucek) and *langlandi* (Girault)), the antennae are as long as or longer than width of head (Boucek, 1970; 1988). The new species differs from *C. whactli* in having distally expanded flagellum of female and less transverse first four funicular segments which are 1.4 times as broad as long (in *whactli* the female flagellum less expanded distally (fig. 24) and funicular segments strongly transverse); in male antennae with longer scapus (in *whactli* it is shorter (fig. 25)); malar space about half of the length of eye (in *whactli* it is 1.4-1.5 times the length of eye); mouth opening 1.3-1.4 times the malar space (in *whactli* it is twice the malar space), and some more characters as seen in the key.

*Cyrtosoma (Cyrtosoma) yeschilirmaka* n.sp.

(Figs. 36-40)

Female : Length of body (including ovipositor sheaths) 2 mm.

In many respects it is similar to *kazovaensis* Doğ., except as follows: Antennae and legs black except fore tarsi brown, middle tarsi yellow and hind tarsi pale yellow, pretarsi black, venation brown. Relative measurements: width of head 28; height 21; length 12; width of frons 16; OOL 3; POL 7; eye 15 : 10; malar space 6; mouth opening 12; length of scapus 11; flagellum plus pedicellus 23. Antenna (fig.36) with filiform flagellum, funicular segments longer and wider, first funicle segment distinctly wider than pedicellus (5:3.5); first three funicle segments equal in size, about 1.45 times as broad as long; 4th - 6th funicle segments subequal, the fourth 1.66 times, fifth and sixth 1.8 times as broad as long; clava twice as long as broad; all funicular segments with at least 8 sensillae on one position; flagellum plus pedicellus 1.53 times the length of eye.

Scutellum as long as broad, with slightly tapering apex; propodeum minutely reticulated; distance between spiracles 3 times the length of propodeum in middle. Forewing (fig. 38) with basal cell on apical half closed below on upper surface, with a row of hairs on under surface; speculum closed below and an extra line of hairs above cubital hair line on upper surface, on under side almost nil; marginal vein twice as long as postmarginal vein and 5 times stigmal vein; submarginal vein 1.66 times as long as marginal vein.

Gaster (figs. 39, 40) slightly longer than head plus thorax combined; first tergite minutely reticulate punctate, rest of the gaster distinctly punctate; fifth tergum with 3-4 rows of short tubercles which are slightly elevated above irregular punctations, some of hairs arising from tip of tubercles; fifth tergum about 1.3 times as long as third and fourth terga combined; fourth tergum with one row of tubercles, tip of which with long hairs; sixth tergum one-third of the fifth, its basal two-third with piliferous punctures, and apically smooth; epipygium short, slightly longer than smooth part of sixth tergum (3:2); ovipositor sheaths only slightly exerted.

Male : Length of body 1.7 mm. Similar to female except as follows : Relative measurements : width of head 23; height 18; length 12; width of frons 18; eye 13:8.5; malar space 3.5; mouth opening 10; length of scapus 8; flagellum plus pedicellus 20. Flagellum (fig. 37) much wider than pedicellus, more or less filiform, first funicle seg-

ment about twice wider than pedicellus; all funicular segments subequal in length and width, first two funicular segments 1.6, the others twice as broad as long; gaster slightly shorter than broad, without carina laterally.

Biology : Unknown. Swept from herbaceous plants.

Holotype (female) : Turkey, Tokat, Fidanlık, 5. VII. 1989 (Çam). Deposited in the Museum of Plant Protection Department, Tokat Agriculture Faculty.

Allotype male, Turkey, Tokat, Fidanlık, 14. VI. 1989 (Çam), deposited in the same museum as the holotype.

*Cyrtosoma yeshilirmaka* n. sp. belongs to the subgenus *Cyrtosoma* s. str. In the genus, the new species differs from all known species in having longer postmarginal vein which is half of marginal vein (in other species of the genus it is about one-third of marginal vein). In the subgenus it closes to *C. whactli* and *C. kazovaensis* Doğ. in having the epipygium shorter, first tergite reticulated, and shorter antennae in male. The new species from the both species by having the flagellum in both sexes much wider than pedicellus (in the alternate species flagellums are at most as wide as pedicellus basally); flagellum plus pedicellus combined 1.53 times the length of eye (in the alternates 1.4 times length of eye); it also seems as similar to *C. longicornis* and *C. langlandi* in having somewhat longer antennae and shorter epipygium, but it differs from them by having combined length of flagellum plus pedicellus distinctly shorter than width of head (in the alternates as long as width of head in female (Boucek, 1970; 1988)), and 1.3 times as long width of head in male of *longicornis*; male funicular segments shorter, with one row of sensillae (fig. 37) (in *longicornis* funicular segments much longer, with at least 3 rows of sensillae (fig. 34)).

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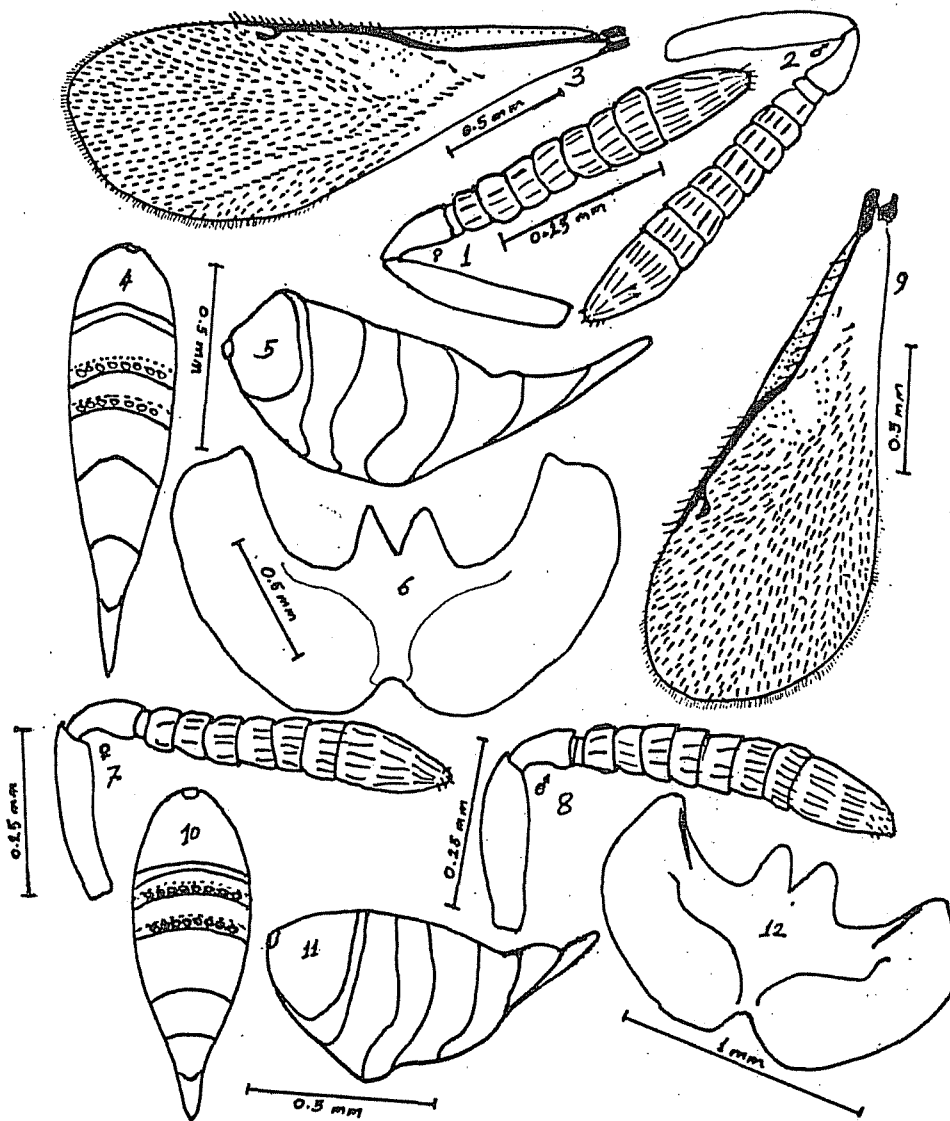
### Özet

**Türkiye *Cyrtosoma* türleri üzerinde sistematik çalışmalar ve bazı yeni türlerin tanımları (Hymenoptera, Chalcidoidea, Ormyridae)**

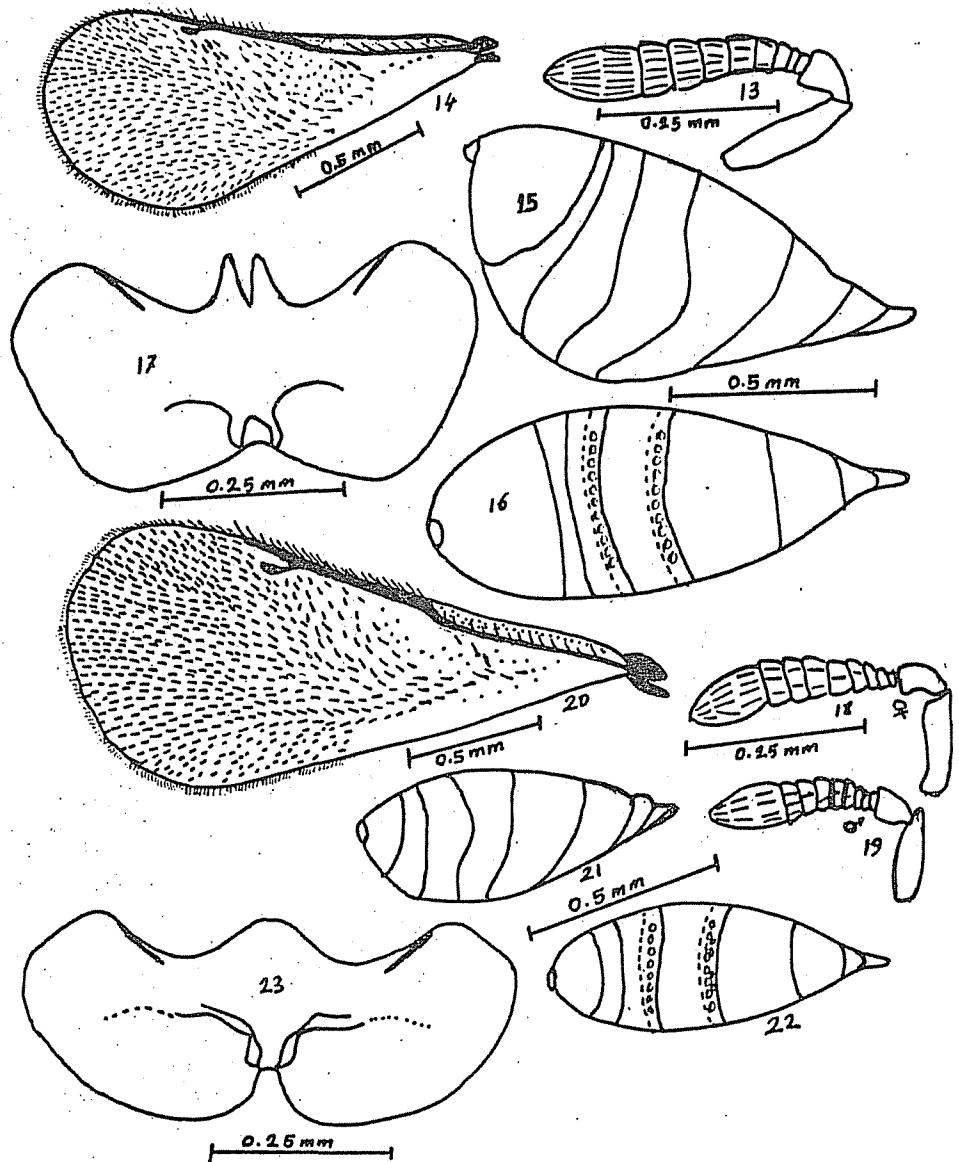
Türkiye'nin değişik yörelerinden 9 tür bulunmuş, bunlardan dördünün yeni tür olduğu belirlenmiştir. Bunlardan *Cyrtosoma tschami* n.sp. *Monobaeus* Först. altcinsinden, *C. ardahanensis* n. sp. *Tribaeus* Först. altcinsinden, *C. yeshilirmaka* n. sp. ve *C. kazovaensis* n. sp. *Cyrtosoma* s. str. altcinsinden olmak üzere isimlendirilmiş ve tanımları yapılmıştır. Önceleri *Ormyrus* cinsinde oldukları kabul edilen *cingulatus* (Först.), *destefani* (Mayr), *diffinis* (Fons.), *gratiosus* (Först.), *hegeli* (Gir.), *langlandi* (Gir.), *longicornis* (Bck.), *speculifer* (Erd.) ve *whactli* (Mayr) gibi türlerin *Cyrtosoma* cinsine girdikleri belirlenmiştir. Türkiye'deki *Cyrtosoma* türlerinin önemli organları çizilmiş, bunlarla ilgili biyolojik bilgiler verilmiş ve bir teşhis anahtarı oluşturulmuştur.

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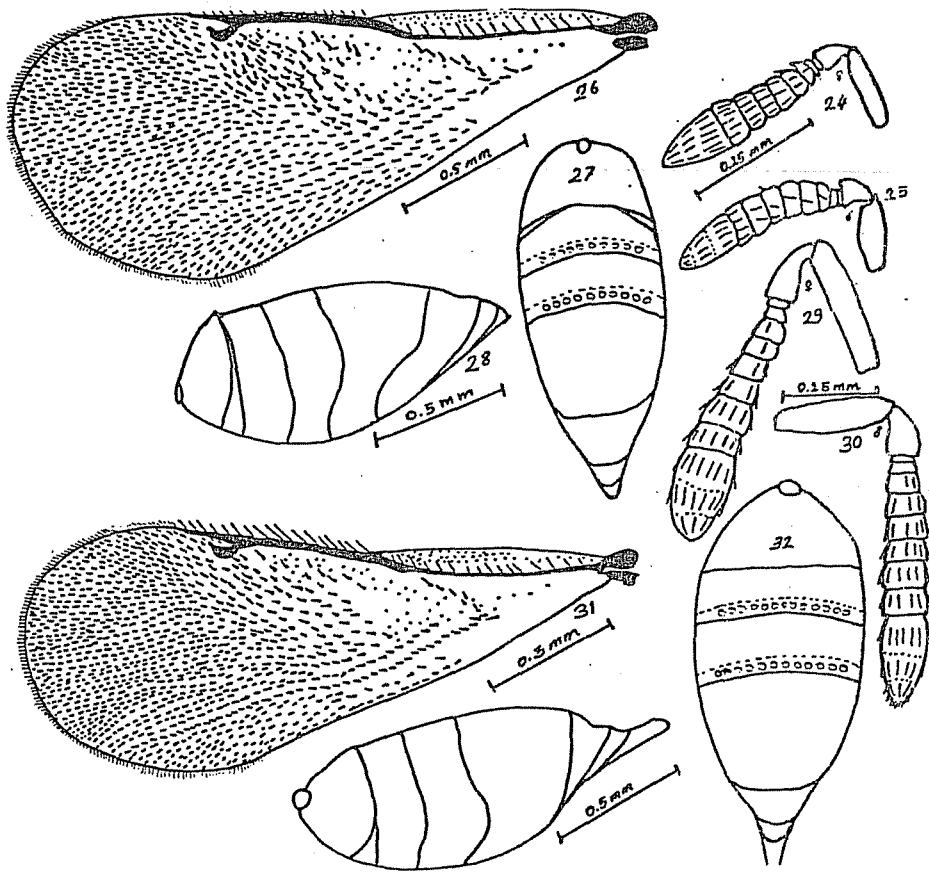
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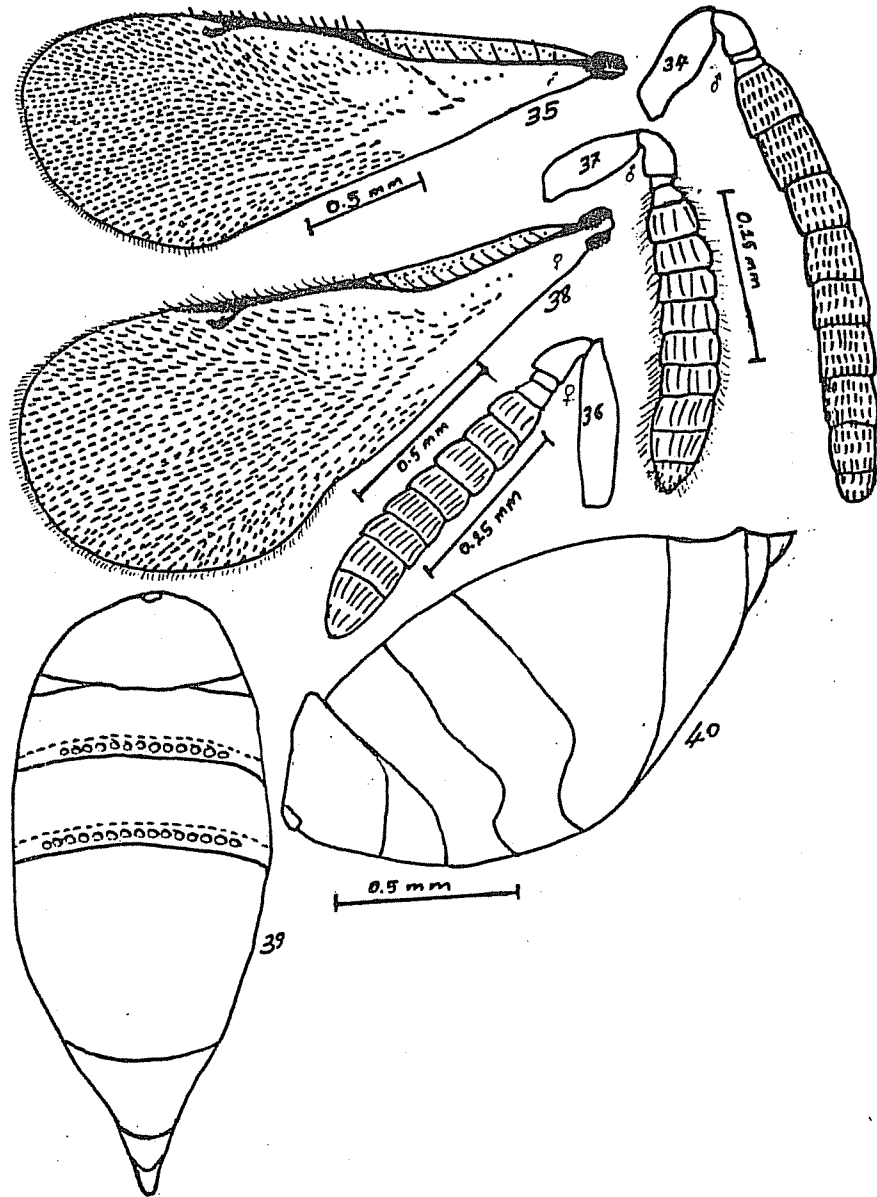
Figs 1-6, *Cyrtosoma tschami* n.sp., 1-2, antennae, 1, female; 2, male; 3, female forewing; 4-5 female gaster (in dorsal and lateral view); 6, hypopygium; 7-12, *Cyrtosoma gratiosus* (Foerster), 7-8, antennae, 7, female; 8, male; 9 female forewing; 10-11, gaster (in dorsal and lateral view); 12, hypopygium.



Figs 13-17, *Cyrtosoma ardahanensis* n. sp., 13, female antenna; 14, forewing; 15-16, gaster (in dorsal and lateral view); 17, hypopygium; 18-23, *Cyrtosoma diffinis* (Fonsc.), 18-19, antennae, 18, female; 19, male; 20, female forewing; 21-22, gaster (in dorsal and lateral view); 23, hypopygium

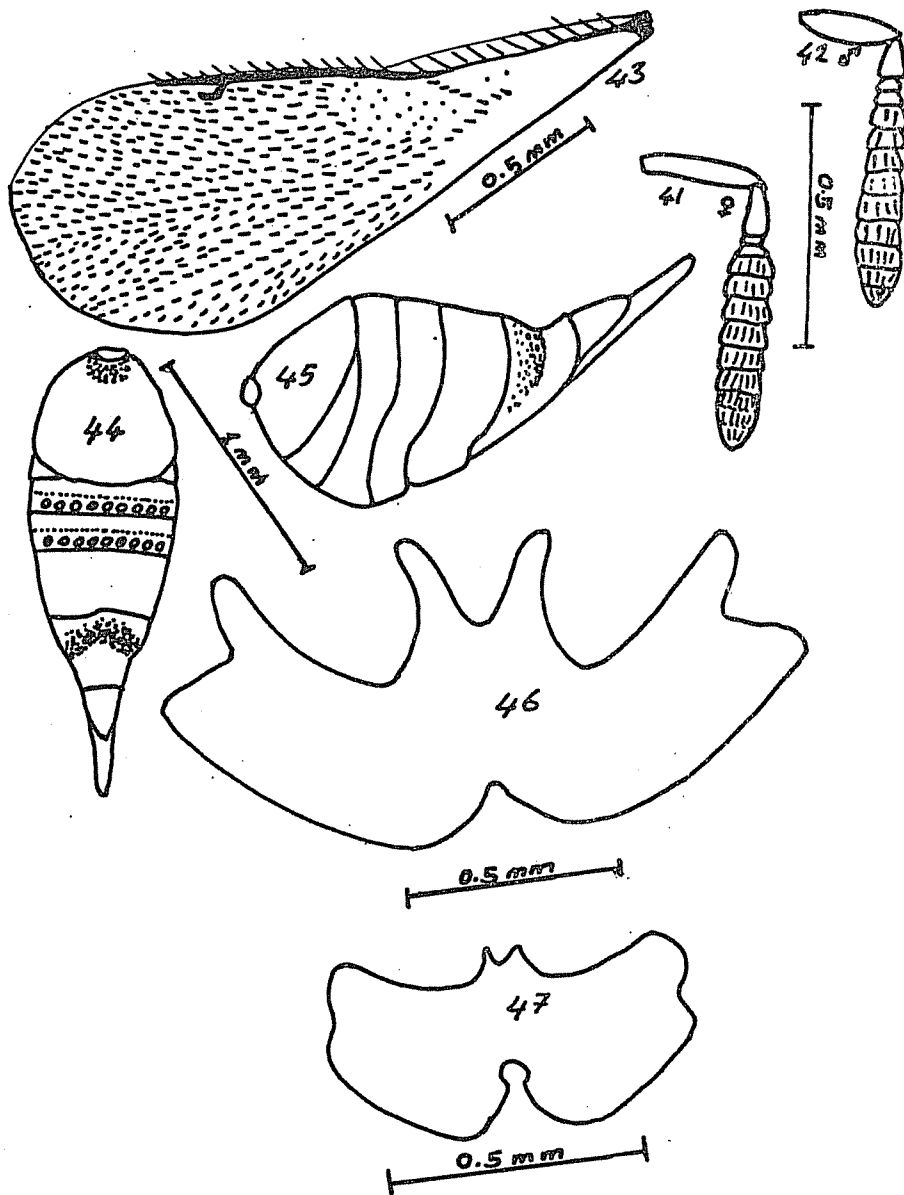


Figs 24-28, *Cyrtosoma whactli* (Mayr), 24-25, antennae, 24, female; 25, male; 26, female forewing; 27-28, gaster (in dorsal and lateral view); 29-33, *Cyrtosoma kazovaensis* n.sp., 29-30, antennae, 29, female; 30, male; 31, female forewing; 32-33, gaster (in dorsal and lateral view)



Figs 34-35, *Cyrtosoma longicornis* (Bouček), male, 34, antennae; 35, forewing; 36-40, *Cyrtosoma yeschilmaka* n.sp., 36-37, antennae, 36, female; 37, male; 38, female forewing; 39-40, gaster (in dorsal and lateral view)





Figs 41-46, *Cyrtosoma papaveris* Perris, 41-42, antennae, 41, female, 42, male; 43, female forewing; 44-45, gaster (in dorsal and lateral view); 46, hypopygium; 47, *Cyrtosoma whactli* (Mayr), hypopygium