

MONOGRAFIE ČESKOSLOVENSKÝCH DRUHŮ TRIBU  
DINOCARSIINI N. TRIB.

Druhá předběžná práce k monografickému zpracování čs. Encyrtidů  
(Hym., Chalcidoidea)

MONOGRAPH OF THE CZECHOSLOVAK SPECIES OF THE TRIBE  
DINOCARSIINI N. TRIB.

Second preliminary paper to the monographic investigation of the  
Czechoslovak Encyrtidae (Hym., Chalcidoidea)

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(Přijato pro tisk 1. září 1952.)\*

V tomto příspěvku zpracovávám čs. rody a druhy tribu *Dinocarsiini* m., který nově stanovím. Náleží sem velmi výrazné formy *Encyrtidů* s dvouzubými mandibulami, o malém poměrně počtu druhů, s robustním, často až sraženým habitem, buď brachypterní, nebo s křídly bohatě zdobenými tmavými pásy a skvrnami. Podrobnou charakteristiku této skupiny, která se opět rozpadá na dva přirozené subtriby, podávám níže v cizojazyčné části.

Nejhojnějším zástupcem tohoto tribu u nás je druh *Dinocarsis hemiptera* (DALM.), rozšířený skoro v celé Evropě a západní Sibiři jako jediný dosud známý palearktický zástupce svého rodu. Podrobným studiem našich exemplářů podařilo se mi však zjistiti, že u nás žijí dva dobře odlišitelné druhy, které nebyly dosud rozeznávány. Tímto druhým druhem jest *D. submontana* n. sp. jež níže popisuji; liší se od druhu *D. hemiptera* (DALM.) vedle charakteristických znaků monografických též oekologicky, neboť je zcela nahrazuje v našich podhorských a horských oblastech.

Výskyt mediterranního druhu *Dinocarsiella alpina* GIR. na našem území je velmi pozoruhodný (zejména jeho nález v sev. Čechách na Řípu), neboť byl až dosud znám — přes své nápadné a krásné zbarvení — jen z jižní Evropy.

\*) S podporou Čs. národní rady badatelské.

Subtropický rod *Dicarnosis* MERC. má u nás nového zástupce v druhu *D. helena* n. sp., který jest současně nejdále na sever rozšířeným druhem tohoto rodu.

Dosud nebyly známy okřídlené formy od zástupců mikropterního rodu *Dusmetia* MERC. Podařilo se mi nalézt několik okřídlených jedinců druhu *D. pulex* RUSCHKA, které potvrzují správnost zařazení tohoto rodu do tribu *Dinocarsiini*. Jest zajímavé, že tyto makropterní formy vyskytují se pouze na lokalitách horských (kolem 1.000 m n. m.), tedy na vertikální hranici areálu tohoto spíše xerothermního druhu. Mají tudíž okřídlené samice zřejmě svůj význam při zvětšování areálu druhu.

Konečně zde popisují velmi význačný nový rod a druh z této skupiny, *Aquaencyrtus bohemicus* n. g. n. sp., jež jsem zjistil na vodní vegetaci jihočeské rybníčné rezervace „Velký Tisý“. Některé znaky, vyskytující se u *Encyrtidů* jen zcela ojediněle (na př. malé oči, krátký metatarsus skákavé nohy a pod.), ukazují na skrytý způsob života této velmi zajímavé *Hymenoptery*.

Celkové vyobrazení druhů *Dinocarsis helena* n. sp. a *Aquaencyrtus bohemicus* n. g. n. sp. jest na samostatných přílohách.

\* \* \*

### Tribus *Dinocarsiini* new tribe

To this well-defined tribe belong the genera showing the following characters: Mandibles two-toothed; habitus sturdy, often even stocky; coloration non-metallic. Both sexes in form and coloration almost indistinguishably similar except for the antennae, which are only in the more primitive forms (g. *Dinocarsis* FÖRST.) of a similar shape, but which show in the more differentiated forms a distinct dimorphism. Head broad, only very moderately arched, transverse when seen from above terminating more or less straight in front. Forehead broad, rarely narrow. Ocelli very far from the inner orbits. Scape always more or less flattened, very often enlarged on the inner side; pedicel in the female sex either very short (subtrib. *Dinocarsii* m.); or longer than the following article (subtrib. *Dusmetii* m.); articles of the funicle in the females as a rule longer than wide; exceptionally at least the first article is lengthened; in the males the articles of the funicle are always longer. Pronotum well developed, mostly broad, either parallel or abruptly convergent anteriorly, but as a rule not long. Mesoscutum relatively short. Wings always with smoky parts forming various patterns according to the degree of differentiation of the drawing in the basis of the same schema: from the originally entirely smoky surface of the disc separate in the distal part of the wing transversal zones; either in the direction towards the base of the wing, these zones multiply in the course of the further disintegration of the dark surface, or a tendency manifests itself to a longitudinal disintegration of the distal zones into a row of spots, beginning with a shallow indentation (g. *Dinocarsis*) and ending with spots arranged in a zone (g. *Dicarnosis*). A very strong tendency towards a reduction of the wing can be seen in all genera

of this group. Marginal vein most often rather long, but never broader than the other veins.

Very ancient, specified branch of the *Encyrtidae* with two-toothed mandibles, with well defined species, and with a high generic coefficient; specifically little numerous. It corresponds roughly to MERCET's group 3 of the genus *Ectroma* WESTW.; the genus *Ericydnus* WALK. has however a different character and forms a separate group. Type of the Tribe: Genus *Dinocarsis* FÖRSTER. The tribe is divided into two natural well characterised subtribes.

### Survey of the Subtribes

Pedicele in the females always shorter than the first article of the funicle. Scape strongly flattened, on the inner side usually enlarged leaf-like. Palpi maxillares composed of four, palpi labiales of three articles. Pronotum parallel, not converging anteriorly. Scutellum big, of the shape of an equilateral triangle, sharply terminated. Metatarsus normally long. The two abdominal tergites preceding the last one in the middle part posteriorly more or less running out, so that the last tergite does not form by itself the large triangular surface. Abdomen sharply terminated or with an only moderately rounded end.

Type of the subtribe: Gen. *Dinocarsis* FÖRST.

To it belong the genera: *Dinocarsis* FÖRST., *Dicarnosis* MERC., *Dinocarsiella* MERC. and *Ectroma* WESTW.

..... subtrib. *Dinocarsiini* nov.

Pedicele in the females always longer than the first article of the funicle. Scape only moderately flattened. Palpi maxillares composed of three palpi labiales of two articles. Pronotum anteriorly converging. Scutellum short, posteriorly broadly rounded or truncate. Metatarsus strongly shortened. Middle abdominal tergites strongly depressed, very narrow and parallel, often hidden by the posterior margin of the first tergite; last tergite strongly developed triangular, so that the abdomen appears to be composed on the dorsal side of only two tergites; end broadly rounded.

Type of the subtribe: Gen. *Dusmetia* MERC.

To this subtribe belong the genera *Dusmetia* MERC. and *Aquaencyrtus* HOFFER.

..... subtrib. *Dusmetiini* nov.

### Key to the European Genera of the Tribe Dinocarsiini

- 1 Scutellum triangular sharply terminated; pedicele in the females shorter than the first article of the funicle . . . . . 2
- Scutellum short, posteriorly broadly rounded or truncate; pedicele in the females longer than the first article of the funicle . . . . . 5
- 2 Body entirely black; antennae of the two sexes very similar unicoloured, with the articles of the funicle longer than broad, moderately shortening towards the end of the antenna . . . . . *Dinocarsis* FÖRSTER.

- Body either of another colour or black; in the latter case the articles of the funicle in the female sex transverse; in the males articles of the funicle very long, distantly hairy, considerably different from those of the females . . . . 3
- 3 General colouring of the body reddish brown; scutellum in the brachypterous form with two deep pits at the base; the ovipositor projects distinctly . . . . *Ectroma* WESTWOOD.
- Scutellum without deep pit at the base; the ovipositor does not project . . . . 4
- 4 General colouring of the body blackish blue; head and thorax with longitudinal broad yellow stripes; anterior wings with four dark transversal zones in the lower part of the wing . . . . *Dinocarsiella* MERCET.
- General colouring of the body black, only a narrow border along the inner orbits yellow; in the females the antennae with white coloured parts, and with the funicle with transverse articles (except the 1<sup>th</sup> article) . . . . *Dicarnosis* MERCET.
- 5 Body black; eyes relatively small; scutellum broadly rounded; antennae in both sexes unicoloured, dark . . . . *Aquaencyrtus* HOFFER.
- Body reddish brown; scutellum at the base broadly truncate; antennae in the females with white parts . . . . *Dusmetia* MERCET.

### Genus *Dinocarsis* FÖRSTER

*Dinocarsis* FÖRSTER, Hym. Stud. II., p. 33. 1856.

*Euscapus* DAHLBOM, Ofvers. Svensk. Vet.-Akad., XIV, p. 292. 1857.

*Dinocarsis* THOMSON, Skand. Hym., IV, p. 127. 1857.

*Dinocarsis* MAYR, Verh. K. K. Zool.-bot. Ges. Wien, XXV, p. 759. 1875.

*Dinocarsis* MERCET, Fauna ibér., Him. Encirt., p. 147. 1921.

*Dinocarsis* NIKOLSKAJA, Chalcidy fauny SSSR, p. 354. 1952.

FÖRSTER established the genus in 1856; *Encyrtus hemipterus* described in 1820 by DALMAN was declared the type of this genus. Since then no further species of this genus have been described from Europe. From North America were described by ASHMEAD the species *D. thyriodopterygis* (1886) and *pulchra* (1888), from Australia by GIRAULT the species *D. abnormis*, *flavimesopleurum* (1917), *bella et spica* (1921), *holbeini* (1923), and finally from Java by the same autor the species *D. lineatipes* and *cooki* (1919).

*D. hemiptera* (DALM.), the only palearctic species known, seems to have a wide distribution and is the most abundant species of the tribe. By the detailed investigation of our specimens I was, however, able to ascertain that they belong to two independent well distinguishable species, approximately equally abundant of which the species *hemiptera* (DALM.) occurs in Czechoslovakia only at lower altitudes, whereas the species (*submontana* m.) occurs in mountains and submontane regions, exceptionally in lower lying regions with a cold substratum (peat); it is very probable that this species has in Europe a far wider distribution, having been confused in the past with the species *hemiptera* (DALM.).

Main characters of the genus *Dinocarsis* FÖRST.:

#### Females

Habitus broad, robust, leathery sculpture, hairs white.

Head seen from above lenticular, broad, with subparallel margins, posterior margin sharp. Frons very broad. Ocelli placed in an obtuse-angular triangle, posterior ones very far from the inner orbits. Eyes large, but



not protruding; temples very narrow. Cheeks moderately long. Mandibles with two teeth. Maxillar palpi composed of four labial palpi of three articles. Antennae long, jointed near the mouth opening, composed of the scape, which is long and strongly flattened, enlarged in leaf-shape; of the very short pedicel; of the funicle with six articles which are longer than broad and gradually shorten; and of the club indistinctly divided into three segments, as broad as the funicle and rounded at the end.

Thorax with a shallow, very scattered punctuation in the leathery sculpture. Pronotum well developed, parallel, relatively short. Mesoscutum short, with the parapsidal furrows very slightly indicated. Tegulae large, rounded at the end. Scutellum robust, triangular, flat, axillae broad. Wings as a rule rudimentary, rarely normally developed, without transitional forms. Rudiments of the anterior and posterior wings semi-elliptic. Anterior wings in the macropterous forms large and broad, with a relatively long and thin marginal vein, with suppressed postmarginal vein and with a long straight stigmal vein; basal part of the wings smoky, with darker parts, in the distal part a narrow, transversal dark stripe, on the inner side incised; the other parts hyaline with colour-less hairs; linea calva narrow; marginal ciliation developed. Posterior wings triangular, with a well developed submarginal vein. Legs strong, tibiae of the middle legs at the end broadened and spiny, spur broad, flat; posterior with one spur; tarsal segments broad, heart-shaped.

Abdomen with the last three tergites well visible from above posteriorly elongated, it ends sharply. Ovipositor either hidden or very short.

#### Males

Very similar to the female, differing only by the larger ocelli, the distinctly shorter scape, the very short pedicel, by the flagellum being somewhat broader in the basal part than in the distal part, moderately flattened with the club undivided. The winged form is known in the male sex. Abdomen shorter than the thorax, broadly rounded at the end.

*Typus generis: Encyrtus hemipterus* DALMAN.

#### Key to the European species of the genus *Dinocarsis* FÖRSTER

##### Female

Abdomen as long as the thorax, sharply terminated, but not lengthened into a tip; the last two articles of the funicle almost twice as long as broad; in the macropterous form the transversal dark stripe in the distal third of the anterior wing is on the inner side shallowly indented . . . . . *D. hemiptera* DALMAN.

Abdomen as long as head and thorax together, posteriorly elongated into a sharp tip, the last tergite projecting; ovipositor distinctly protruding, about  $\frac{1}{10}$  as long as the abdomen; the last two articles of funicle almost as long or only a little longer; in the macropterous form the transversal dark stripe in the distal third of the anterior wing is on the inner side deeply indented . . . . . *D. submontana* HOFFER.

##### Male

Last articles of the funicle twice as long as broad. Club as long as the two preceding articles together . . . . . *D. hemiptera* DALMAN.

Last articles of the funicle  $1\frac{1}{2}$  times as long as broad; club longer than the two preceding articles together . . . . . *D. submontana* HOFFER.

**Dinocarsis hemiptera (DALMAN)**

*Encyrtus hemipterus* DALMAN, Svensk. Vet.-Akad. Handl., XLI, p. 166. 1920.

*Dinocarsis hemiptera* FÖRSTER, Hym. Stud., II, p. 37. 1856.

*Dicelloceras vibrans* SIX, Tijdschr. Entom., X, p. 221. 1867.

*Dinocarsis hemiptera* MAYR, Verh. K. K. Zool.-bot. Ges., Wien XXV, p. 760. 1875.

*Euscapus hemipterus* THOMSON, Skand. Hym., IV, p. 127. 1875.

*Dinocarsis hemiptera* MERCET, Fauna Ibér., Him. Encirt., p. 148. 1921.

*Dinocarsis hemiptera* NIKOLSKAJA, Chalcidy fauny SSSR, p. 353. 1952.

**F e m a l e**

Size: 1.3—2.1 mm.

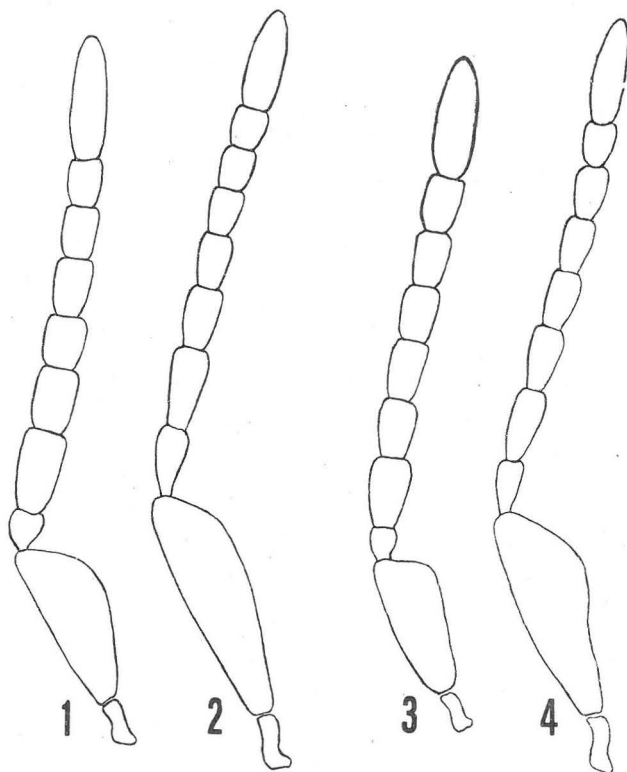
Whole body black, with white hairs; tegulae with a narrow brownish border at the inner and posterior margins; tarsi yellowish brown, the last 1—2 articles and the claws black. Wings with a brown venation, marginalis darker than the other veins; basal two thirds of the anterior wings slightly smoky with dark hair, with some darker parts (Pl. III, fig. 1); distal third hyaline with colourless hair, with a narrow, transversal inwardbent smoky zone with dark hairs; this zone is on the inner side shallowly roundedly indented.

Head lenticular, distinctly broader than the thorax, leathery rugose, with short and sparse white hair. Frons twice as broad as the transversal diameter of the eyes. Ocelli small, arranged in a distinctly obtuse-angular triangle; the posterior two as far from the inner orbits as from the posterior margin of the head; distance between them twice as much. Face slightly depressed. Eyes large, not protruding, temples very narrow. Scape flattened, in the distal part strongly widened; the last two articles of the funicle almost twice as long as broad; club as long as the last two articles of the funicle; relative lengths of all articles of the antennae: 56 : 16 : 22 : 16 : 15.5 : 13.5 : 13 : 12 : 25.

Pronotum well developed, five times as broad as long. Mesoscutum relatively short, a little longer than the pronotum, with the parapsidal furrows developed, but so shallow that only under a certain light do they become visible. Tegulae large, almost as long as the mesoscutum. Scutellum powerfully developed, twice as long as the mesoscutum of the shape of an equilateral triangle ending sharply posteriorly; axillae broad. All these parts of the thorax leathery rugose and very finely, sparsely punctate, with fairly long, sparse white hair. Propodeum well developed, with a coarse furrowing, with very dense, fine and short light hair on the sides. The rudiments of the wings in the brachypterous forms project in the normal position only slightly over the posterior margin of the propodeum. The anterior wings of the macropterous form project with one third of its length over the tip of the abdomen; the venation extends to two thirds of the length of the wings; submarginal vein at the end briefly interrupted, with a row of long ciliae reaching the margin of the wing; marginal vein twice as long as broad; stigmal vein twice as long as the marginal vein terminated by a formation resembling a bird's head; the basal two thirds of the wing are unequally smoky, with dark and light hair as described above. Posterior wings narrowly triangular, hyaline. Legs broad, femora somewhat flattened; middle tibiae broadened at the end, spiky; spur a little shorter than

the metatarsus, flattened; tarsal articles broad, heart-shaped; their termination spiky at the inner side.

Abdomen as long as the thorax; first tergite as long as  $\frac{1}{3}$  of the total length of the abdomen and  $2\frac{1}{2} \times$  broader than long; the following 3 articles very short; the rest of the abdomen formed by the last three tergites has the shape of an equilateral triangle in whose upper corners are the pygostyles; the last sternite projects imperceptibly beyond the tergite; the ovipositor does not protrude.



*Dinocarsis submontana* HFFR.: 1 male feeler, 2 female feeler.  
*Dinocarsis hemiptera* (DALM.): 3 male feeler, 4 female feeler.

#### Male

Size: 1.2—2.1 mm.

Resembling the female in coloration and shape. Frons somewhat narrower. Ocelli of greater size. Scape relatively shorter, pedicel very short as long as broad. Funicle thicker than in the female, the last two articles twice as long as broad; relative lengths of all articles of the antenna: 45 : 10 : 21.5 : 15.5 : 16 : 15 : 15 : 14 : 30. The winged form has not yet

been ascertained. Abdomen distinctly shorter than the thorax, posteriorly rounded.

Distribution: Europe.

Localities in Czechoslovakia:

*Forma brachyptera*:

Distributed everywhere in Czechoslovakia except in the mountain and submountain regions, where this species is replaced by *D. submontana* n. sp. The males are relatively far rarer than the females (approximately in the ratio 1 : 12).

*Forma macroptera*:

Ascertained up till now only in females; in Czechoslovakia must be regarded as very rare. It occurs here most frequently in sandy habitats with a psammophile vegetation, especially in Bohemia, in Slovakia also on other, but also warm substrata. It is known up till now from the following localities: Bohemia merid.: Veselí n. Luž. (psammophil. veget.) 11. VII. 1945 (1 spec.); Bohemia centr.: Lysá n. Lab. (psammophil. veget.) 12. VII. 1950 (1 spec.); dtto 16. VIII. 1944 (4 spec.); Stará Boleslav psammophil. veget.) 29. VII. 1951 (1 spec.); Moravia merid.: Moravský Písek (region "Moravská Sahara", (psammophile vegetation) VII. 1940 (1 spec.); Slovakia merid.: Děvinská Kobyla near Bratislava (steppe on limestone with alluvial sand) 10. VI. 1950 (1 spec.); Slovakia orient.: Brehovo (steppe on the hill "Imebreg", andezite) 14. VIII. 1950 (1 specimen). All lgt. et coll. Dr. A. Hoffer.

Biology of this enough abundant species is still unknown.

### *Dinocarsis submontana* n. sp.

#### Female

Size: 1.4—2.3 mm.

In habitus and coloration very similar to the species *Dinocarsis hemiptera* (DALM.). Head, thorax and abdomen black, shiny, with white hair; tegulae black, with the base and a narrow border along the inner and lower margin brown; tarsi yellowish brown with the last 1—2 articles and the claws black. Wings with blackish brown venation, marginal vein very dark; basal  $\frac{2}{3}$  of the anterior wings slightly smoky with dark hair with some darker parts (pl. III., fig. 2); distal third hyaline, with colourless hair, with a narrow transversal, inwardbent smoky zone with dark hair; this zone is on the inner side deeply rounded indented; the smoky parts and the spots better delimited and more intensively pigmented than in the species *D. hemiptera* (DALM.).

Head lenticular broader than the thorax, leathery rugose, with short, stiff and sparse white hair. Frons almost twice as broad as the transversal diameter of the eyes. Ocelli small, arranged in a distinctly obtuse-angular triangle; the posterior two as far from the inner orbits as from the posterior margin of the head; the distance between them twice as long. Face moderately depressed. Eyes large, not protruding; temples insignificant. Scape flattened, in the distal part widened; the last two articles of the funicle almost as long as broad; club a little longer than the preceding two articles; relative lengths of the articles of the antennae 55 : 15 : 21 : 15.5 : 15 : 14.5 : 13 : 11 : 27.

Thorax as in the species *D. hemiptera*, only with a somewhat coarser punctation; mesoscutum with shallow but distinct parapsidal, furrows.

The rudiments of the wings extend in the normal position to  $\frac{1}{3}$ — $\frac{1}{2}$  of the length of the first abdominal tergite. In the winged form the wing is somewhat narrower than in the preceding species with a darker coloration of the veins and a more intensive pigmentation of the spots; submarginal vein with much shorter bristles.

Abdomen with ovipositor as head and thorax together. The first tergite extends to  $\frac{1}{4}$  of the length of the abdomen, and is  $2\frac{1}{2}$  times as wide as long; following three segments very short, scarcely visible from above; the remaining abdominal tergites form a strongly acute-angular triangle whose end is strongly lengthened into a tip; the last sternite projects distinctly. Ovipositor distinctly protruding, occupying  $\frac{1}{10}$  of the length of the abdomen.

### Male

Size: 1.0—1.5 mm.

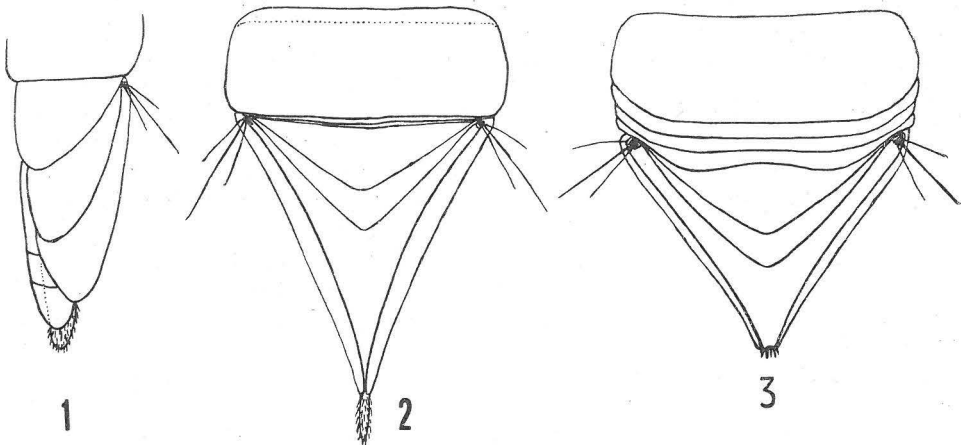
Resembling the female in coloration and shape. Frons a little broader. Ocelli larger. Scape distinctly shorter, pedicel very short, almost as long as broad; last two articles of the funicle  $1\frac{1}{2}$  times as long as broad; club distinctly longer than the preceding two articles. Relative length of the articles of the antennae: 47 : 11 : 25 : 17 : 16 : 15.5 : 15 : 14 : 13.4 : 33. The winged form has not yet been ascertained in the male sex. Abdomen distinctly shorter than the thorax, posteriorly rounded.

Distribution: Czechoslovakia.

Localities in Czechoslovakia:

♂ *Forma brachyptera*:

*Allotype*: Moravia orient.: Louka (grassy slope and pastures about 650 m. above sea level) 10. VIII. 1941. *Paratypes*: ibid. 10. VIII. 1941 (15 spec.); Javorník (pastures on the hill "Paličky", about 700 m. above sea level) 11. VIII. 1941 (53 spec.). Lgt. et coll. Dr. A. Hoffer.



*Dinocarsis submontana* HFFR.: 1 abdominal tip in side view; 2 abdomen dorsally;  
*Dinocarsis hemiptera* (DALM.): 3 abdomen dorsally.

♀ *Forma brachyptera*:

*Holotype*: Bohemia merid.: Prachatice (mountain meadows on the southern slope of the "Libín", about 750 m. above sea level) 30. VIII. 1950. Lgt. et coll. Dr. A. Hoffer. *Paratypes*: ibid.: 30. VIII. 1950 (3 spec.); Horní Sněžná (mountain meadows at an altitude of about 1000 m. above the sea level) 15. VII. 1946 (1 spec.); Suchdol-Nové Hradky (peat-bog, 400 m. above sea level) . VIII. 19 (1 spec.); Ražice (peat-bog, about 500 m. above sea level. 3. VIII. 1950 (1 spec.). Moravia or.: Louka (ut supra) 10. VIII. 1941 (110 spec.); Javorník (ut supra) 11. VIII. 1941 (643 spec.). Lgt. et coll. Dr. A. Hoffer.

♀ *Forma macroptera*:

*Holotype*: Moravia orient.: Louka (ut supra) 10. VIII. 1941. *Paratypes*: ibid.: 10. VIII. 1941 (12 spec.); Javorník (ut supra) 11. VIII. 1941 (14 spec.). Lgt. et coll. Dr. A. Hoffer.

Genus *Dicarnosis* MERCET

*Dicarnosis* MERCET, Faun. Ibér., Him. Encirt., p. 141. 1921.

*Dicarnosis* NIKOLSKAJA, Chalcidy fauny SSSR, p. 351. 1952.

MERCET established the genus *Dicarnosis* in 1921, knowing at that time already two species, of which he declared the species *D. superba* MERC. as type of the genus. He distinguishes the new genus from the nearest related genus *Dinocarsis* FÖRST., and points out especially the most important characters on the antennae; in the female sex the articles of the funicle are transverse and the club is undivided; the male antennae have an entirely different configuration very long and thin. The dimorphism in the configuration of the antennae in the two sexes is in the genus *Dicarnosis* much greater than in the genus *Dinocarsis*, even though for the rest the characteristic habitus of the body and wings is the same in both genera.

The genotype, originally described from Spain, was ascertained again by MERCET on the Canary Islands (1923) and by MASI in Italy (1934). Simultaneously MERCET described from the Canary Islands (1923) a further species, *D. canariensis* MERC., which he knew already when he established the genus. Two years later the same author described another species from Egypt, *D. alfieri* MERC., only in the female sex; he did not describe the male until 1930. From Africa COMPERE (1938) describes the species *Dicarnosis merceti* COMP., which, however not only deviates from the diagnosis of the genus but shows also characters according to which it cannot even be placed in the tribe *Dinocarsiini* (e. g. three-toothed mandibles); GOMEZ established for it the new genus *Comperia* (1942).

I designate our new species as *D. helena* m., as it was discovered already years ago by RUSCHKA in Austria and designated by him by this name; a description was, however, not published. The specimen designated by RUSCHKA, which is in the Museum at Vienna, was compared with my specimens by Mr. Sv. Novický. I therefore retain for our new species the name given by RUSCHKA.

*D. helena* m. is most closely related to the species *D. superba* MERC.; the differences between the two species are given in the analytical table. It is the only species of this genus which has micropterous forms (the females



are exclusively micropterous). At the same time it is the only Central European representative of the genus *Dicarnosis* and its form spreading farthest to the north. It is an exponent of the habitats with the warmest microclimate, known up till now in Czechoslovakia only from southern Moravia and Slovakia.

Principal characters of the genus *Dicarnosis* MERC.:

#### Females

Habitus broad, robust, sculpture finely granular, hair of the body long, white. Head seen from above lenticular, broad, margins subparallel; posterior margin sharp, delimited by a ledge. Frons of varying width. Ocelli arranged in a moderately, obtuse-angular to acute-angular triangle, rather far from the inner orbits. Eyes large, moderately prominent; temples almost completely suppressed. Cheeks very short. Mandibles with two teeth. Maxillar palpi of four, labial palpi of three articles. Antennae jointed at the margin of the mouth opening, composed of the strongly flattened and broadened scape, the very short pedicel, the funicle with moderately flattened and (with the exception of the first) transverse articles of equal width, and the undivided club, which is as broad as the funicle.

Pronotum short, transverse. Mesoscutum transverse, not too long, with very slightly indicated parapsidal furrows. Tegulae small, lower margin truncate. Scutellum large, triangular, flat; axillae broad. Propodeum very short, with the posticolateral corners with long white hair. Wings either rudimentary or normally developed, without any transition forms. Anterior wings in the macropterous forms with a wide, smoky base and with transversal dark zones in the distal part disintegrating into darker spots; marginal vein longer than broad, postmarginal vein lacking or well developed; stigma vein long, straight; linea calva short; costal cell very narrow; marginal ciliation briefly developed. Posterior wings narrow. Legs not long, slimmer than in the genus *Dinocarsis*; middle metatarsus of normal length, spur shorter. Abdomen triangular, at the end, moderately, last four tergites in the middle part elongated posteriorly.

#### Males

Very similar to the female, but distinguishing from it by the entirely differently configurated antennae, which are longer than the body, filiform, with elongated cylindrical scape, with the pedicel as long as wide; with cylindrical, very long articles of the funicle, and with the club also long and thin at the base moderately indented. The wings are less intensively smoky; postmarginal vein developed, as long as the marginal one. Legs slimmer. Abdomen shorter, broadly rounded.

Typus generis: *Dicarnosis superba* MERCET.

The biology of this genus, as far as known (MERCET 1930 gives biological data for the species *D. alfieri*), is entirely different from that of all other representatives of this family. The species lives parasitically in the oothecae of the *Blattidae* of the genus *Phyllodromia*.

# Key to ♀♀ of the species of the genus *Dicarnosis* MERCET.

- 1 Antennae with the last articles of the funicle white; club black; frons very narrow . . . . . *D. alfieri* MERCET.
- Antennae with black funicle and white club; frons of normal width . . . . . 2
- 2 Head yellowish red with black parts, scape on the dorsal side with a white spot, wings almost entirely dark smoky; femora and tibiae of the middle pair of legs with a white ring . . . . . *D. canariensis* MERCET.
- Head (except the orbits which are yellow), scape and legs (except the tarsi) black; wings as far as they are developed with two hyaline zones in the distal third . . . . . 3
- 3 In both sexes only macropterous forms are developed; pedicel in the distal part white; scape almost as long as the funicle . . . . . *D. superba* MERCET.
- The female sex always brachypterous, among the males macropterous specimens are relatively rare; whole pedicel black; scape much shorter than the funicle . . . . . *D. helena* HOFFER.

## *Dicarnosis helena* n. sp.

### Female

Size: 0.8—1.5 mm.

The whole body, legs and antennae black, except a narrow yellow border along the inner orbits, the middle and distal parts of the club, which are yellowish brown tarsi; their last article and the claws blackish. Rudiments of the wings intensively smoky.

Head seen from above broad, parallel. Frons as broad as the transversal diameter of the eyes, in the middle with a slightly indicated longitudinal carina in its whole length; in the area between the jointing of the antennae the carina runs out in a blunt corner. Ocelli arranged in a slightly obtuse-angular triangle; distance between the two posterior ocelli twice their distance from the inner orbits and from the posterior margin of the head. Eyes large, somewhat prominent elongated, parallel to the inner orbits; temples suppressed. Scape flat, on the underside broadened, twice as long as broad in the middle part; pedicel a little longer than broad, distinctly shorter and narrower than the following article; first article of the funicle by half its length longer than wide; the other articles transverse narrowing and shortening in the direction towards the distal end of the antenna; the last one is by half its width narrower than the first club, a little longer than the last two articles of the funicle together, of the same width, oval, rounded at the end. Ratio of the lengths of scape, pedicel, funicle and club 41 : 11 : 53 : 19.

Pronotum very short, scarcely visible, posterior margin straight. Mesoscutum rectangular, 3 times as broad as long, with shallow but distinct parapsidal furrows. Tegulae very small. Scutellum almost twice as long as the mesoscutum, of the shape of an equilateral triangle, posteriorly pointed. Propodeum short broad. Rudiments of the wings projecting only slightly beyond the propodeum, semi-oval. The macropterous form has not yet been ascertained in the male sex. Legs relatively short, but not robust, second metatarsus 3 times as long as broad; spur distinctly shorter.

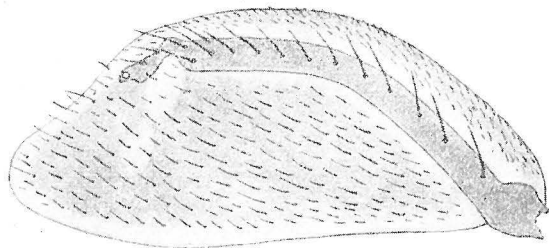
Abdomen short, as long as  $\frac{2}{3}$  of the thorax, triangular rounded at the end.

Snow white hairs on the whole body uniformly developed, longer on the abdomen, clearly contrasting with the black substratum.

### Male

Size: 0.9—1.1 mm.

Resembling the female. Ocelli larger. Eyes narrower. Frons distinctly broader. Antennae much longer than the whole body, much thinner than in the female scape cylindrical, three times as long as broad; pedicel short, as long as broad; funicle composed of cylindrical articles of which the first is longer than the others, 3 times as long as broad; the remaining segments all of equal length, but gradually narrowing in the direction towards the end of the antenna; club as long as the last two articles together, slightly broader, at the end bluntly pointed. Ratio of the lengths of scape, pedicel funicle and club 30 : 8 : 90 : 27.



*Dicarnosis helena f. brachyptera* HFFR.: Rudiment of the fore wing.

Rudiments of the wings in the brachypterous form distinctly longer than in the female, somewhat varying in size, but not extending beyond the end of the abdomen. Wings of the macropterous form of normal shape, extending with half their length the abdomen; submarginal vein at the end briefly interrupted closely spiny; marginal vein very short; stigmal vein bent at the base broadened at the end; postmarginal vein a little longer than broad; linea calva short of ovoid shape; costal cell almost imperceptible; marginal ciliation short. Basal part of the wing to the end of the stigmal vein darkly smoky except for larger or smaller hyaline spots below the marginal vein; behind the stigmal vein a narrow hyaline zone runs obliquely across the wing; then there follows a dark zone disintegrating transversally into four spots imperfectly separated from each other; tip of the wing hyaline or slightly smoky. Posterior wings very narrow, hyaline, with a short marginal ciliation.

Abdomen still shorter than in the female, broadly rounded posteriorly.

Distribution: Austria, Czechoslovakia.

## Localities in Czechoslovakia:

♂ *Forma macroptera*:

*Allotype*: Slovakia merid.: Kováčovské kopce (steppe vegetation andesite) 17. VI. 1948. *Paratypes*: ibid. 17. VI. 1948 (1 spec.); Slovakia orient.: Brehovo (steppe on the hill "Imbreg", andesite) 15.—16. VII. 1951 (1 spec.); Slovenské Nové Mesto (steppe on the hill "Piliš", andesite) 8. IX. 1950 (1 spec.). Lgt. et coll. Dr. A. Hoffer.

♂ *Forma brachyptera*:

*Paratypes*: Moravia centr.: Hády near Brno (steppe on limestone) 14. VII. 1941. Slovakia merid.: Štúrovo (Parkán) steppe formation on loess on the southern slope of the Belanské kopce 18. IX. 1947 (1 spec.); Kováčovské kopce (steppe on andesite) 10. IX. 1941 (1 spec.); ibid.: 15. IX. 1947 (1 spec.). Slovakia orient.: Brehovo (ut supra) 16. VII. 1951 (1 spec.); ibid.: 14. VIII. 1950 (1 spec.); Slovenské Nové Mesto (ut supra) 3. VII. 1950 (1 spec.). Lgt. et coll. Dr. A. Hoffer.

♀ *Forma brachyptera*:

*Holotype*: Moravia merid.: Pavlovské kopce: Turoid (step on limestone) 8. VIII. 1952. *Paratypes*: Slovakia merid.: Štúrovo (Parkán) (steppe formation on loess on the southern slope of the Belanské kopce) 18. VII. 1947 (3 spec.); ibid.: 16. IX. 1947 (1 spec.); ibid.: 18. IX. 1947 (5 spec.); Kováčovské kopce (steppe on andesite) 3. VII. 1947 (1 spec.). Lgt. et coll. Dr. A. Hoffer. Banská Štiavnica (hill "Kalvaria") edge of a deciduous wood, about 700 m. above sea level! 30. VI. 1952 (1 spec.). Lgt. et coll. Dr. Z. Bouček. Slovakia orient.: Slovenské Nové Mesto (steppe on the hill "Piliš", andesite) 8. IX. 1951 (1 spec.); Brehovo (steppe on the hill "Imbreg", andesite) 14. VIII. 1950. Lgt. et coll. Dr. A. Hoffer.

This species is most closely related to the South European species *D. superba* MERC., from which it differs in the characters listed in the following table:

<i>Dicarnosis superba</i> MERC.	<i>Dicarnosis helena</i> n. sp.
Female	
Always macropterous specimens.	Always brachypterous specimens.
Scape almost as long as the funiculus.	Scape much shorter than the funiculus.
Pedicel in the basal part black, in the apical part white.	Pedicel entirely black.
Pedicel much thinner and shorter than the 1. article of the funicle.	Pedicel a little thinner than the 1. article of the funicle.
Antennal club as long as the preceding three articles of the funicle.	Club shorter than the preceding three articles of the funicle.
Antennal club entirely white.	Antennal club darkened at the base.
Ocelli nearer to the inner orbits than to the posterior margin of the head.	Ocelli distinctly nearer to the posterior margin of the head than to the inner orbits.
Scutellum as long as the mesoscutum.	Scutellum distinctly longer than the mesoscutum.
Male	
Always winged specimens.	Brachypterous, more rarely macropterous specimens.
Scape scarcely longer than the 1. article of the funicle.	Scape much longer than the first article of the funicle.
Ocelli as far from the inner orbits as from the posterior margin of the head.	Ocelli a little nearer to the posterior margin of the head than to the inner orbits.
Anterior wings slightly smoky.	Anterior wings rather intensively smoky (in f. macropt.) with darker spots in the distal part of the wing.

Genus *Dinocarsiella* MERCET

*Dinocarsiella* MERCET, Faun. Ibér., Him. Encírt., p. 145, 690. 1921.

*Dinocarsiella* NIKOLSKAJA, Chalcidy fauny SSSR, p. 353, 1952.

## Female

Head seen from above almost quadrilateral, moderately broadening anteriorly, broader than the thorax, finely reticulated, with sparse light hairs; posterior margin sharp. Frons very broad. Ocelli small, arranged in an equilateral triangle, very far from the inner orbits. Eyes large, placed anteriorly; temples well developed. Cheeks long, strongly converging towards the mouth. Mandibles with two teeth. Maxillar palpi of four articles, labial palpi of three articles. Antennae long jointed in the plane of the lower margin of the eyes composed of the flattened and moderately broadened scape of the pedicel, which is shorter than the following article, of the funicle composed of six articles, which are much longer than broad, and of the cylindrical club of three articles, a little broader than the articles of the funicle.

Pronotum short. Mesoscutum well developed, without parapsidal furrows. Scutellum of triangular shape, as long as the mesoscutum. The wings succumb very often to partial reduction, and we find continuous transitions from short-winged to macropterous forms; in the brachypterous forms the anterior wings are obliquently truncate. Marginal vein very short; post-marginal vein well developed, almost as long as the stigmal one; anterior wings with four striking dark transversal zones bent at the inferior margin; linea calva short. Posterior wings very narrow, hyaline. Legs long, spur of the middle pair a little shorter than the metatarsus; posterior tibiae with one spur.

Abdomen of triangular shape. The ovipositor does not project.

## Male

It greatly resembles the female in the form and coloration of the body. It is distinguished only by the somewhat smaller eyes, the broader frons, the very long antennae with longer hair; scape cylindrical, bent not broadened at the end; pedicel very short, articles of the funicle very long, gradually shortening towards the end of the antenna, club long, undivided, abdomen posteriorly broadly rounded.

The genus was established by MERCET 1921, who designated as the type of the genus his species *Dinocarsiella zebrata* MERC. This species was described but by GIRAULT nearly in 1917 as *Anagyrus alpinus* GIR. as stated GAHAN in 1951. Specimen described by GIRAULT has origin in Switzerland and was bred by Robert NEWSTEAD in 1899 from a *Coccide Dactylopius glaciale* NEWST. from the level of 4.000 feet.

**Dinocarsiella alpina GIRAULT.**

*Anagyrus alpinus* GIRAULT, Descr. stell. nov., p. 5. 1917.

*Dinocarsiella zebrata* MERCET, Faun. Ibér., Him. Encirt., p. 145, 191. 1921.

*Dinocarsiella zebrata* NIKOLSKAJA, Chalcidy fauny SSSR, p. 354. 1952.

*Dinocarsiella alpina* GAHAN, Canad. Entom., LXXXIII., p. 17. 1951.

This species is very striking by two broad, longitudinal yellow zones on the head, one yellow zone running in the middle of the pronotum and mesoscutum, and the very specific dark drawing on the anterior wings (Pl. I, fig. 3); it has been known up till now only from the southernmost part of Europe (Switzerland — GIRAULT, Spain, Portugal — MERCET, Italy — MASI); it has not yet been recorded from Central Europe, notwithstanding its being so striking. Thus its occurrence in Czechoslovakia is very remarkable, especially in Northern Bohemia on the Říp, where it is an interglacial relict. In the warmest localities of Southern Moravia and Southern Slovakia it seems to be most abundant, especially in the places with extensive growths of *Sedum*.

Similarly as in Southern Europe brachypterous and macropterous forms occur in Czechoslovakia, with continuous transitions between them; I have not yet found forms with very reduced wings (micropterous forms); the shortening of the wings is typical (obliquely truncate end) and in rest the wings are vertically oriented. In view of the continuous transitions with regard to the development of the wings I do not distinguish in listing the localities between the brachypterous and macropterous forms.

**Distribution:** Switzerland, Spain, Portugal, Italy, Czechoslovakia.

**Localities in Czechoslovakia:**

♂ Bohemia sept.: Mountain "Říp" (steppe vegetation on a basaltic substratum) 12. VII. 1943 (7 spec.). Moravia merid.: Pavlovské kopce: Svatý Kopeček near Mikulov (steppe vegetation on limestone) 18. VII. 1952 (35 spec.); Klausen (ibid.) 16. VII. 1952 (6 spec.) Slovakia merid.: Nitra (hill "Zobor", steppe on limestone) 22. VI. 1948 (7 spec.). Slovakia orient.: Kevežď (step on the hill "Velký Kevežď", andesite) 5. VIII. 1950 (1 spec.), lgt. et coll. Dr. A. Hoffer.

♀ Bohemia sept.: Mount. "Říp" (ut supra) 12. VII. 1943 (4 spec.). Moravia merid.: Pavlovské kopce: Svatý Kopeček near Mikulov (ut supra) 18. VII. 1952 (12 spec.); Klausen (ut supra) 16. VII. 1952 (2 spec.). Lgt. et coll. Dr. A. Hoffer.

**Genus *Ectroma* WESTWOOD**

*Ectroma* WESTWOOD, Philos. Mag., III., p. 344. 1833.

*Aglyptus* FÖRSTER, Hym. Stud., II., p. 33. 1856.

*Ectroma* MAYR, Verh. K. K. Zool.-bot. Ges., Vienna, XXV., p. 766. 1875.

*Ectroma* THOMSON, Skand. Hym., IV., p. 125. 1875.

*Ectroma* MERCET, Fauna Ibér., Him. Encirt., p. 154. 1921.

*Ectroma* NIKOLSKAJA, Chalcidy fauny SSSR, p. 355. 1952.

The genus was established by WESTWOOD (1833) and the species *Eupelmus* (?) *rufus* DALMAN was designated as its type. FÖRSTER 1856 described the genus *Aglyptus* with the type *lindus* THOMS., which is a



synonym of *Ectroma rufum* DALM. MAYR (1875), THOMSON (1875) and MERCET (1921) redescribe and supplement WESTWOOD's diagnosis.

In addition to the type of the genus, *E. rufum* (DALM.) several other species have been described in this genus; they are: *dunense* SIX (1876) from Java, *maderense* WALKER (1872) from Madeira, *reate* WALKER (1847) from Florida, and *americanum* HOWARD (1898) from New Mexico; the latter was later placed by COMPER (1947) in the separate genus *Ectromatopsis* COMP. *Sphenolepis pygmaea* of NEES is probably *Choreia inepta* (DALM.), not an *Ectroma*.

The main characters of the genus are:

#### F e m a l e

Head lenticular, broad. Ocelli in a considerably obtuse-angular triangle. Antennae long, with the scape moderately flattened, lengthened, the pedicel shorter than the first article of the flagellum, the funicle composed of articles, which are longer than broad, shortening towards the end, and the club white and divided into three articles. Pronotum relatively large, as long as the mesoscutum; the latter relatively short, with developed parapsidal furrows. Scutellum triangular, with two deep pits at the base developed only in the brachypterous forms. The rudiments of the wings do not reach the posterior margin of the propodeum, which is relatively long. The anterior wings of the macropterous form are narrow, with a very long marginal nerve, as long as the stigmaticus; postmarginalis suppressed. Wings smoky as in the g. *Dinocarsis*, less markedly. Legs normal. Abdomen pointed, ovipositor distinctly projecting.

#### M a l e

Very similar to the female; pedicel much shorter than the first article of the funicle; club black, undivided, abdomen truncate at the end.

The only European species *Ectroma rufum* (DALMAN) is rust-coloured, with a darker brown abdomen, with a strong, somewhat metallic lustre, with a larger part of the antennae black, club white in the male black. The winged form is very rare, known only in the female sex; in this form the wings are smoky, with a light transversal zone in the distal third. The ovipositor in the family occupies  $\frac{1}{4}$  of the length of the abdomen.

This species is distributed over almost the whole continent and it is often recorded in the literature; nevertheless I do not yet know it from the territory of Czechoslovakia. Its absence in the vast material, which we have at our disposal is difficult to explain; we have to assume that in the last fifteen years in which systematic chalcidological research was carried out this species has become so rare under the influence of the changed living conditions that it approaches complete extinction.

Genus *Dusmetia* MERCET

*Dusmetia* MERCET, Fauna Ibér., Him. Encírt., p. 151. 1921.

*Dusmetia* NIKOLSKAJA, Chalcidy fauny SSSR, p. 355. 1952.

The genus was established by MERCET in 1921 after the only species then known, *D. ceballosi* MERC. which at the same time he described and designated as the type of the genus. Shortly after this (1922) RUSCHKA described from Austria the species *Blastotothrix pulex*, which is another incontestable member of this genus, without knowing MERCET's monograph. Since then no further species of the genus *Dusmetia* has been described.

Both species known today occur in Czechoslovakia; the genotype seems to be in our latitude mostly parthenogenetic, as only one male has been found in Czechoslovakia. The other species, *D. pullex* RUSCHKA is abundantly known in Czechoslovakia in both sexes, but the male has not yet been described. Below I give its diagnosis; a comparison with the male of the other species is, however, very difficult because of the considerable resemblance between them.

Of the species *Dusmetia pulex* RUSCHKA I have been able to ascertain also normally winged (macropterous) females, which had not been known as all in this genus. These winged forms at last confirm with certainty that the placing of the genus *Dusmetia* in the affinity of the genus *Dinocarsis* FÖRST. is correct, for also the character of the drawing corresponds to the schema of this group. They occur in Czechoslovakia only in mountain localities, i. e. at the vertical limit of the area, so that they have evidently an importance for the spread of this species.

## Females

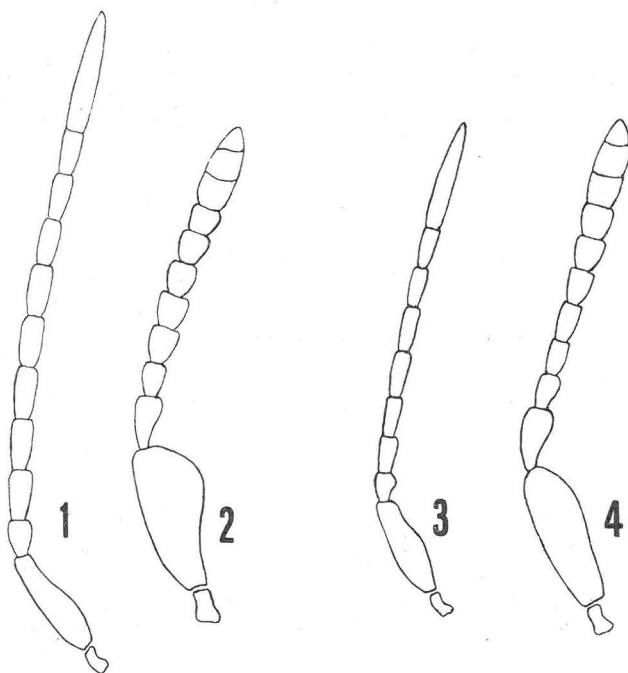
Habitus massive, stocky. Colour non-metallic, light; body very finely granulate, with very short, dense, tough, white hair.

Head seen from above broadly ellipsoid, terminated straight in front sharply posteriorly, little vaulted. Frons broad. Ocelli small, arranged in an obtuse-angular triangle, the posterior two far from the inner orbits. Face very moderately depressed. Eyes large, temples insignificant. Cheeks short. Mandibles with two teeth. Maxillary palpi of three articles, labial palpi of two. Antennae long, thin, with yellowish white parts, jointed near the mouth opening. Scape flattened, somewhat broadened; pedicel longer than the first article of the funicle; funicle composed of six articles which are a little longer than broad; club of three articles, broader than the funicle.

Pronotum narrower than the mesoscutum, short anteriorly converging. Mesoscutum short, transverse, with well developed parapsidal furrows. Scutellum very broad, short, posteriorly broadly, transversally truncate; axillae relatively narrow. Wings rudimentary, of insignificant size, only exceptionally well-developed; no transition forms. In the macropterous form the marginal vein of the anterior wings is short and narrow, as long as the postmarginal vein is much longer, broadened at the end. The base of the wing and two transversal zones in the distal part of the wing are

smoky; linea calva short. Posterior wings narrow, hyaline. Legs relatively thin, but not long.

Abdomen composed of the well developed first and second tergites the latter very broad, rounded; the other tergites very short, transversal scarcely visible. Ovipositor hidden.



*Dusmetia pulex* (RUSCH.): 1 male feeler, 2 female feeler.  
*Dusmetia ceballosi* MERC.: 3 male feeler, 4 female feeler.

### Males

Very similar to the female in shape and coloration, distinguished by the somewhat broader frons, the smaller eyes, the well developed temples, and the very long antennae, without larger white parts, with longer hair; scape moderately broadened in the middle part; articles of the funicle cylindrical, very long and approximately of the same length; club a little broader, undivided, lengthened into a tip. The winged form of this sex is not known. Abdomen shorter, more intensively coloured than in the female, rounded at the end.

Typus generis: *Dusmetia ceballosi* MERCET.

Biology. The chalcidological literature does not contain any remarks on the biology of the species of the genus *Dusmetia*. Professor

Frant. Gregor, Brno, had, however in his collection several specimens of the species *D. ceballosi* MERC. to which was added the remark "Reared from Coccids", without a more accurate determination of the host.

### Key to the Species of the genus *Dusmetia* MERCET

#### Females

Funicle with basal three articles black, the remaining three articles white, club brown . . . . . *D. ceballosi* MERCET.  
 Funicle with the first five articles dark, the last article and the club yellowish white . . . . . *D. pulex* RUSCHKA.

#### Males

Articles of the funicle strongly elongated, the last two  $2\frac{1}{2}$  times as long as broad . . . . . *D. ceballosi* MERCET.  
 Articles of the funicle distinctly stronger (cp. fig.), last two twice as long as broad . . . . . *D. pulex* RUSCHKA.

### *Dusmetia ceballosi* MERCET

*Dusmetia ceballosi* MERCET, Fauna Ibér., Him. Encirt., p. 152. 1921.

*Dusmetia ceballosi* NIKOLSKAJA, Chalcidy fauny SSSR, p. 355. 1952.

#### Female

Size: 0.6—1.0 mm.

Head, thorax and abdomen brick-red, tegulae white with brownish tip; first abdominal tergite at the end often blackish, last one vividly red. Eyes dark; ocelli ruby red. Scape on the dorsal side dirty white; inner side light brown except for a narrow white zone at the dorsal margin; on the outer side a dark brown zone runs through the middle in its whole length; below it is a white zone, and the inferior margin as again bordered blackish brown; pedicel in the basal part black, in the distal part white; first three articles of the funicle blackish brown, the remaining three articles white, club brown. Legs dirty yellowish white, posterior femora and tibiae a little darker, claws dark.

Head distinctly broader than the anterior part of the thorax. Frons fully as broad as  $1\frac{1}{2}$  times the transversal diameter of the eyes. Ocelli arranged in a moderately obtuse-angular triangle, distance of the posterior two from the inner orbits equalling their distance from the posterior margin of the head and half the distance between them. Eyes large, not protruding, temples almost completely suppressed. Face very moderately depressed. Antennae as long as the head, thorax and first abdominal tergite together, scape moderately flattened, in the middle third only very moderately broadened; pedicel almost as long as the following two articles together; funicle composed in the basal part of narrow and long articles, in the distal half of much broader articles which are approximately as long as broad; club distinctly of three articles, slightly shorter than the last three articles of the funicle together, as broad as the funicle. Ratio of the lengths of scape pedicel, funicle and club 32.5 : 15 : 42 : 19.

Pronotum very short, broad. Mesoscutum very short, with strongly diverging parapsidal furrows. Tegulae small, narrow. Scutellum transverse, as long as pronotum and mesoscutum together, posterior margin broadly truncate; axillae small, with the points considerably far from each other. Propodeum very short broad. Rudiments of the wings very small, as long as the length of the tegulae strongly smoky. Legs relatively thick, not particularly long; middle metatarsus  $2\frac{1}{2}$  times as long as broad, spur a little shorter.

Abdomen in the basal part a little broader than the thorax, posterior part triangular, with a rounded end.

### Male

Size: 0.6 mm.

Similar to the female. Scape blackish brown in the distal fourth white, inner margin bordered white; pedicel blackish brown, funicle lighter, end and club a little darker.

Frons twice as broad as the transversal diameter of the eyes. Eyes smaller than in the female. Distance between the posterior two ocelli only slightly greater than their distance from the inner orbits. Antennae longer than head, thorax and abdomen together; scape moderately flattened, in the middle part slightly broadened, longer than the first two articles of the funicle; pedicel short, longer than half the following article; articles of the funicle longest in the middle part, slightly shortening towards both ends; the last two articles are  $2\frac{1}{2}$ —3 times as long broad; club as broad as the funicle, much longer than its last two articles together, narrowing towards the end, pointed. Ratio of the lengths of scape, pedicel, funicle and club 20 : 6 : 8 : 19.

Abdomen distinctly broader than the thorax, short, posteriorly broadly rounded.

Distribution: Spain, Czechoslovakia.

### Localities in Czechoslovakia:

♂ Slovakia merid.: Kováčovské kopce (steppe on andesite) 15. IX. 1947 (1 spec.). Lgt. et coll. Dr. A. Hoffer.

♀ Bohemia centr.: Řeporyje near Prague (steppe on limestone) 7. VI. 1950 (10 spec.). Bohemia sept.: České Středohoří: Říp (steppe on basalt) 22. VI. 1943 (2 spec.); Hazmburk (steppe on basalt), 6. VII. 1943 (1 spec.); Lovoš (steppe on basalt) 18. VI. 1950 (1 spec.); Moravia merid.: Pavlovské kopce (steppe on limestone) 7. IX. 1945 (1 spec.); Pouzdrány (loess steppe on the hill "Kolby") 6. VII. 1945 (1 spec.); Čejč near Hodonín (steppe on loess) VI. 1940 (2 spec.); Moravia centr.: Hády near Brno (steppe on limestone) 14. VII. 1941 (1 spec.); Slovakia merid.: Štúrovo (Parkán) (steppe formation on loess on the southern slope of the Belanské kopce) 5. VI. 1947 (2 spec.); Štúrovo-Ebed (steppe loess valley near the Danube) 1. VII. 1947 (1 spec.); Kováčovské kopce (steppe on andesite) 15.—17. IX. 1947 (8 spec.); Slovakia orient.: Somotor (psammophile vegetation on the northern slope of the hill "Kevežd") 7. VII. 1950 (5 spec.). Lgt. et coll. Dr. A. Hoffer.

**Dusmetia pulex (RUSCHKA)***Blastothrix pulex* RUSCHKA, Verh. Zool.-bot. Ges. Vienna, LXXII., p. 3. 1922.**F e m a l e**

Size: 0.7—1.0 mm.

Head and thorax brownish red, abdomen darker. Eyes dark; ocelli dark brown. Scape on the dorsal side white; the inner side light brown except for a narrow white zone at the dorsal margin; on the outer side two longitudinal zones, blackish brown and white respectively run through the middle of the scape in its whole length; lower margin bordered by another dark zone; pedicel in the basal half blackish brown, in the distal half white; the following five articles of the funicle blackish brown, the last article and the club yellowish white. Tegulae dark, with a white zone at the base. Legs light brown, in lighter coloured specimens whitish, lower margin of the posterior femora bordered white; claws black.

Head much broader than the anterior part of the thorax. Frons a little narrower than twice the transversal diameter of the eyes. Ocelli arranged in an equilateral triangle; the distance of the posterior two from the inner orbits is a little longer than their distance from the posterior margin of the head, and only slightly shorter than the distance between them. Eyes large, not protruding. Antennae a little shorter than the head, thorax and abdomen together. Scape flattened, in the distal part strongly broadened; pedicel shorter than the following two articles; the first article of the funicle a little longer than broad, the following two articles broadening considerably, the last three again slightly narrowing, as long as broad; club distinctly divided, as long as the last three articles of the funicle together; equally broad. Ratio of the lengths of scape pedicel, funicle and club 29 : 10 : 40 : 18.

Pronotum short, broad. Mesoscutum a little longer than the pronotum, with the parapsidal furrows slightly indicated and strongly diverging. Tegulae small, scale-like. Scutellum as long as pronotum and mesoscutum together, broader than long, posterior margin broadly truncate; axillae with the points touching each other. Propodeum very short, broad. Rudiments of the wings somewhat varying in size, but not longer than three times the length of the tegulae; strongly smoky. Anterior wings in the macropterous form normally developed, with the submarginal vein interrupted at the end; marginal vein as broad as the submarginal one, twice as long as broad; radius relatively short, straight at the end considerably broadened; postmarginal vein a little shorter than the marginal one. Basal third of the wing smoky, with dark hair, in the distal third one dark, narrow zone broken inwards, and a dark broad, triangular spot at the tip of the wing; neighbourhood of the marginal and stigmal veins slightly smoky; in the opposite part of the wing a small, dark, rounded spot; the other parts of the wing hyaline, with transparent hair; linea calva elliptic, short; marginal ciliation well developed. Posterior wings very narrow, hyaline. Legs relatively thick, not particularly long; middle metatarsus  $2\frac{1}{2}$  times as long as broad, spur relatively broad, slightly shorter.

Abdomen as broad as the thorax, posterior part triangular, moderately rounded.



## Male

Size: 0.5—0.9 mm.

Similar to the female in coloration and shape. Scape on the dorsal side brown, on both sides at the upper margin with a broad, longitudinal brown zone; only the lower part of the scape and its distal end are white; pedicel darker coloured, funicle and club distinctly lighter. Tegulae at the base with a broad white zone. Posterior part of the abdomen vividly red coloured.

Head much broader than the thorax. Frons equalling twice the width of the transversal diameter of the eyes dorsally seen. Ocelli in an equilateral triangle; distance between the posterior two only slightly greater than their distance from the inner orbits. Antennae much longer than the head, thorax and abdomen together. Scape slightly flattened, in the basal two thirds very slightly broadened, as long as the first two articles of the funicle together; pedicel short, a little longer than half the following article; articles of the funicle equally broad, moderately shortening towards the end of the antenna; the last two articles twice as long as broad; club in width not exceeding the funicle, distinctly longer than the last two articles, narrowing towards the end. Ratio of the lengths of scape, pedicel, funicle and club 23 : 55 : 60 : 24.

Mesoscutum with the parapsidal furrows very wellmarked. The winged form is not known in the male sex.

Abdomen much broader than the thorax, relatively short, posteriorly rounded.

Distribution: Austria, Czechoslovakia.

## Localities in Czechoslovakia:

♂ *Forma brachyptera*:

Bohemia merid.: Horní Sněžná in the Šumava (mountain meadows at an altitude of 800—1000 m above sea level) 15. VII. 1946 (6 spec.); Husinec near Prachatice (xerothermic 400—500 m above sea level) 31. VIII. 1950 (5 spec.); Třeboň (psammophile vegetation on sandy banks of ponds) 8. IX. 1941 (6 spec.); Mažice (peat-bog) 13. VI. 1944 (6 spec.); Moravia merid.: Hodonín (sands with psammophile and swamp vegetation) 25. V. 1941 (1 spec.); Újezdec (xerothermic) 30. VIII. 1942 (1 spec.); Moravia orient.: Velká Javorina (mountain meadows at the altitude of 900—1000 m above sea level) 12. VII. 1941 (1 spec.); Slovakia merid.: Štúrovo (Parkán) steppe formation on loess on the southern slope of the Belanské kopce) 5. VI. 1947 (1 spec.).

♀ *Forma brachyptera*:

Bohemia merid.: Husinec near Prachatice (xerothermic 400—500 m above sea level) 31. VIII. 1950 (1 spec.); Třeboň (psammophile veg.) 8. IX. 1941 (6 spec.); Lomnice n. Luž. (sandy bank of the pond "Velký Tisý") 8. VIII. 1944 (2 spec.); Ponědražka (peat-bog) 11. VII. 1945 (1 spec.); Bohemia orient.: "Velké Dářko" (peat-bog) 31. VII. 1944 (1 spec.); Moravia merid.: Hodonín (sands with psammophile and swamp veg.) 25. V. 1941 (1 spec.); Šardice (psammophile vegetation in the region of "Moravská Sahara") 5. IX. 1942 (1 spec.); Moravia orient.: Velká Javorina (mountain meadow 900—1000 m above sea level) 12. VII. 1941 (2 spec.); Slovakia merid.: Štúrovo (Parkán) steppe formation on loess on the southern slope of the Belanské kopce) 5. VI. 1947 (10 spec.). Lgt. et coll. Dr. A. Hoffer.

♀ *Forma macroptera* (nova):

Bohemia merid.: Horní Sněžná in the Šumava (mountain meadow at the altitude of 1000 m above sea level) 15. VII. 1943; Klet' in the Šumava (undergrowth of beech forest at an altitude of about 1000 m above sea level) VII. 1944 (2 spec.). Lgt. et coll. Dr. A. Hoffer.

Remark: The male of the species *D. pulex* is very difficult to distinguish from the species *D. ceballosi*. Fine differences are visible only on the antennae, which show especially a different coloration of scape and pedicel; the articles of the funicle are in the species *D. ceballosi* relatively thinner and longer than in the species *D. pulex*.

Genus *Aquaencyrtus* n. gen.

Female

Habitus similar to the genus *Dusmetia*, but slimmer. Coloration non-metallic, dark. Hair of the body short, light. Sculpture leathery, shiny.

Head seen from above narrowly lenticular, posterior margin strongly emarginated; in an anterior view almost circular, flat. Frons very broad. Eyes small; temples strongly developed. Ocelli very small, considerably distant from the inner orbits and from the posterior margin of the head. Face with a shallow depression. Mandibles with two teeth. Maxillary palpi of three, labial palpi of two articles. Jointing of the antennae near the mouth opening. Antennae as long as the thorax with the first abdominal tergite; scape cylindrical; pedicel longer than the following article; funicle with the articles moderately longer than broad, broadening towards the end; club indistinctly divided, long, moderately pointed at the end.

Thorax with very fine and scattered punctation in the leathery sculpture. Pronotum very well developed, relatively long, converging anteriorly. Mesoscutum short. Tegulae small. Scutellum short, posteriorly broadly rounded. Propodeum broad. Wings very strongly reduced; the macropterous form is not known. Legs relatively short, robust, middle metatarsus short.

Abdomen dorsally apparently composed of two tergites, the first transverse and the last of triangular shape; the other tergites are suppressed, hidden under the posterior margin of the first tergite. Ovipositor not projecting.

Male

Similar to the female in coloration and shape, on the whole slimmer. Ocelli a little larger. Antennae very long and thin; scape cylindrical, shorter than in the female; pedicel short; articles of the funicle very long; club elongated, pointed; the whole antennae with more distant hair. End of the abdomen rounded.

Typus generis: *Aquaencyrtus bohemicus* n. sp.

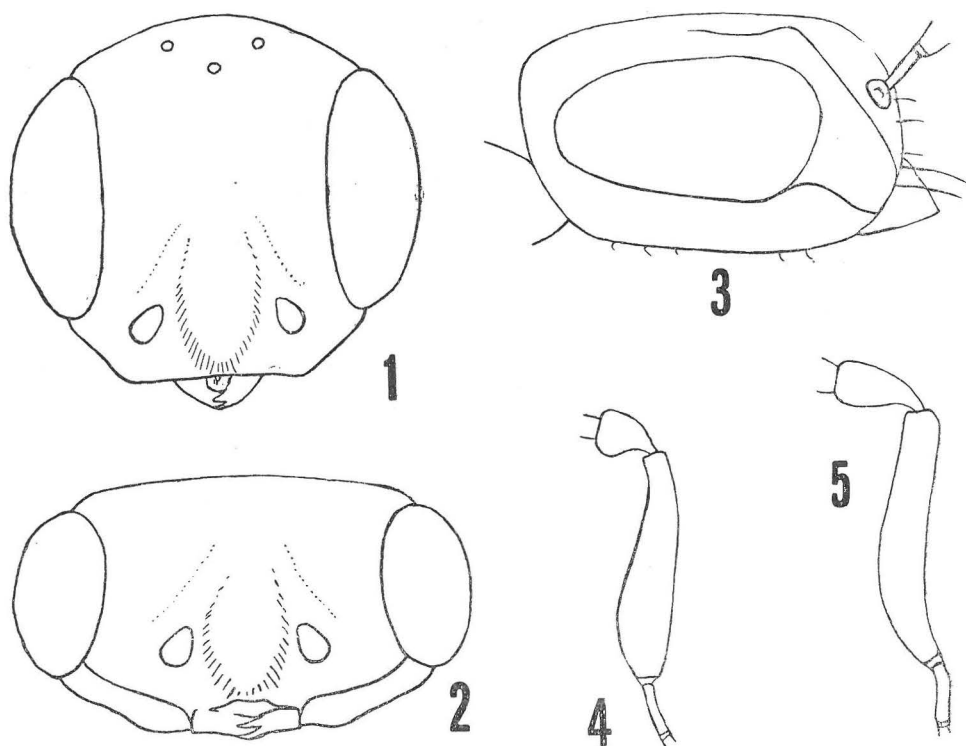
*Aquaencyrtus bohemicus* n. sp.

## Female

Size: 0.8—0.9 mm.

Body entirely black; antennae at the end somewhat brownish; distal end of scape and pedicel lighter coloured; legs light brown, last article of the tarsus and claws blackish.

Head from above narrowly lenticular, with the anterior margin only very slightly convex; posterior margin strongly emarginated; the circular outline anteriorly above the mouth broadly truncate. Frons as broad as twice the transversal diameter of the eyes, flat. Eyes relatively small, not prominent; temples as broad as one third of the width of the frons. Ocelli of small size, placed in a slightly obtuse-angular triangle. The posterior two separated from each other by a distance about as great as their distance from the inner orbits and from the posterior margin of the head. Facial depression of oval shape. Cheeks well developed. Mandibles with two teeth, slender; teeth sharp, lower tooth a little longer. Antennae as long as the thorax together with the first abdominal tergite; scape distinctly bent;



*Aquaencyrtus bohemicus* HFFR. 1, 2 and 3 head of the female anteriorly, ventrally and laterally; 4 lift scape and pedicel of the male; 5 the same of the female.

pedicel of normal shape, longer by one half than the first article of the funicle; first three articles of the flagellum distinctly longer than wide, the remaining three articles moderately broadening, approximately as long as broad; club as broad as the funicle, as long as the three preceding articles, indistinctly divided. Ratio of the lengths of scape, pedicel, funicle and club: 8 : 4 : 13.5 : 7.

Pronotum relatively long, anterior part strongly converging, posterior margin straight. Mesoscutum very short, narrower than the pronotum at the base, three times as broad as long, with very well developed parapsidal furrows which are strongly diverging. Tegulae small, patelliform. Scutellum short,  $1\frac{1}{2}$  times as long as mesoscutum, broadly rounded posteriorly, with small axillae distant from each other. Propodeum very broad, posteriorly ending rectangularly; the postbicolateral corners with very long, dense, white hair. Rudiments of the wings of the size of the tegulae; middle metatarsus short,  $2\frac{1}{2}$  times as long as broad; spur a little shorter.

The first abdominal tergite is twice as broad as long, forming the posteriorly moderately broadening half of the total length of the abdomen. Last tergite triangular, ending bluntly.

#### Male

Size 0.8 mm.

Coloration as in the female, only the pedicel entirely black. Antennae as long as broad, thorax and abdomen together; with short and sparse hair; scape relatively shorter, in the basal part moderately broadened; pedicel slightly longer than broad; first articles of the funicle very long 3 times as long as broad, the last two a little shorter, club undivided, a little broader than the funicle, as long as the preceding two articles together, pointed at the end. Ratio of the lengths of scape, pedicel, funicle and club 10 : 2.5 : 5 : 30 : 10. Abdomen broadly rounded at the end. For the rest similar to the female.

Distribution: Czechoslovakia.

Localities in Czechoslovakia:

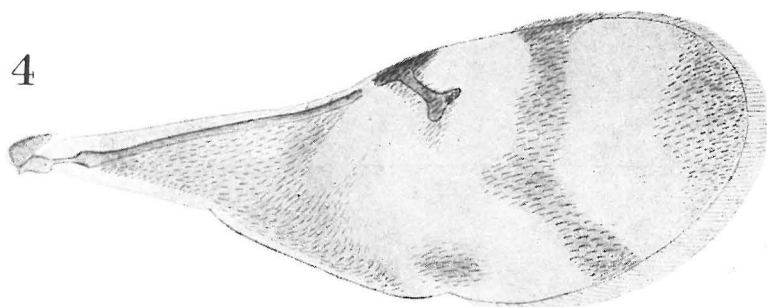
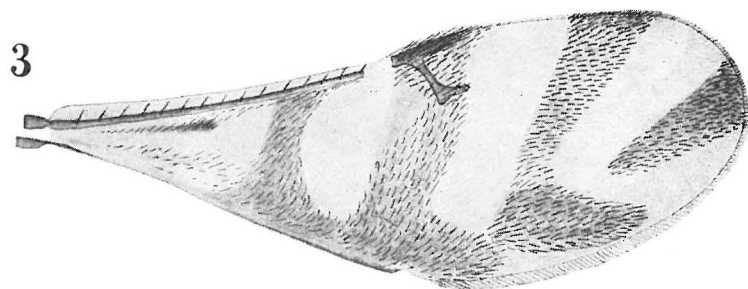
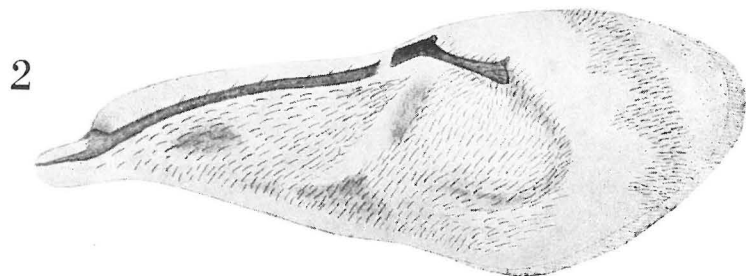
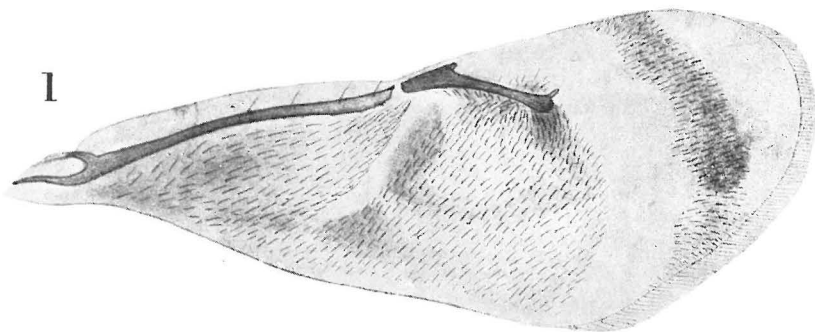
♂ *Allotype*: Bohemia merid.: Lomnice n. Luž. (on aquatic veget. of the State Pond Reservation "Velký Tisý") 16. IX. 1943. *Paratype*: ibid. Lgt. et coll. Dr. A. Hoffer.

♀ *Holotype*: Bohemia merid.: Lomnice n. Luž. (ut supra) 16. IX. 1943. *Paratype*: ibid. Lgt. et coll. Dr. A. Hoffer.

## Seznam literatury — Bibliography

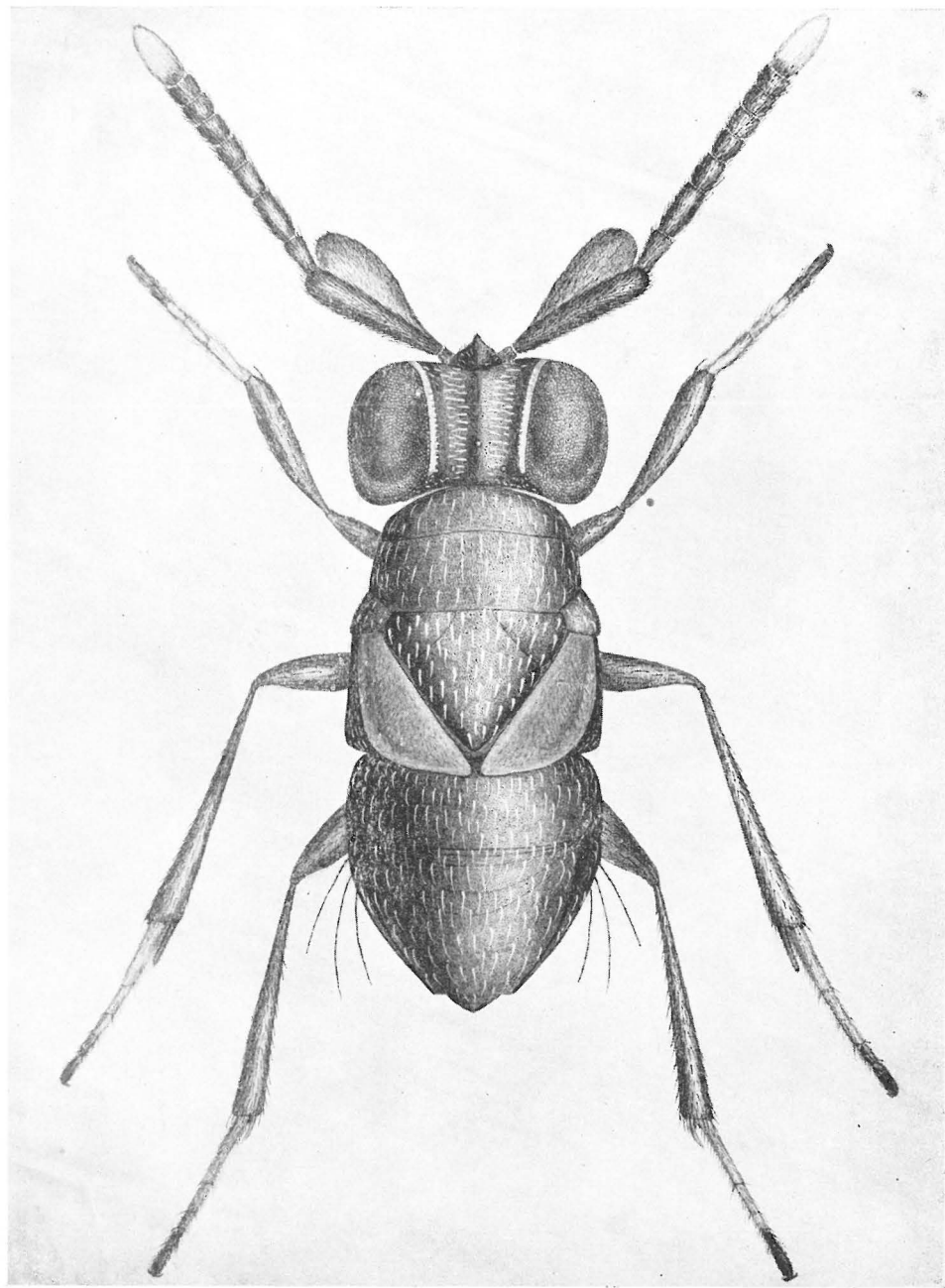
1. ASHMEAD W. H., The canad. Entom., XVIII, p. 97. 1886.
2. ASHMEAD W. H., Entom. Amer., IV, p. 17. 1888.
3. COMPERE H., A report on a collection of Encyrtidae with descriptions of new genera and species. — Univ. Calif. Publ. Entom. Berkeley, VIII, p. 13. 1947.
4. COMPERE H., A report on some miscellaneous African Encyrtidae in the British Museum. — Bull. ent. Res. London, XXIX, p. 317. 1938.
5. DALMAN J. W., Törsök till uppställning af insectenfamiljen Pteromalini, i synnerhet med afseende på de i Sverige funne arter. — Svensk. Vet.-Akad. Handl., XLI, pp. 371, 383. 1820.
6. DAHLBOM A. G., Ofvers. Svensk. Vet.-Akad. Förh., XIV, p. 292. 1857.
7. DE GAULLE, Catalogue systématique et biologique des Hyménoptères de France. — Feuil. Jeun. Naturalr. 1906—1908.
8. FÖRSTER A., Hymenopterologische Studien, II, pp. 33, 36, 37. 1856.
9. FULMEK L., Wirtsindex der Aleyrodiden- und Cocciden-Parasiten. — Entom. Beih., X, p. 27. 1943.
- 9.a GAHAN A. B., Some synonymy and new combinations in Chalcidoidea (Hym.) Canad. Entom. LXXXIII, p. 171. 1951.
10. GIRAULT A. A., Host on Insect Eggparasites in Europa, Asia, Africa and Australia, with a supplementary American List. — Zeitschr. wissenschaftl. Insectenbiol., X, p. 117. 1914.
11. GIRAULT A. A., New Australian Chalcid-flies. — Insect. inscit. Washington, V, pp. 136—137. 1917.
- 11.a GIRAULT A. A.: Descriptiones stellarum novarum, p. 5. 1917.
12. GIRAULT A. A., Javanese Chalcid-flies. — Treubia, I, p. 57. 1919.
13. GIRAULT A. A., Miscellaneous species of Chalcid-flies from Australia (Hymenoptera, Chalcididae). — Insecutor Inscit. Menstr. Washington, IX, pp. 190—191. 1921.
14. GIRAULT A. A., Microscopitis, Womanitis and New Hexapoda. (Private print — 1923.)
15. GOMEZ J. G., Subsídios a sistemática dos Calcidoides brasileiros. — Bol. esc. nac. Agron., Rio de Janeiro, pp. 41, 43. 1942.
16. HOWARD L. O., On some new parasitic insects of the subfamily Encyrtinae. — Proc. U. S. Nat. Mus., XXI, p. 248. 1898.
17. MASI L., Note sui Calcididi raccolti in Liguria (1 ser.) — Res Ligusticae, XIV, p. 32. 1919.
18. MASI L., Reperti di Calcididi con note critiche e sinonimiche (Hym.). — Bull. Soc. Ent. Ital., Genoa, LXVI, p. 87. 1934.
19. MAYR G., Die europäischen Encyrtiden. — Verh. K. K. Zool.-bot. Ges. Wien, XXV, pp. 759—760, 766—767. 1875.
20. MERCET R. G., Fauna Ibérica. Himenópteros, fam. Encírtidos. Madrid, pp. 141—142, 145, 151—152, 690—692. 1921.
21. MERCET R. G., Encírtidos de Canarias. — Bol. R. Soc. Esp. Hist. Nat. Madrid, XXIII, p. 138. 1923.
22. MERCET R. G., Encyrtides et Aphelinides d'Égypte (Hym., Chalcididae). — Bull. Soc. R. ent. Égypte, Cairo, p. 46. 1925.
23. MERCET R. G., Algunos Calcididos de África. — Eos, VI, p. 223. 1930.
24. NEES AB ESENBECK CH. G., Hymenopterorum Ichneumonious affinium monographiae, genera europaea et illustrantes, II. Stuttgart, pp. 253, 256. 1834.

25. NIKOLSKAJA M. N., Chalcidy fauny SSSR (Chalcidoidea). — Opred. faun. SSSR., izdav. zool. inst. Akad. nauk SSR. Moskva-Leningrad 1952.
26. RUSCHKA F., Beiträge zur Kenntnis einiger Encyrtidengattungen (Hym., Chalc.). Verh. Zool.-bot. Ges., LXXII, pp. 1—2, 3—4. 1922.
27. SIX, Tijdschr. Entom., X, p. 221. 1867. Dtto: XIX. p. 134. 1876.
28. THOMSON C. G., Scand. Hym., IV, pp. 125—127. 1875.
29. WALKER F., Monographia chalciditum. — Ent. Mag., IV, pp. 150—151. 1837.
30. WALKER F., Ann. Mag. Nat. Hist., XX, p. 22. 1847.
31. WALKER F., Notes on Chalcid., VII, p. 116. 1872.
32. WESTWOOD J. O., Philos. Mag., III, p. 344. 1833.
33. WESTWOOD J. O., An introduction to the modern classification of insects, founded on the natural habits and corresponding organisation of the different families, II. — Syn. Gen. Ins., p. 72. 1840.

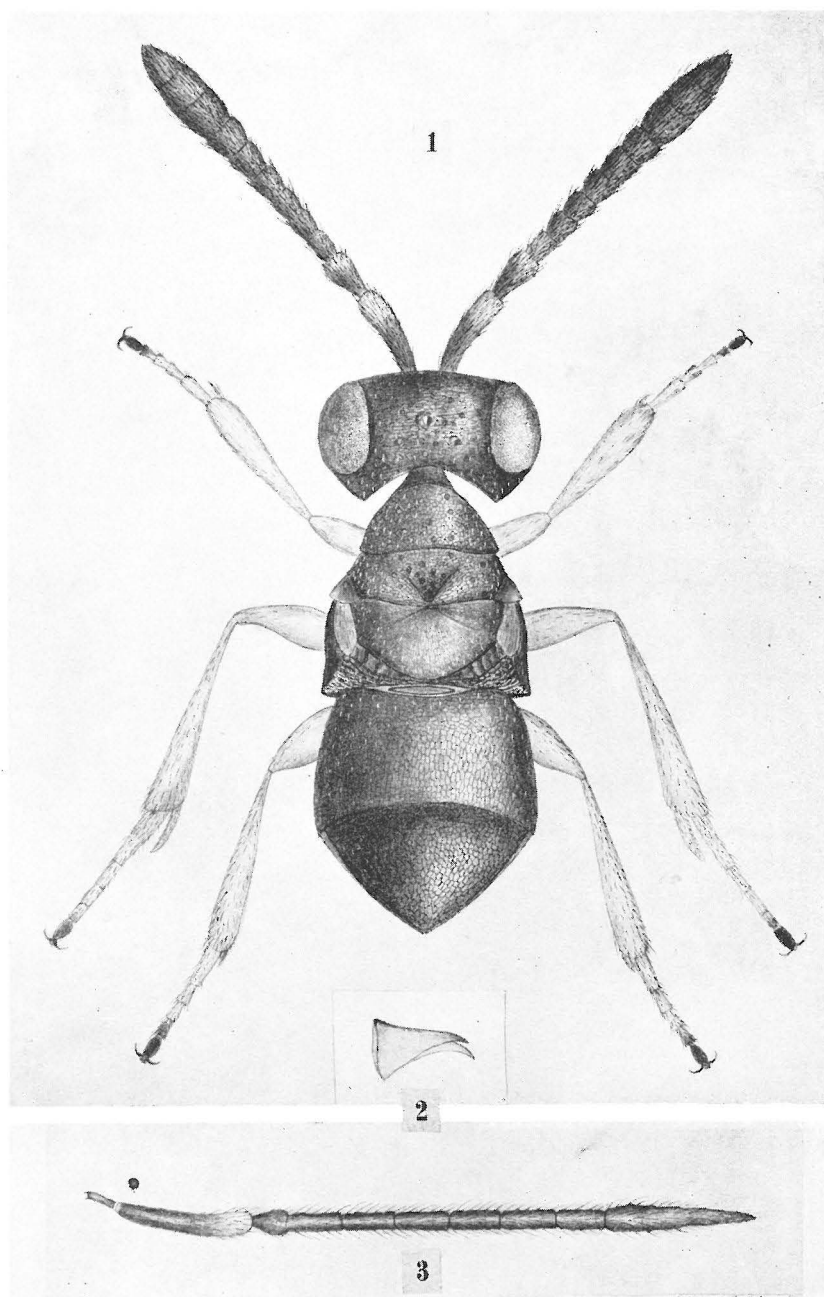


Anterior wings of the macropterous forms of Czechoslovak *Dinocarsiini*:  
 1: *Dinocarsis hemiptera* (DALM.); 2: *Dinocarsis submontana* HFFR; 3: *Dinocarsiella alpina* GIR.; 4: *Dusmetia pulex* RUSCH.





*Dicarnosis helena* HOFFER n. sp., brachypterous female; general view.



*Aquaencyrtus bohemicus* HFFR. n. gen. n. sp. 1: female, general view; 2 mandible; 3: antenna of the male.