Two new species of Dicyphus Fieber 1858 from the Iberian Peninsula and Canary Islands with additional data about the D. globulifer-group of the subgenus Brachyceroea Fieber 1858 (Hemiptera, Heteroptera, Miridae, Bryocorinae)

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Introduction

WAGNER (1951) in his revision of the genus Dicyphus Fieber 1858 divided it into four subgenera: Dicyphus s.str., Idolocoris DOUGLAS & SCOTT 1865, Mesodicphus WAGNER (as new) and Brachyceroea FIEBER 1858. The last subgenus was described by Fieber as a genus, later synonymised by REUTER (1875) with Dicyphus, restored to subgenus level by WAGNER (1941), and finally divided into four species groups by WAGNER (1951). WAGNER’S (1945, 1951, 1961, 1974) opinion was accepted in the catalogue of Palaearctic Heteroptera (KERZHNER & JOSIFOV 1999) and this is followed by us in the present work. The species studied in this paper belong to the D. globulifer-group characterised by the black head with a white spot at the inner borders of the eyes. In our opinion this is a practical group, but further studies will be necessary to clarify the systematic relationships in the subgenus Brachyceroea and the genus Dicyphus as a whole.

We describe below two new species of the subgenus Brachyceroea: Dicyphus (Brachyceroea) heissi nov.sp. and Dicyphus (Brachyceroea) matocqi nov.sp. Moreover, due to the problems with lectotype designation of Dicyphus (Brachyceroea) cerutti – in opinion of the junior author – the female of this species is redescribed. Additional data and drawings of the male and female genitalia of the available species of the globulifer-group are given and a dichotomous key for the species of this group is provided.

Description of the species

Dicyphus (Brachyceroea) heissi J. RIBES & BAENA nov.sp. (Figs 1-7)

Description:
Measurements (mm): Length, $\sigma = 3.25-3.70$; $\varphi = 3.10-3.25$; maximum width, $\sigma = 1.00-1.10$; $\varphi = 0.95$.
Habitus: Nearly parallel. Shining. General coloration yellowish. Head black with a large yellowish spot near each eye. Antennae: first joint black with the basal and apical parts yellowish; joints II and III black with the basal part yellowish; joint IV black. Rostrum yellowish with the base of the three first joints and all or the distal two thirds of joint IV black. Collar yellowish, narrowly black behind. Sides of pronotum and pronotal calli black; posterior pronotal disc of variable coloration, in some specimens yellowish, sometimes with the hind pronotal corners dark, in other specimens darkened or black with pale median line, variation not correlated with the geographical distribution of the specimens. Scutellum black with two yellowish calli and the fore corners sometimes ochraceous. Pro- and mesosternum black, metasternum darkened. Abdominal terga variable, usually more or less darkened, changing between yellow to the black. Hemelytra with the apices of the exocorium and cuneus black. Membrane hyaline with darker veins and vermiform ridges. Legs with the femora with large black spots. Tibiae darkened at base and with black spots on the apical two thirds. Tarsi with joint III darkened.

Dorsal vestiture dark, long and stout, sparse, inclined and regularly distributed. First antennal joint with only a few scattered setae. Two converging setae in the front over to antenniferous tubercles and others scattered on the remaining parts of the head. Hind tibiae with two rows (near 5+4) of short, brown, inclined spines that may be confused with the surrounding setae.

Head short, in anterior view 1.05-1.19 times as broad as high. Ocular index 1.45-1.60 (♂) and 1.60-1.70 (♀). Antenna: I-II-III-IV = 0.30-0.68-0.37-0.25 (Las Cañadas) and 0.28-0.60-0.38-0.25 (Sierra of Guadarrama). Joint II clavate 0.94-1.09 times longer than synthlipsis and 0.62-0.74 times longer than the width of pronotum. Rostrum slender, reaching the intermediate coxa. Collar thick, with or without discernible punctuation. Pronotum 1.62-1.75 times as broad as long, trapeziform, with the sides and the posterior border sinuate, calli prominent, smooth; posterior pronotal disc slightly convex, nearly smooth, at most with only very fine punctures, and weakly sculptured. Scutellum tectiform, nearly smooth basally and slightly convex and nearly smooth medially toward apex. Hemelytra parallel sided, clearly surpassing the end of abdomen. Ratio metatibia/metatarsus = 3.74-4.00.

Genitalia ♂: Right paramere lamelliform, very small, and with pointed apex (Fig. 2) Left paramere with the body short and the hypophysis short and weakly curved; crest of the hypophysis with the base rounded (Figs 3, 4). Phallus slender, weakly curved, with two proximate slender spiculi on basal third, theca slightly dente peapically (Fig. 5).

Genitalia ♀: Upper wall of the vagina lengthened, quadrangular, striated-granulated, with the sclerotized rings thin, angular and sharpened on anterior part, separated from the lateral oviducts on the upper part where these oviducts have a lengthened and peanut-shaped base. The vermiform gland appears from behind of the posterior border of the vagina. Receptaculum seminalis emerging from behind the right side of the anterior border of the vagina (Figs 6, 7).

**Derivatio nominis:** We have the pleasure to dedicate this new species to our friend and colleague Ernst Heiss on the occasion of his 70th birthday and in honour of his many contributions to the study of Heteroptera.

**Material studied:** Holotype, ♂: SPAIN, Madrid, Sierra de Guadarrama, Bola del Mundo, 18-VIII-

Host plant: unknown.

Discussion: *Dicyphus heissi* nov.sp. is close to *D. geniculatus* FIEBER based on the nearly erect, black, dorsal vestiture and the smooth yellowish collar, narrowly black behind. The new species can be easily separated from *D. geniculatus* by the clavate shape of the antennal joint II and the black cali on the anterior lobe of the pronotum separated by a white line; the shape of the left paramere with a short hypophysis slightly curved on the distal third; and the squared upper wall of the vagina that has the lateral oviduct arising from the upper part and the sclerotized rings angular and sharpened in front.

**Dicyphus (Brachyceroea) matocqi**

*Baena & J. Ribes* nov.sp. (Figs 8-14)

Description:

Measurements (mm): Length, ♂ = 3.00-3.70 ♀ = 2.80-3.40; maximum width, ♂ = 0.91-1.19 ♀ = 1.01-1.14.

Habits: Elongate oval. Shining. General coloration yellowish. Head black with a large yellowish spot bordering each eye. Antennae: first joint black with base and apex yellowish; joint II yellowish with the basal third black and the preapex dark; joint III black or dark with the base yellowish, sometimes entirely darkened; joint IV black or dark. Rostrum yellowish with the base of the first three joints and distal half part of the fourth joint black. Collar yellowish. Pronotal cali and sides of pronotum black; posterior pronotal corners darkened. Scutelum black with two yellowish cali. Pro- and mesosternum black; metasternum with dark spots. Abdominal terga becoming more darkened in some specimens. Helelytra with only the apex of cuneus darkened. Membrane hyaline with darker veins and vermiciform ridges. Femora with large black spots. Tibiae with dark spots on the anterior third and darkened at apices. Joint III of tarsi with the distal part darkened.

Dorsal vestiture pale yellow, very short, scarcely detectable, sparse, strongly inclined.

**Fig. 5**: *Dicyphus (Brachyceroea) heissi* J. Ribes & Baena nov.sp., Phallus (Scale bar = 0.1 mm).

**Fig. 7**: *Dicyphus (Brachyceroea) matocqi* J. Ribes & Baena nov.sp., Habitus (*Vestiture, punctures and granulation not shown; Scale bar = 1 mm).
and evenly distributed. First antennal joint with only a few scattered setae. Two converging setae in the front over to antenniforous tubercles and others scattered on the remaining parts of the head. One inclined seta toward the fore corners of pronotum. Hind tibiae with two rows (near 5+4) of short, brown, inclined spines easily distinguished from surrounding setae.

Head short, in anterior view 1.00-1.02 times as broad as high. Ocular index 1.25 (♂) and 1.31-1.33 (♀). Antenna: I-II-III-IV = 0.25-0.57-0.40-0.25 (♂) and 0.25-0.55-0.35-0.27 (♀). Joint II enlarged progressively to the apex, 0.88-0.93 times longer than synthlipsis and 0.60-0.64 times longer than the width of pronotum. Rostrum thin, reaching the intermediate coxa. Collar thick with deep punctures. Pronotum 1.34-1.44 times as broad as long, trapeziform with the sides and the posterior border concave, calli prominent, smooth; hind pronotal disc slightly convex, nearly smooth, with deep points separated by irregular and sinuous grooves. Scutellum triangular, tectiform, nearly smooth in the fore part, wrinkled across in the middle of the hind part. Hemelytra with the sides convex and slightly surpassing end of abdomen. Ratio metatibia/metatarsus = 3.30-3.55.

Genitalia ♂: Right paramere lamelliform, very small, with apex blunt (Fig. 9). Left paramere with the body lengthened and the hypophysis also long and strongly curved on distal third; crest of the hypophysis lengthened, with base sharp (Figs 10, 11). Phallus short, strongly curved, with two small and a few visible virguliform spiculi on distal third, theca slightly dentate preapically. (Fig. 12).

Genitalia ♀: Dorsal wall of the vagina scarcely lengthened, rectangular, striated-granulated with the sclerotized rings thin, angular, and sharpened anteriorly and near the lateral oviducts what appears by the sides and have a short and coil shaped base. Vermiform gland present on hind border of the vagina. Receptaculum seminalis emerging from behind right part of the fore border of the vagina (Figs 13, 14).

Derivatio nominis: The species is dedicated to our friend Armand Matocq for his...
help on this and other works and in recognition of his important contributions to the study of mirid female genitalia that have opened a great scope of possibilities in the systematics of this interesting family.


Host plant: The specimens were collected in a rupicolous Silene sp.

Discussion: This new species is close to *D. globulifer* (FALLEN) based on the inclined dorsal vestiture (never black), the granulated collar, and the granulated and sculptured posterior pronotal disc. *Dicyphus matocqi* nov.sp. can be easily separated from *D. globulifer* by the wide, pale, central ring on antennal segment II. The male of *D. matocqi* nov.sp. has a left paramere with a long and regularly curved hypophysis (like *D. annulatus*), whereas in *D. globulifer* the hypophysis is short and strongly curved on the distal third. The female of the new species has the upper wall of the vagina rectangular and the sclerotized rings angular and sharpened in front (similar to *D. heissi* nov.sp.), whereas in *D. globulifer* the upper wall of the vagina is triangular with the sclerotized rings completely elliptical.

Redescription of *Dicyphus* (*Brachyceroea*) cerutti WAGNER 1946 (Figs 15-17)

Measurements (mm): Length: ♀ = 2.12; maximum width = 0.77 (only one female studied).

Habitus: Broadly oval. Shining. General coloration yellowish. Head black with two occipital yellowish spots bordering inside margin of eyes. Antennal insertions bordered with yellow. Eyes dark brown. Antennae bicolor, yellow and dark brown; joint I dark brown with both extremes yellow; joint II brown with a middle ring yellow broader than the basal and distal dark rings; joints III and IV of the same length, brown with yellowish bases. Pronotum bicolor, black and yellow. Collar and fore lobe yellow with the sides invaded by the black colour of the pleura. Callus and sides of the fore lobe of pronotum shining black. Hind lobe of the pronotum nearly smooth, with small setigerous pits. Scutellum smooth, black, with two oval yellow spots at basal corners. Mesoscutellum black, with one pair of yellow spots near fore corners. Hemelytra and membrane yellow, hyaline, without dark spots. Ventral side black. Legs yellow; coxae darkened at the base; femora with rounded black spots on the upper and under sides. Distal part of the tarsi darkened.

Dorsal vestiture with semierect, long, stout brown setae. Costal border with dense setae, less stout than those of the hemelytra. Spines of the tibiae stout, brown, slightly longer than diameter of the tibiae.

Head short, in anterior view 1.31 times as broad as high; length, 0.25 mm; width, 0.52 mm. Eye width, 0.15 mm; Synthlipsis, 0.23 mm; Ocular index = 1.50; Antenna: I-II-III-IV = 0.15-0.33-0.18-0.18 mm; Joint II slightly clavate, 1.44 times longer than synthlipsis and 0.52 times longer than the width of pronotum. Collar length, 0.05 mm. Length of pronotum, 0.28 mm; Pronotum 2.27 times wider than long. Hind pronotal lobe with small piligereous pits and with the hind border very cut low. Scutellum triangular: length (including mesoscutellum) 0.30 mm, width (mesoscutellum) 0.43 mm; ratio
width/ length = 1.42. Length of the claval commissure, 0.43 mm; Length of the hemelytra, 1.55 mm; Hemelytra with subparallel sides; cuneal corner evident; short membrane. Length of hind tibiae, 0.88 mm; Length of hind tarsus, 0.28 mm; Ratio metatibia/ metatarsus = 3.18.

Genitalia ♀: we have not could study males.

Genitalia ♂: Upper wall of the vagina trapezoid, striated, with the sclerotized rings thin, oval, sharpened in the fore part, separated of the lateral oviducts that arising on the upper part; basal socle apparently absent. The vermiform gland appearing to originate from front of the hind border of the vagina. Receptaculum seminis emerging from the right part of the fore border of the vagina (Figs 16, 17).

Material studied: One female glued to a plastic card with the following labels: 1) 34, 02 (white hand-written with a red triangle in the lower part); 2) PARATYPE (red printed); 3) Schweiz, Wallis, Martigny, Cerutti (red, hand-written and printed); PARATYPAL Dicyphus minimus Cerutti (red, hand-written and printed); 4) PARATYPAL: Dicyphus minimus Cerutti (red, hand-written and printed); 5) Z.M.H. Hamburg (white, printed). The joints II, III and IV of the right antenna glued on the same card of the specimen. The genitalia have been prepared in DMHF on a plastic card and pinning on the same pin of the specimen. This specimen is cited as a paratype (J. RIBES & GOULA 1986) but the date is lacking and therefore, according IZCN, Art. 72.7 is not a valid type. The lectotype of DETHIER (1974), collected in 1939, is an invalid designation because the type series was captured in 1918 and 1936 (CERUTTI 1937). For this reason, RIEGER (2002) designated a lectotype of this species from the Mancini collection deposited in the Museo Civico di Storia Naturale “Giacomo Doria” at Genoa (TAMANINI 1956; MANCINI 1958). It is the junior author’s opinion that Rieger’s designation also is invalid because the year given for his lectotype, 1914, from the Mancini collection likewise is not included among type material listed in the original description: “Cette espèce a été trouvée à Saint-Oyen, versant sud du Grand Saint-Bernard, à

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1500 m., de septembre à novembre et en avril-mai, dans les touffes de Cerastium arvense, déjà en 1918, et retrouvée le 29.IX.1936, sur le coteau de Ravoire (Valais) 800 m. sur la même plante", CERUTTI (1937).

**Discussion on the D. globulifer-group**

We show that the illustrations of the parameres of *D. globulifer* (FALLEN 1829) and *D. geniculatus* FIEBER 1858, correctly interpreted in WAGNER (1951), appear inverted in WAGNER (1974) and WAGNER & WEBER (1964) (Heiss, pers. comm.). Also the character “Apikalteil des Cuneus schwarz” is always correct in *D. geniculatus*, but the opposite character “Spitze des Cuneus gleichfarben” is not always present in all the specimens of *D. globulifer*, especially in darker ones. For this reason, these characters are not used in our key to the species of this group. In addition, both species are confused in many collections (RIBES et al. 2004) because the total length, the ocular index, or and the cuneal spot are not valid characters to correctly separate *D. globulifer* and *D. geniculatus*; therefore, many Iberian records of the latter species must to be revised.

Also, our interpretation of the male parameres and phallus and upper wall of the female genitalia of *D. globulifer* is different from the drawings of CASSIS (1986). We think that his figures belong to *D. geniculatus* because in this species the hypophysis of the left paramere is evenly curved throughout its length, whereas in *D. globulifer* it is more strongly curved on the distal third. The phallus has two basal spiculi, a row of central small spines and a subdistal denticulate area, whereas in *D. globulifer* there are only two close basal spiculi, without small spines or a denticulate area. In the drawing of the superior wall of the vagina by CASSIS (1986), the sclerotized rings are more elongate than in our interpretation of *D. geniculatus*, but very different from those of *D. globulifer* sensu J. Ribes & Baena (present paper). Special attention is necessary when examining the parameres, the phallus and, especially, the vagina and all its components because these structures are easily deformed by manipulation during preparation for microscopic observations. The observations made by different authors frequently vary resulting in very different drawings of the same structures (J. Ribes 1992; E. Ribes & J. Ribes 2000). For example, the phallus of *D. (Brachyceroea) annulatus* (WOLFF 1804) was said to possess many spiculi ("in grösserer Zahl"), according to WAGNER (1951), and to be "without spiculi", according to CASSIS (1986).

We have not studied any specimens of *D. alluaudi* VIDAL 1952 because the three known paratypes, as well as the remaining heteropteran types of this author, are presumably lost (Péricart, pers. comm.). Nevertheless, the coloration of this species follow-

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**Figs 20-21: Dicyphus (Brachyceroea) geniculatus Fieber 1858. Vagina upwards and lateral view (Scale bar = 0.5 mm).**

**Fig. 22: Dicyphus (Brachyceroea) globulifer (Fallen 1829). Left paramere (Scale bar = 0.1 mm).**
ing the figure of Vidal's work will prevent confusion with similar species from the area. Also, we have not seen the types of *Dicyphus seleucus* Seidenstücker 1969, but this species has a slender body form and legs, very different from other species of this group and will prevent any possible confusion.

Key to the species of the *globulifer*-group (sensu Wagner 1951) of the genus *Dicyphus* (*Brachyceroea*)

1(8) Length up to 2.8 mm.


3(4) Antennal joint II cylindrical or enlarged progressively to the apex. Pronotal calli and median line black. Male: Left paramere with the hypophysis very long and evenly curved throughout length (Fig. 18). Phallus (Fig. 19). Female: upper wall of the vagina triangular with the lateral oviducts emerging at the sides; sclerotized rings oval and rounded around its perimeter. (Figs 20, 21) ............. D. geniculatus Fieber 1858

4(3) Antennal joint II clavate. Pronotal calli separated by a pale yellow median line. Male: Left paramere with short hypophysis weakly curved on distal third (Fig. 3). Phallus (Fig. 5). Female: upper wall of the vagina quadrangular with the lateral oviducts emerging on the upper part; sclerotized rings oval, angular and sharpened anteriorly. (Figs 6, 7) ............. *D. heissi* J. Ribes & Baena nov.sp.

5(2) Dorsum with brown or yellowish, strongly inclined hairs. Collar granulate, completely or partly pale yellowish. Pronotal hind disc granulate and strongly grooved.

6(7) Dorsal vestiture brown. Antennal joint II black. Collar pale yellowish anteriorly and generally darkened posteriorly, median line pale yellowish (with some exceptions in very dark specimens). Pronotal hind corners pale or dark according the general coloration of the pronotum. Male: left paramere (Fig. 22). Phallus (Fig. 23). Female: upper wall of the vagina triangular with the sclerotized rings oval, rounded around its perimeter. (Figs 24, 25) ............. *D. globulifer* (Fallén 1829)

7(6) Dorsal vestiture yellow. Antennal joint II black with base, apex, and a wide pale yellowish central ring. Collar uniformly pale yellow. Pronotal hind corners darkened. Male: left paramere (Figs 10, 11). Phallus (Fig. 12). Female: upper wall of the vagina quadrangular with the sclerotized rings angular and sharpened anteriorly. (Figs 13, 14) ............. *D. matocqi* Baena & J. Ribes nov.sp.

8(1) Length less than 2.8 mm. When the insect reaches 2.8 mm its dorsum is black or very dark

9(10) Body slender and lengthened, at least 3.88 times as long as broad. Antennae as long as half the body. Antennal joints pale yellow or slightly darkened, joint 1 with a broad, dark central ring. Spines of tibiae very thin ............. *D. seleucus* Seidenstücker 1969

10(9) Body short, less than 3.66 times as long as broad. Antennae shorter than half
the body. Antennal joints mainly dark. Spines of tibiae stout.

11(12) Dorsum black or very dark, with three pairs of pale yellowish spots; one pair near eyes, another on the scutellum, and the last on the basal half of each cuneus, the distal half of which is always black. Collar black. Antennal joint II black with base and apex pale yellowish

\[\ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots D. \text{ alluaudi Vidal 1952}\]

12(11) Dorsum yellowish or pale greyish, green, with pronotal calli and a great part of the head and scutellum black. Collar pale yellowish. Cuneus uniformly yellowish. Antennal joint II black with base, apex, and a middle ring pale yellowish

\[\ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots D. \text{ cerutti Wagner 1946}\]

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**Zusammenfassung**

Zwei neue Arten der Gattung *Dicyphus* Fieber 1858 werden beschrieben: *D. (Brachyceroea) heissi* J. Ribes & Baena nov.sp. aus der Sierra Guadarrama (Madrid), Córdoba und Las Cañadas (Teneriffa) und *D. (Brachyceroea) matocqi* Baena & J. Ribes nov.sp. aus dem nördlichen Portugal. Das Weibchen von *D. (Brachyceroea) cerutti* Wagner 1941 wird wieder beschrieben. Weitere Daten und Zeichnungen der männlichen und weiblichen Genitalien der verfügbaren Arten der *D. globulifer*-Gruppe und ein dichotomer Schlüssel zur Bestimmung der Arten dieser Gruppe werden zur Verfügung gestellt.

**Resumen**

Dos especies nuevas de *Dicyphus* Fieber 1858 de la Península Ibérica e Islas Canarias con datos adicionales sobre el grupo *globulifer* del subgénero *Brachyceroea* Fieber 1858 (Hemiptera, Heteroptera, Miridae, Bryocorinae). Se describen dos especies nuevas de *Dicyphus* Fieber 1858: *D. (Brachyceroea) heissi* J. Ribes & Baena nov.sp. sobre ejemplares de la Sierra de Guadarrama (Madrid), Córdoba ciudad y Las Cañadas (isla de Tenerife) y *D. (Brachyceroea) matocqi* Baena & J. Ribes nov.sp. con ejemplares del norte de Portugal. Se describe *D. (Brachyceroea) cerutti* Wagner 1941 sobre una hembra depositada en el Museo de Hamburgo. Se aportan datos adicionales e ilustraciones de la genitalia de machos y hembras de las especies del grupo *D. globulifer* que se han podido estudiar y se incluye una clave dicotómica para los taxones de dicho grupo.

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