

## New species of Psocoptera (Insecta) from East Africa

Dilian Georgiev

Department of Ecology and Environmental Conservation, University of Plovdiv, 24 Tsar Assen Street, 4000 Plovdiv, Bulgaria,  
[diliangeorgiev@gmail.com](mailto:diliangeorgiev@gmail.com) ✉; <https://orcid.org/0000-0003-2885-4895> 🔗

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**Abstract:** Four new Psocoptera species were described as new to science from the coastal area of East Africa: *Echinopsocus keniensis* n. sp., *Cerobasis lienhardi* n. sp., *Lithoseopsis juliani* n. sp. (Kenya), and *Mepleres gurusamyi* n. sp. (Zanzibar). One *Nanopsocus* species was found only in a nymph stage, and was supposed to be representative of an unknown species too.

**Keywords:** Africa, Insecta, coastal, new species, tropical

### Introduction

The Psocoptera fauna of the equatorial and tropical Africa is not well known. Recently the Unguja Island was studied (Georgiev, 2021) but the previous study in East Africa was carried out about 40 years ago by Broadhead & Richards (1982). Many areas of the east coast of the continent are still white spots considering the species diversity of the psocids. In this paper four new Psocoptera species were described as new to science, and one, found only in a nymph stage, was supposed to be representative of an unknown species too.

### Material and methods

Psocoptera were collected from the east coast of Africa – Zanzibar and Kenya by beating the vegetation. The specimens were stored in 96% ethanol. The photos (specimens in glycerin) were taken by a camera Canon PowerShot SX500IS through the eyepiece of a light microscope Optika and Carl Zeiss-Jena. Type material was deposited at the National Museum of Natural History (NMNH) – Sofia, Bulgaria, and the collection of the author. The species discussed in the paper were

considered according to original descriptions, redescriptions, and published identification keys. Measurements followed Lienhard (1998). Species diversity and distributions is according Johnson et al. (2022).

Measurements abbreviations: LC = body length; A = antenna length, P3, P4: third and fourth segments of maxillary palp, F+tr = hind femur and trochanter length; T = hind tibia length; t1, t2, t3 = tarsomeres of hindtarsus (lengths measured from condyle to condyle), FW = forewing, HW = hindwing, D = anteroposterior diameter of the compound eye, IO = shortest distance between compound eyes.

### Results and discussion

Lepidopsocidae

*Echinopsocus keniensis* n. sp.

Material examined: Holotype: 1 ♀, 27.2.2022, Kenya, Diani Beach area, edge of a coastal forest, a pile of old mats mixed with dry leaves beneath a baobab (*Adansonia digitata*), S04 19 55.3 E39 34 01.7, 36 m



Fig. 1. Habitat of the type locality of *Echinopsocus keniensis* n. sp. with the collecting equipment of the author.

a.s.l., NMNH – Sofia, Bulgaria; paratypes: 3 ♀♀, 27.2.2022, Kenya, Diani Beach area, edge of a coastal forest, a pile of old mats mixed with dry leaves beneath a baobab (*Adansonia digitata*), S04 19 55.3 E39 34 01.7, 36 m a.s.l., NMNH – Sofia, Bulgaria, 2 ♀♀, Kenya, Diani Beach area, edge of a coastal forest, a pile of old mats mixed with dry leaves beneath a baobab (*Adansonia digitata*), S04 19 55.3 E39 34 01.7, 36 m a.s.l., 27.2.2022, D. Georgiev coll.; additional material: 1 ♀, 27.2.2022, Kenya, Diani Beach area, coastal forest in a hotel yard, from palm leaf mats on a roof of a shelter, S04 20 10.2 E39 34 00.7, 18 m a.s.l., D. Georgiev coll.; 6 ♀♀, 5.3.2022, from the type locality, D. Georgiev coll.

Type locality: Kenya, Diani Beach area, edge of a coastal forest, a pile of old mats mixed with dry leaves beneath a baobab (*Adansonia digitata*), S04 19 55.3 E39 34 01.7, 36 m a.s.l. (Fig. 1).

Description: Female: Colouration: Living specimens brown. Yellowish-white when preserved. Head with dark lateral band on each side from anterior margin of the eye to the antennal socket (Fig. 2E). Very small patches of brown pigment present on vertex and frons but do not form specific pattern. Mandibles with darker cutting edges and teeth. Antennae and palpi greyish light-brown. Compound eyes green. Thorax and abdomen yellowish-brown, without any pattern. Forewings transparent. Femurs white-yellowish, tibia and tarsi darker, light brown. Scales with two types of colouration: brown and pale yellowish. Setae brownish slightly darker than the body, and create a brownish tinge to ethanol preserved yellowish specimens. Morphology: Head densely setosae (Fig. 2G). Ocelli absent (but two patches of reddish-brown pigment present near the frontal sutures, which could be rudimentary ocelli, Fig. 2F). Antennae relatively long,



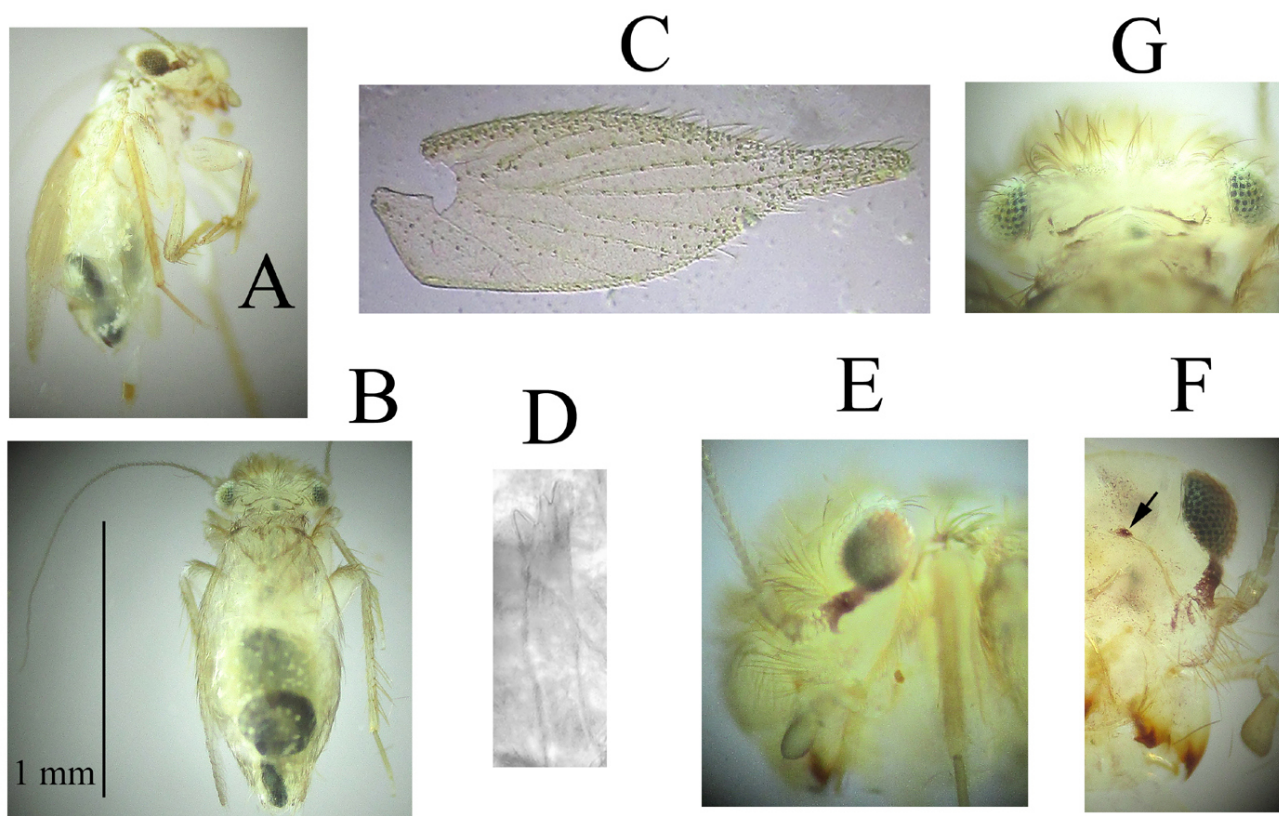


Fig. 2. *Echinopsocus keniensis* n. sp.: A – lateral view of the holotype, B – dorsal view of a paratype, C – forewing, D – lacinia, E – lateral view of the head, F – front view of the head (pigmentation resembling rudimentary ocellus shown by an arrow), G – dorsal view of the head (scale bar refer to A and B).

almost reaching the tip of the abdomen, over 40 segmented, consisted by relatively growing segments to the antennal tip. Lacinia wide, parallel sided, lateral denticle wide with two cusps, and distal denticle branched at its base by small single cusp, and a tip with two cusps (Fig. 2D). Forewings curved, hard (when damaged at its base they break, not tear), relatively long, covering the abdomen to its tip. Venation distinctive, typical for the genus (Fig. 2C). Hindwings absent. Scales moderately elongate, oval-spindle shaped.

Measurements (in mm): Holotype (female): LC = 1.28; F+tr = 0.40; T = 0.60; t1 = 0.1, t2, t3 = 0.03, FW = 1.02, D = 0.1, IO = 0.3, IO/D = 3.0.

Diagnosis: There were only two species from the genus known before this study (Enderlein, 1903; Smithers 1984). The new species is most similar in wing shape with *E. erinaceus* Enderlein, 1903 (New Guinea) which is the type species of the genus. The new species differs from it by its green eyes (versus black), the lack of spine-like setae at the coastal margin at the base of the wing, regularly broad lacinia (versus

broad towards apex), and not so sharply pointed wing tip. In addition the wings of *E. erinaceus* are black, while in *E. keniensis* n. sp. are transparent, creamy.

Etymology: Named after the country in which the species was found.

Habitat: A species that possibly prefers to inhabit dry palm leaves. In both of the localities the new species was found in dry mats of palm leaves (Fig. 1).

#### Trogiidae

##### *Cerobasis lienhardi* n. sp.

Material examined: Holotype: 1 ♀, 3.3.2022, Kenya, Diani Beach area, open scrubs at coastal rocks near the beach, S04 20 52.6 E39 33 53.2, 1 m a.s.l., NMNH – Sofia, Bulgaria; additional material: 2 nymphs, 1.3.2022, Kenya, Diani Beach area, broadleaf coastal forest, from branches of bushes and trees, S04 20 20.3 E39 34 04.2, 2 m a.s.l., NMNH – Sofia, Bulgaria; 2 nymphs, 3.3.2022, Kenya, Diani Beach area, open



Fig. 3. Habitat view of the type locality of *Cerobasis lienhardi* n. sp.

scrubs at coastal rocks near the beach, S04 20 52.6 E39 33 53.2, 1 m a.s.l., D. Georgiev coll.

Type locality: Kenya, Diani Beach area, open scrubs at coastal rocks near the beach, S04 20 52.6 E39 33 53.2, 1 m a.s.l. (Fig. 3)

Description: Colouration: Body yellowish-white with specific pattern on head, thorax, dorsal abdominal area and legs. Compound eyes greyish-green. Vertex with a lot of small round brown spots concentrated mainly around the eyes and the coronal suture. Two brown irregular spots on frons below both of the frontal suturae. Frons with three darker brown-blackish bands, of which the middle one is shorter and preceded by a small median spot, the other two convergent towards this spot, shaping an arrow tip like structure (Fig. 4A). Dark lateral band on each side from anterior margin of the eye to the antennal socket, and extending behind the eye to the lateral side of the thorax, where it widens (Fig. 4C). The area around the base of the antennas and

their base itself with irregular brown spots. The further antennal segments at the first with a light proximal and dark distal part, towards the end of the antenna completely dark. Postcypeus creamy with two darker bands on each side, and one in the middle. Maxillar palpus yellow with an exception of P4 which is brown. Thorax creamy with three more rows of irregular brown spots at its dorsal side. Legs yellow with blackish-brown transverse band-like spots: one at the distal part of the femur, and two on the tibia, one at its proximal and one at its distal part. Claws, t2 and t3 a little darker, greyish. Ventral area of the abdomen yellow. Its dorsal area is with a specific pattern of rows of large irregular brown spots consisted of lighter and darker pigment, and blackish-brown dots (Fig. 4A, B). Clunium blackish-brown, darker than the rest of the abdomen. Epiproct and paraprocts yellow with one brown spot each. Morphology: Apterous species. Eyes relatively small, almost three times the length of the



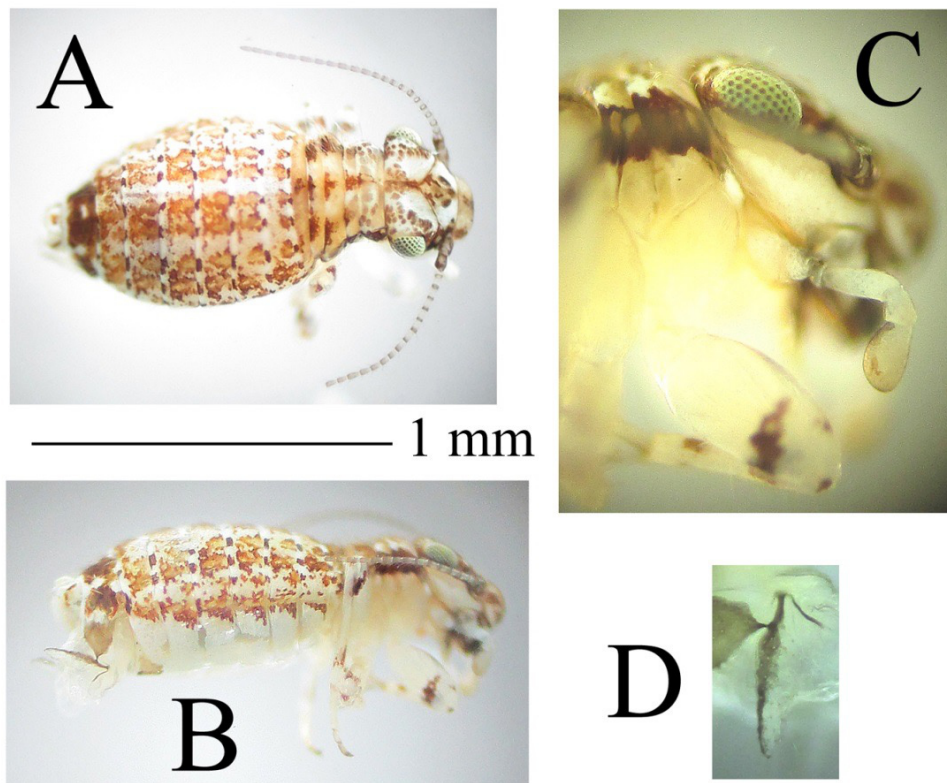


Fig. 4. *Cerobasis lienhardi* n. sp.: A, B – dorsal and lateral view of the holotype, C – lateral view of the head with base of the antenna, maxillary palpus and front leg visible, D – lateral view of the gonapophysis (scale bar refer to A and B).

distance between them ( $IO/D = 2.5$ ). Antennae short, a little bit extending the middle half of the body. Thorax wide compared to the head width, in a proportion almost 1:1 considering their maximal width. Femurs compared with body length relatively long. Metatibia with 2 apical spurs, a longer and shorter one. Gonapophyses elongate, typical of the genus, with outer edge deeply pigmented. (Fig. 4D). Paraprocts with two strong spurs with short setae. Epiproct with short setae, only a few longer ones present at its base.

Measurements (in mm): LC = 1.20; A = 0.70, P3 = 0.06, P4 = 0.1, F+tr = 0.40; T = 0.45, t1 = 0.14, t2 = 0.04, t3 = 0.06, D = 0.08, IO = 0.20,  $IO/D = 2.5$ , LC/F+tr = 3.0.

Diagnosis: From all 30 known species from the genus, *C. lienhardi* has similarities with 7 of them (Lienhard, 1998; García-Aldrete, 1993). The differences are as follows:

*Cerobasis alpha* García-Aldrete, 1993 (Mexico) is similar by the arrow-like pattern on frons, leg colouration and the proportion  $IO/D (= 2.31)$ . It differs by its pale brown body (while in *C. lienhardi* it is yellow), and black eyes (versus greyish-green).

*Cerobasis amorosa* Lienhard, 1995 (Cyprus) is also similar in external view but it has black eyes and anchor-shaped pattern on forehead.

*Cerobasis denticulata* Lienhard, 1996 (Canary Islands) is similar in external view but it has 4 apical spurs on metatibia, versus 2 in the new species.

*Cerobasis insularis* Lienhard, 1996 (Canary Islands) has colourless femurs and is brachypterous.

*Cerobasis socotrae* Lienhard, 1995 (Socotra Island) is larger but with shorter femur (LC/F = 4.5–4.6), black eyes and not well defined frons pattern.

In well coloured specimens of *Cerobasis canariensis* (Enderlein, 1910) (Canary Islands) the frons pattern could be similar to this one of the new species but it is brachelyptere, and having uniformly dark brown femurs.

Some specimens of the Holarctic *Cerobasis annulata* (Hagen, 1865) could also resemble the new species, especially considering the frons pattern, but this species does not have any pattern on the dorsal abdominal area, and a transverse blackish-brown band of the proximal parts of the femur. In addition this species is micropterous, while *C. lienhardi* is apterous.



Fig. 5. Habitat of the type locality of *Lithoseopsis juliani* n. sp. with the collecting equipment of the author.

**Etymology:** Named after the outstanding and respected expert on Psocoptera, Charles Lienhard (Natural History Museum of Geneva).

**Habitat:** The species was found on branches of bushes and trees in two habitats: open scrubs at coastal rocks near the beach (type locality), and dry coastal broad leaf forest (Fig. 3).

**Remarks:** Unable to fly, many species from the genus *Cerobasis* are endemics and have mainly coastal distribution. Due to the fact that the coast of East Africa has not been studied in terms of species diversity of psocids, finding a new species for science was expected. Species of this genus can also be found on many nearby islands, especially Madagascar, Mascarene and Seychelles.

#### Amphientomidae

#### *Lithoseopsis juliani* n. sp.

**Material examined:** Holotype: 1 ♀, 4.3.2022, Kenya, S of Mombasa, coastal area of the Indian Ocean,

mangrove scrubs at the estuary of the small river of Kongo, S04 15 30.3 E39 35 41.3, 6 m a.s.l., NMNH – Sofia, Bulgaria; paratypes: 1 ♀, 4.3.2022, from the type locality, NMNH – Sofia, Bulgaria; 1 ♀, 4.3.2022, from the type locality, D. Georgiev coll.

**Type locality:** Kenya, S of Mombasa, coastal area of the Indian Ocean, mangrove scrubs at the estuary of the small river of Kongo, S04 15 30.3 E39 35 41.3, 6 m a.s.l. (Fig. 5).

**Description:** Female: **Colouration:** In living specimens scales of the forewings forming silver-grey appearance with a lot of small brown and black dots and spots, head brown (Fig. 6D). After preservation in ethanol turning brown. Compound eyes with lighter and darker grey stripes (Fig. 6B). Ocelli reddish brown. Head brown with darker vertical stripes on medial margins of compound eyes (stopping shortly above lateral ocelli) and on either side of median epicranial suture. Antennae brown. Postclypeus in dorsal part with reticulate pattern. Labrum dark brown. Maxillary palps brown with paler middle segment. Lacinia reddish-brown (Fig. 6G). Thorax light brown-yellowish with specific V-shaped dark brown marking



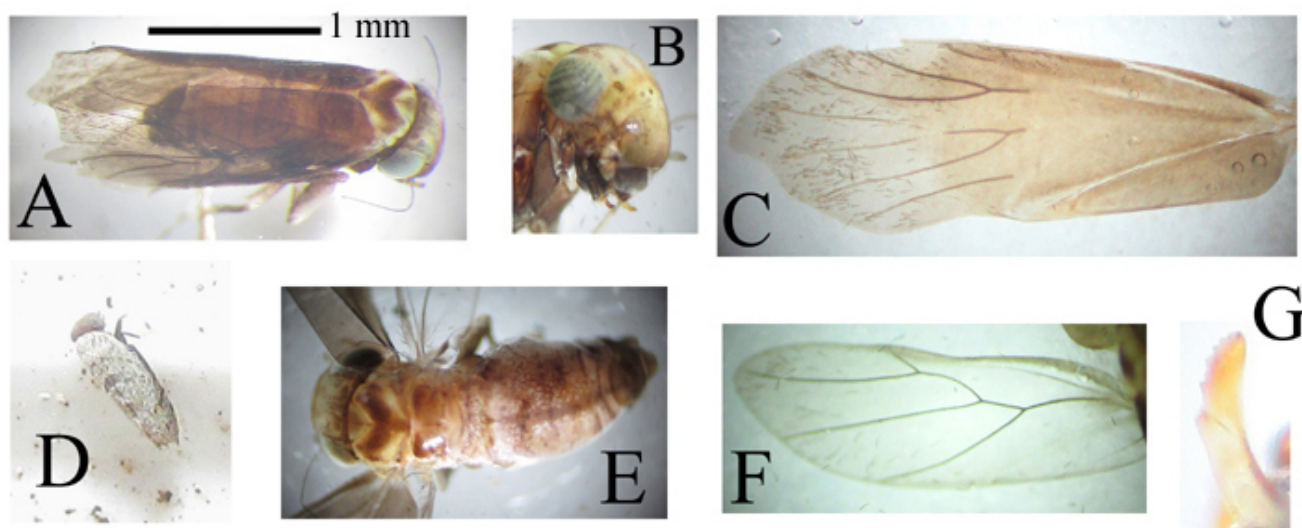


Fig. 6. *Lithoseopsis juliani* n. sp.: A – external view of the holotype, B – head (compound eye and ocelli visible), C – forewing, D – external view of living specimen, E – view of the dorsal area, F – hindwing, G – lacinial tip (scale bar refer to A and E).

(Fig. 6A, E). Forewings brown-blackish with paler distal part. Veins at the distal half brown, at the proximal half white (Fig. 6C). Hindwings hyaline, smoky. Legs brown. Abdomen brown. Dorsally with darker transverse pigmentation on the tergites and one darker longitudinal stripe along the middle area. Morphology: Ocelli 3, relatively big, situated almost in one line. Lateral ocellus very close to the compound eye (Fig. 6B). Epicranial suture indistinct. Eyes large, diameter almost as the distance between them. Lacinia curved, outer tine with many small cusps, inner tine much shorter. Forewing bluntly tapered at the apex, with specific shape, wings venation shown on Fig. 6C. Fore-femoral comb consisted of over 21 spines (23 counted of the holotype). Subgenital plate broad with long setae at its apex and shorter at the ventral area, sclerite T-shaped. Gonapophyses slender, hairless. Paraprocts and epiproct with long setae (longer than those of the subgenital plate).

Measurements (in mm): LC = 1.64, A = 0.64, F+tr = 0.60, T = 0.82; t1 = 0.36, t2 = 0.06, t3 = 0.07, FW = 2.1, HW = 1.68, D = 0.28, IO = 0.34, IO/D = 1.21.

Diagnosis: The ocelli are situated in a line, the lateral ocelli are close to the compound eye, characteristic feature of the genus *Lithoseopsis*. From all 9 known species from the genus, by wing shape *L. juliani* n. sp. is most similar to *L. brasiliensis* García-Aldrete, Da Silva-Neto & Lopes Ferreira, 2018 (García-Aldrete et al., 2018). This species has different color of the eyes (black vs grey, striped), ocelli (hyaline

vs reddish-brown), and forewing colouration (pale yellowish vs blackish-brown), and fore-femoral comb with lower number of spines (16–21 vs 23). In addition the Brazilian species has different habitat preference (troglophilous), while *L. juliani* was found in open bushy area.

Etymology: Named after my son Julian Georgiev who also participated in the trip to Kenya and enjoyed its nature.

Habitat: The species was collected from branches of bushes at a sandy river bank near the Indian Ocean (Fig. 5).

#### Pachytroctidae

##### *Nanopsocus* sp.

Material examined: 1 nymph, 27.2.2022, Kenya, coastal area, south of Mombasa, at the estuary of the small river of Kongo, bushes and trees at sandy river bank, S04 15 30.8 E39 35 43.5, 4 m a.s.l., D. Georgiev coll.; 2 nymphs, 28.2.2022, Kenya west of Diani Road, savannah, mixed bushes and trees near an agricultural building, dry branches with dry leaves, S04 19 43.0 E39 33 44.6, 1 m a.s.l., D. Georgiev coll. (Fig. 7).

Description: Colouration: Yellowish-white species with brown pattern (Fig. 8A, B). Vertex white with brownish pigment near the compound eyes. Frons with V – shaped brown pattern. Brown band of irregular





Fig. 7. Habitat view of one of the localities where *Nanopsocus* sp. nymphs were collected (Kenya west of Diani Road, savannah, mixed bushes and trees near an agricultural building, S04 19 43.0 E39 33 44.6).

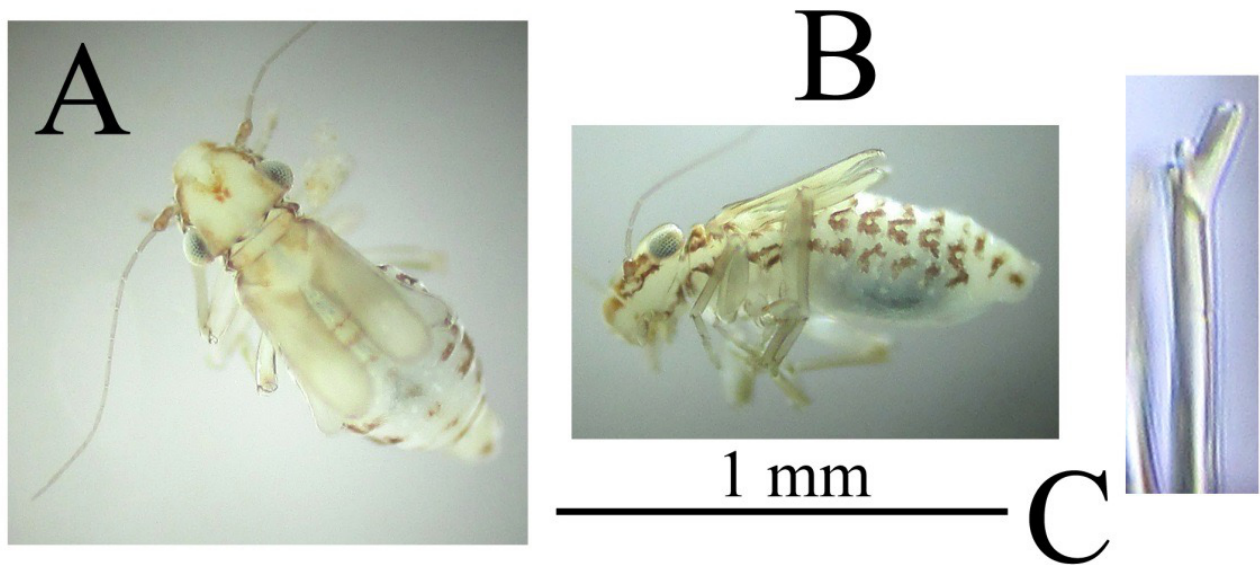


Fig. 8. External view of the largest nymph of *Nanopsocus* sp. collected: A – dorsal view, B – lateral view, C – lacinial lip (scale bar for A and B).





Fig. 9. Habitat of the type locality of *Mepleres gurusamyi* n. sp.

spots extends from the postcypeus to the paraprocts. Another such band present below it. Compound eyes grey. Ocelli reddish-brown. Antennae brown, darker at their base. Palpi brown, smoky. Thorax yellowish-white with the mention lateral pattern. Abdomen the same, only a row of small brown spots present on its mid line of the dorsal area. Legs and undeveloped wings creamy, smoky. Morphology. Claws assymetrical, typical for the genus. Antennae not extending the body length. Lacinia with four cusps: two shorter of equal length, and two longer, again with same length (Fig. 8C).

Measurements of the largest nymph collected on 28.2.2022 (in mm): LC = 0.96, F = 0.20, T = 0.38, FW = 0.55, HW = 0.45, D = 0.12, IO = 0.25, IO/D = 2.08.

Remarks: The three *Nanopsocus* nymphs collected differ from all five known species (Badonnel, 1969, 1973, 1976; Baz, 1990; Lienhard, 1998), by its specific

lacinial tip and body colouration. It should be noted that the species known of this genus are very few and it can be supposed that some more will be described in the future. One of the priority habitats to look for is the tropical coastal areas, which are in general poorly studied till now.

#### Pseudocaeciliidae

#### *Mepleres gurusamyi* n. sp.

Reexaminations of *Mepleres* specimens erroneously reported as *Mepleres maculatus* Broadhead & Richards, 1982 by Georgiev (2021) for Unguja Island revealed that they belong to a new species to science.

Material examined: Holotype: 1 ♀, 2.3.2021, Tanzania, Zanzibar, Unguja Island, Michamwi



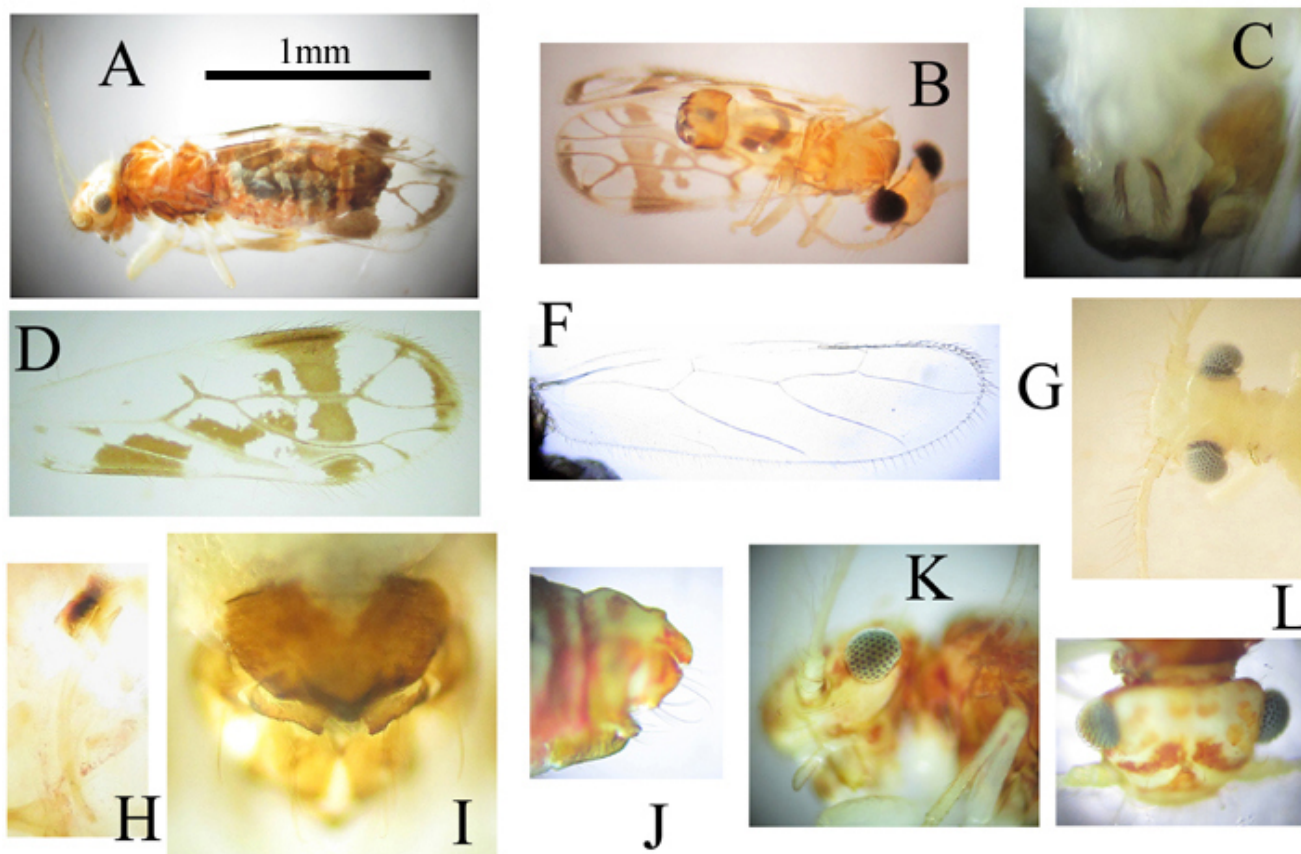


Fig. 10. *Mepleres gurusamyi* n. sp.: A – external view of the female (paratype), B – external view of the male (paratype), C – phallosome of the male, D – forewing (female), E – head of a male nymph, F – hindwing (female), G – head of a male nymph, H – lacinia (female), I, J – ventral and lateral view of the abdominal apex (female), K, L – lateral and frontal view of the head (female) (scale bar refer to A and B).

Peninsula, sandy coastal scrubs with scattered trees, S06 08 20.8 E39 29 28.8, 3 m a.s.l., NMNH – Sofia, Bulgaria; paratypes: 1 ♀, 1 ♂, 2.3.2021, from the type locality, NMNH – Sofia, Bulgaria, 1 ♀, 2.3.2021, from the type locality, D. Georgiev coll.; additional material: 1 nymph 2.3.2021, from the type locality, D. Georgiev coll.

Type locality: Tanzania, Zanzibar, Unguja Island, Michamwi Peninsula, sandy coastal scrubs with scattered trees, S06 08 20.8 E39 29 28.8, 3 m a.s.l. (Fig. 9).

Description: Female: Colouration: Light brown species, after long preservation in ethanol body turning yellow with brown-reddish patches. Head paler, yellowish-white with a darker lateral band on each side from anterior margin of the eye to the antennal socket. Vertex and frons with specific brown-reddish pattern (Fig. 10A). Postcypeus darker, brownish. Eyes grey (Fig. 10K). Ocelli reddish. Maxillary palp pale.

Antennae pale, turning darker at the distal half. Mandibles brownish with dark brown distal edge. Thorax and abdomen brown. Subgenital plate well defined dark brown. Front and middle pair of legs with whitish femora and creamy tibiae and tarsi, hind legs darker, brown, including the femora. Claws black. Forewing with specific pattern of brown spots: Three big spots can be differentiated: one at the area of 1A and Cu2, one in the middle of the wing, forming a transverse stripe going from the middle of areola postica to the pterostigma, where it widens and almost cover it, and one small spot at the wing tip situated mainly between R2+3 and R4+5. Smaller spots also present in other areas of the wing as can be seen on Fig. 10D. Veins brown except R, R1 and Cu2 which are white. Hindwing hyaline having only a thin brown stripe at its distal upper periphery (not visible in Fig. 10F). Morphology. A relatively small species of *Mepleres*. Female: Antennae shorter than the body with



long setae. Eyes small, distance between them almost five times as the eye diameter. Lacinia is curved and has a narrow base, widens in its distal part, the apex has two simple denticles, longer and shorter, forming an acute angle (Fig. 10H). Subgenital plate wide, heart shaped (Fig. 10I). Gonapophyses with very long setae. Paraprocts with two patches of three long, curved hairs (Fig. 10J). Hairs on epiproct shorter but extending its tip. The sensorium on the dorso-lateral surface of the paraproct is well defined and with many (over 12) relatively long trichobothria. Male: Colour as female (after one year in ethanol head pattern not visible, eyes turned black and hind femora went paler, Fig. 10B). Antennae and forewings longer than those in female and extending over the body length. Eyes very large, distance between them almost as equal as the eye diameter. Phalosome elongated oval-shaped (Fig. 10C).

Measurements (in mm): Holotype (female): LC = 1.42, F+tr = 0.41, T = 0.61, t1 = 0.19, t2 = 0.08, FW = 1.40, HW = 1.12, D = 0.08, IO = 0.37, IO/D = 4.6; paratype (female): LC = 1.48, A = 0.90; paratype (male): LC = 1.16, F+tr = 0.36, T = 0.50, t1 = 0.38, t2 = 0.16, FW = 1.3, A = 1.26, D = 0.18, IO = 0.17, IO/D = 0.94.

Diagnosis: From all 61 known species from the genus *Mepleres*, only three have forewing pattern similar to *Mepleres gurusamyi* n. sp., with a transverse band in the wing middle area, and a dark pigment at the wing apical part (Banks, 1937; Turner, 1975; Yoshizawa, 1997).

*Mepleres avisonus* (Turner, 1975) (Jamaica): in *M. gurusamyi* n. sp. the transverse band of the forewing widens upwards and covers almost the entire pterostigma. The stripe in *M. avisonus* covers only a part of the pterostigma and broadens at its middle part between Rs and M. Two species differs and by the shapes of their subgenital plates.

*Mepleres morimotoi* (Yoshizawa, 1997) (Bangladesh): tip of the forewing does not have big spot at its apical area, only a little dark pigment present at R4+5 and M1; Rs + M longer than M (shorter in the new species); central cell narrower at the level of Rs; larger species (LC = 1.9–2.1 mm). It has to be noted that the subgenital plates in both species are similar but the hairs of the gonapophyses and paraprocts are much longer in *M. gurusamyi* n. sp. (longer than the length of the corresponding structures, Fig. 10J). In males the phalosomes are different: in *M. morimotoi* it is elongated pear-shaped, and in *M. gurusamyi* n. sp. it is

elongated oval-shaped. Both species differ and by the setation of the epiproct: in the new species setae are longer and extending over its tip.

*Mepleres transversus* (Banks, 1937) (Taiwan, China, Thailand) is about twice larger than the new species (LC = 3 mm), and forewings much marked with brown.

Etymology: Named after Ramesh Gurusamy (Zoological Survey of India) for his help with many of the literature sources needed for this publication, and especially for the scanned descriptions of the Chinese species of *Mepleres*.


Habitat: The species was collected from branches of bushes in a dry sandy area of coastal scrubs (Fig. 9).

### Acknowledgements

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### References

- Badonnel A. 1969 Psocopteres de l'Angola et de pays voisins, avec revision de types africains d'Enderlein (1902) et de Ribaga (1911). Publicações culturais da Companhia de Diamantes de Angola 79: 152 pp.
- Badonnel A. 1973 Psocoptères de l'Angola: IV. Publicações culturais da Companhia de Diamantes de Angola 87: 59–104.
- Badonnel A. 1976 Compléments à l'étude des Psocopteres de Madagascar. Bulletin du Muséum national d'Histoire naturelle 3 (410): 1143–1197.
- Banks N. 1937 Neuropteroid insects from Formosa. Philippine Journal of Science 62 (3): 255–291.
- Baz A. 1990 Psocoptera of Bioko Island (Equatorial Guinea, West Africa). Journal of African Zoology 104: 435–456.
- Broadhead E., Richards A. 1982 The Psocoptera of East Africa – a taxonomic and ecological survey. Biological Journal of the Linnean Society 17: 137–216.
- Enderlein G. 1903 Die Copeognathen des indo-australischen Faunengebietes. Annales historico-naturales Musei nationalis Hungarici 1: 179–344.
- García-Aldrete A. 1993 New species of *Cerobasis* and *Psyllipsocus* from Mexico, and a list of Mexican

- Trogiomorpha (Psocoptera). *Insecta Mundi* 7 (1–2): 1–18.
- García Aldrete A., Moreira Da Silva A., Ferreira, R. 2018 *Lithoseopsis* Mockford (Psocodea: Troctomorpha: Amphientomidae): a new species and first record for South America. *Zootaxa* 4526 (1): 92–94.
- Georgiev D. 2021 On the fauna of Psocoptera of Unguja (Zanzibar) Island (Tanzania, East Africa). *Historia naturalis bulgarica* 42: 35–42.  
<https://doi.org/10.48027/hnb.42.061> 
- Johnson K., Smith P., Hopkins H. 2022 Psocodea Species File Online. Version 5.0/5.0.
- Lienhard C. 1998 Psocoptères euro-méditerranées. *Faune de France* 83: 1–517.
- Smithers C. 1984 The Psocoptera of South Australia. *Records of the South Australian Museum* 18 (20): 453–491.
- Turner B. 1975 The Psocoptera of Jamaica. *Transactions of the Royal Entomological Society of London* 126 (4): 533–609.
- Yoshizawa K. 1997 Psocoptera of Bangladesh Collected by Prof. Emer. Katsura Morimoto, with Descriptions of Four New Species. *Esakia* 37: 15–24.
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