

On the identity and distribution of *Assiuta salina* (Lindberg, 1954) (Hemiptera: Auchenorrhyncha: Cicadellidae; Megophthalminae)

К идентификации и распространению *Assiuta salina* (Lindberg, 1954) (Hemiptera: Auchenorrhyncha: Cicadellidae; Megophthalminae)

V.M. Gnezdilov*, C. Schmidt**, E. Klimsa***

В.М. Гнездилов*, Х. Шмидт**, Э. Климса***

* Zoological Institute, Russian Academy of Sciences, Universitetskaya Nab. 1, Saint Petersburg 199034 Russia. E-mail: vmgnezdilov@mail.ru, vgnezdilov@zin.ru. <https://orcid.org/0000-0002-7331-8744>.

** Зоологический институт Российской академии наук, Университетская наб. 1, Санкт-Петербург 199034 Россия.

** Senckenberg Naturhistorische Sammlungen Dresden, 159 Königsbrücker Landstr., Dresden 01109 Germany. E-mail: christian.schmidt@senckenberg.de.

*** Зенкенберг музей естественной истории, Кёнигсбрюкер Ландштрассе 159, Дрезден 01109 Германия.

*** Zeisigstrasse 2, Schwandorf 92421 Germany. E-mail: eklimsa@t-online.de.

*** Цейзиг штрассе 2, Швандорф 92421 Германия.

Key words: Adelungiini, larva, morphology, new record, Western Palaearctic.

Ключевые слова: Adelungiini, личинка, морфология, новое указание, Западная Палеарктика.

Abstract. The Adelungiine leafhopper, *Assiuta salina* (Lindberg, 1954), is redescribed and illustrated, together with a summary of its distribution in the Canarian Archipelago and northwestern Africa. Photographs of the larva and new records of *A. salina* from Fuerteventura and Lanzarote Islands and Morocco are also provided. The relationships of the genus *Assiuta* Linnavuori, 1969 within the tribe Adelungiini are discussed.

Резюме. Приводится переописание *Assiuta salina* (Lindberg, 1954) (Adelungiini) с иллюстрациями и обобщёнными данными по распространению этого вида на Канарском Архипелаге и в Северо-Западной Африке. Даны фотографии личинки и приведены новые указания *A. salina* (Lindberg) с островов Лансароте и Фуэртевентура и из Марокко. Обсуждены родственные отношения рода *Assiuta* Linnavuori, 1969 в пределах трибы Adelungiini.

Introduction

R. Linnavuori [1969] erected the genus *Assiuta* Linnavuori, 1969 in the cicadellid tribe Adelungiini Baker to accommodate *Melicharella salina* Lindberg, 1954 (type species), *M. hieroglyphica* Bergevin, 1925, and *Assiuta camena* Linnavuori, 1969 known from northern Africa and the Canarian Archipelago. Recently Gnezdilov [2021] revised the genus *Assiuta* Linnavuori, 1969 and transferred *A. camena* to the genus *Platyproctus* Lindberg, 1925 while *M. hieroglyphica* was suggested to be treated as a taxon incertae sedis until the male genitalia structure of this species will be examined. From another hand *Assiuta salina* (Lindberg, 1954), originally described from the Fuerteventura Island [Lindberg, 1954] and later recorded from the Lanzarote Island [Lindberg,

Wagner, 1965], was erroneously treated as the Canarian endemic [Gnezdilov, 2021], without taking into consideration Lindberg's [1963, 1965] records of this species from southern Morocco and northern Western Sahara. Our study of R. Remane's collection deposited in the Senckenberg Naturhistorische Sammlungen Dresden (Germany) and the material obtained by one of the authors from the Fuerteventura Island this year confirmed Canarian and northwestern African distribution of this species and revealed additional records from the Canary Islands and Morocco which are listed below.

Material and methods

Photographs were taken using Nikon D5600 with Micro Nikkor 60 mm. The genital segments of the examined specimen were macerated in 10 % KOH and figured in glycerine jelly (Brunel Micro Ltd, UK) using a Leica MZ9.5 stereomicroscope with camera lucida.

Locality names are reproduced here as they are written on the labels.

The specimens studied are deposited in the the Senckenberg Naturhistorische Sammlungen, Dresden, Germany (SNSD) and in the Zoological Institute of the Russian Academy of Sciences, Saint Petersburg, Russia (ZIN).

The present work is registered in ZooBank (www.zoobank.org) under LSID urn:lsid:zoobank.org:pub:1C7465A3-86C6-4AF0-B5B5-4411B7905570.

Results

Cicadellidae Latreille, 1802
Megophthalminae Kirkaldy, 1906
Adelungiini Baker, 1915
Adelungiina Baker, 1915
Assiuta salina (Lindberg, 1954)

Figs 1–15.

Melicharella salina Lindberg, 1954: 201, Fig. 49a–g; Lindberg, 1963: 36; Lindberg, 1965: 16;

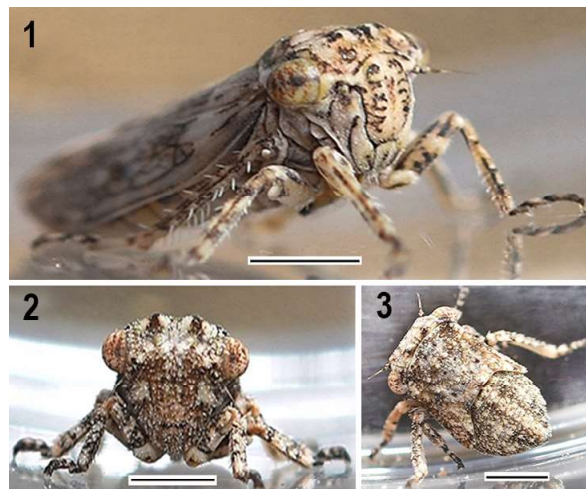
Assiuta salina (Lindberg, 1954): Linnavuori, 1969: 212, Fig. 3g; Viraktamath, 2017: Figs 52–56; Gnezdilov, 2021: 304, Figs 39–41.

Material. **Spain:** 1♂, 2♀♀, 1 larva, Fuerteventura, Barranco de los Molinos, 28°32'32.3" N, 14°03'44.6" W, on *Lycium intricatum*, 6.II.2024, E. Klimsa leg. (ZIN); 1♂, 3♀♀, Fuerteventura, Matas Blancas, 28°11'02" N, 14°12'15" W, Radius 2 m, h~0–100 m a.s.l., on *Lycium*, 18.III.1989, R. Remane leg. (SNSD); 2♂♂, Lanzarote, W Orzola, 29°13'28" N, 13°27'39" W, Radius 800 m, 2.III.1989, R. Remane leg. (SNSD). **Morocco:** 1♂, Ugd. Ait Melloul, 30°21'02" N, 9°30'18" W, Radius 2.5 km, alt. 5–20 m, «Sous River valley, *Tamarix* etc», 1.III.1971; 1♂, Mündung Oued El Koraima, 29°16'38" N, 10°15'12" W, Radius 1 km, h~5–60 m a.s.l., «*Frankenia* on plateau near the sea, *Lycium, Suaeda*», 3.III.1971; 1♂, Oued Noun Gebiet, 29°05'40" N, 10°20'06" W, Radius 9 km, h ~ 0–200 m a.s.l., «rocky slope, river valley, hill steppe», 4.III.1971; 1♂, 4 km SW Sidi Akhfennir, 28°03'58" N, 12°06'20" W, Radius 2.5 km, 1–20 m a.s.l., «*Euphorbia* with *Lycium*», 18.III.1971; 1♀, 4 km Ö Sidi Akhfennir, 28°06'52" N, 12°00'55" W, Radius 1 km, 0–20 m a.s.l., «*Euphorbia shrub* in steppe, *Euph. dendr. + balsam., Lycium*, few *Suaeda*, some Asteraceae», 18.III.1971, all leg. R. Remane (SNSD).

Supplementary description. Habitus photos of adults were published by Gnezdilov [2021]. Crown is short, nearly vertical. Face wide, laterofrontal sutures not reaching ocelli. Lorae large, elongately oval, reaching genae margins. Frontoclypeus slightly elongate, with weakly convex lateral margins. Anteclypeus nearly twice longer than wide. Rostrum reaching hind coxae; 3rd segment longer than 2nd one. Pronotum 1.5 times as long as mesonotum, with nearly straight hind margin. Forewings narrowing apically, with long clavus (2/3 of whole wing) and reticulate venation. Hind wings as long as forewings. Hind femur with 2 + 0 apical spines. First metatarsomere twice longer than second one and nearly as long as third one.

Male terminalia. First sternal apodemes very short, semi-circular (Fig. 5). Second sternal apodemes wide, nearly square, reaching middle of sternite III (Fig. 4). Anal tube short, with Xth segment weakly notched (Figs 6, 7). Pygofer deeply concave medially, with long and narrow dorsal parts of lobes, (Fig. 6). Genital valve wide, semicircular (Fig. 8). Subgenital plates narrow, fused basally (Figs 6, 8). Aedeagus strongly curved and flattened (in lateral view), with wide and serrate ventrally shaft in lateral view (Fig. 9). Aedeagal shaft wide basally narrowing apically in ventral view (Fig. 10). Gonopore apical. Connec-tive long and narrow, weakly enlarged basally in ventral view (Fig. 12), curved in lateral view (Fig. 11). Style massive, with two large teeth and narrowing apical part and with long setae (Figs 13, 14). **Female terminalia.** Sternite VII deeply concave medially (Fig. 15). Pygofer with large convex lobes. Third valvulae slightly surpassing beyond apex of pygofer.

Larva. Generally ivory, with dense brown to black dots fused somewhere in spots (Figs 2, 3). Claws dark brown to black. Head and body are covered by sparse short setae.



Figs 1–3. External appearance of *Assiuta salina* (Lindberg, 1954), Fuerteventura, Barranco de los Molinos. 1 — adult, 2, 3 — larva. 1, 2 — frontal view; 3 — dorsal view. Scale bar 1 mm.

Рис. 1–3. Внешний вид *Assiuta salina* (Lindberg, 1954), Fuerteventura, Barranco de los Molinos. 1 — взрослая особь, 2, 3 — личинки. 1, 2 — спереди; 3 — сверху. Масштаб 1 мм.

Discussion

Assiuta salina (Lindberg, 1954) is the only Adelungiini genus and species known so far from the Canary Islands and Morocco [Nast, 1972] and accordingly the most western taxon of this group. According the aedeagal shaft which is flattened laterally and serrate ventrally (Fig. 9) *A. salina* is close to *Emelyanogramma proxima* (Dlabola, 1960) known from Iran [Dlabola, 1960; Emeljanov, 1975; Gnezdilov, 2021]. However these two species well differ each from another by the shape of pygofer, aedeagus and style [Gnezdilov, 2021: Figs 72, 74, 75, 78, 79]. Similar northern African–Middle East «genetic connection» is known for the genus *Peyerimhoffiella* Bergevin, 1928 (Megophthalminae, Peyerimhoffiolini) with two species distributed in Algeria, Tunisia, and Iraq [Bergevin, 1928; Al-Ne'amy, Linnavuori, 1982].

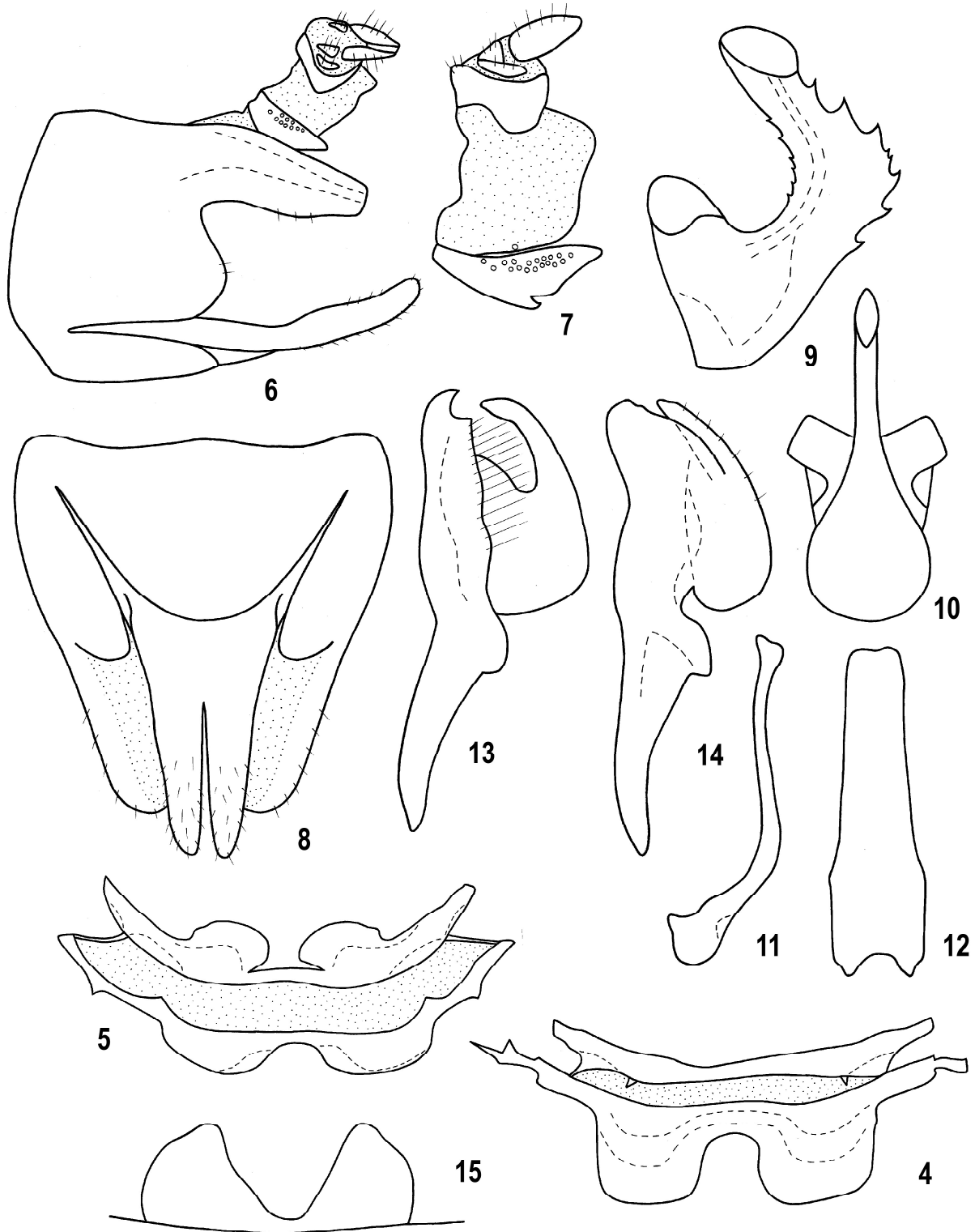
H. Lindberg [1954] noted that *Assiuta salina* is monophagous on *Traganum moquini* Webb ex Moq. (Amarantaceae), however, the specimens listed above from Fuerteventura were collected exclusively on *Lycium intricatum* Boiss. (Solanaceae). Thus the host plant specialisation of *A. salina* still needs special study.

Acknowledgements

V.M. Gnezdilov is glad to thank Prof. Dr. Uwe Fritz for his hospitality in the Senckenberg Naturhistorische Sammlungen Dresden (Germany). VMG's research stay in Germany was sponsored by the Alexander von Humboldt Stiftung and performed in the framework of the Russian State Research projects № 122031100272-3.

References

- Al-Ne'amy K., Linnavuori R. 1982. On the taxonomy of the subfamily Adelungiinae (Homoptera, Cicadellidae) // *Annales Entomologici Fennici*. Vol.48. No.4. P.109–115.
- Bergevin E. de. 1928. Description d'un nouveau genre et d'une nouvelle espèce d'Homoptère (famille probablement nouvelle) provenant du Tassili occidental. (Mission du Hoggar. Février-Mai 1928) //



Figs 4-15. *Assiuta salina* (Lindberg, 1954), Fuerteventura, Barranco de los Molinos, male terminalia and female sternite VII: ventral (4, 8, 10, 12, 15), dorsal (5) and lateral view (6, 7, 9, 11, 13, 14). 4, 5 — first and second sternal apodemes; 6 — anal tube, pygofer, genital valve, and subgenital plates; 7 — anal tube; 8 — pygofer, genital valve, and subgenital plates; 9, 10 — aedeagus; 11, 12 — connective; 13, 14 — style; 15 — female sternite VII.

Рис. 4-15. Терминалии самца и VII стернит самки *Assiuta salina* (Lindberg, 1954), Fuerteventura, Barranco de los Molinos: снизу (4, 8, 10, 12, 15), сверху (5) и сбоку (6, 7, 9, 11, 13, 14). 4, 5 — первые и вторые стернальные аподемы; 6 — анальная трубка, пигофор, генитальная вальва и субгенитальная пластинка; 7 — анальная трубка; 8 — пигофор, генитальная вальва и субгенитальные пластинки; 9, 10 — эдеагус; 11, 12 — коннектив; 13, 14 — стилус; 15 — VII стернит самки.

- Bulletin de la Société d'histoire naturelle de l'Afrique du Nord. Vol.20. P.7–9.
- Dlabola J. 1960. Iranische Zikaden (Homoptera, Auchenorrhyncha) // Stuttgarter Beiträge zur Naturkunde. Vol.41. P.1–24.
- Emeljanov A.F. 1975. [Materials for the revision of the tribe Adelungiini (Homoptera, Cicadellidae)] // Entomologicheskoe Obozrenie. Vol.54. No.2. P.383–390. [In Russian].
- Emeljanov A.F. 1975. Materials for the revision of the tribe Adelungiini (Homoptera, Cicadellidae) // Entomological Review. Vol.54. No.2. P.104–109.
- Gnezdilov V.M. 2021. First record of the tribe Adelungiini Baker (Hemiptera: Auchenorrhyncha: Cicadellidae: Megophthalminae) from the United Arab Emirates, with description of a new species // Proceedings of the Zoological Institute RAS. Vol.325. No.3. P.291–307. <https://doi.org/10.31610/trudyzin/2021.325.3.29>.
- Lindberg H. 1954. Hemiptera Insularum Canariensium // Commentationes Biologicae. Vol.14. No.1. P.1–304.
- Lindberg H. 1963. Zur Kenntnis der Zikadenfauna von Marokko I // Notulae Entomologicae. Vo.43. P.21–37.
- Lindberg H. 1965. Eine kleine Zikaden-Ausbeute (Hom., Cicadina) aus Aaiun in Spanish-Sahara // Notulae Entomologicae. Vol.45. P.13–16.
- Lindberg H., Wagner E. 1965. Supplementum secundum ad cognitionem Hemipterorum Insularum Canariensium // Commentationes Biologicae. Vol.28. P.1–14.
- Linnavuori R. 1969. Contributions to the Hemiptera fauna of Egypt // Annales Entomologici Fennici. Vol.35. No.4. P.204–215.
- Nast J. 1972. Palaearctic Auchenorrhyncha (Homoptera). An annotated check list. Warszawa: Polish Scientific Publishers. 550 p.
- Viraktamath C.A. 2017. Review of the leafhopper tribe Adelungiini (Hemiptera: Cicadellidae: Megophthalminae) from the Indian subcontinent // Entomon. Vol.42. No.1. P.47–58.

Поступила в редакцию 16.5.2024