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A new species of the genus *Issus* Fabricius (Hemiptera: Auchenorrhyncha: Fulgoroidea: Issidae) from Northwestern Algeria

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ABSTRACT

Issus christiani sp. nov. is described from Mostaganem Province of Northwestern Algeria. The new species belongs to "yellowish green" group of *Issus* species and it is closely related to *I. vaucheri* Gnezdilov, 2017 according to the structure of male genitalia, but differs by shorter fore wings (length – 4.0 mm) and shorter ventral aedeagal hooks (0.25 times as long as aedeagus). Thus including the new species currently the genus *Issus* Fabricius, 1803 is documented from the Mediterranean Africa with five species. Key to African species of *Issus* is given.

Key words: Africa, Issina, morphology, new species, systematics

Новый вид рода *Issus* Fabricius (Hemiptera: Auchenorrhyncha: Fulgoroidea: Issidae) из северо-западного Алжира

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РЕЗЮМЕ

Issus christiani sp. nov. описан из провинции Мостаганем на северо-западе Алжира. Новый вид принадлежит к группе "желтовато-зелёных" видов рода *Issus* и наиболее близок к *I. vaucheri* Gnezdilov, 2017 по строению гениталий самцов, но отличается более короткими передними крыльями (длина – 4.0 мм) и более короткими вентральными крючками эдеагуса (0.25 длины эдеагуса). Учитывая описываемый новый вид, в настоящее время род *Issus* Fabricius, 1803 известен из Средиземноморской Африки по 5 видам. Дана определительная таблица ко всем африканским видам рода *Issus*.

Ключевые слова: Африка, Issina, морфология, новый вид, систематика

INTRODUCTION

During my study of the collection of Prof. R. Remane (1929–2009) in the Staatliche Naturhistorische Sammlungen (Dresden, Germany) a new species of the genus *Issus* Fabricius, 1803 was discovered. A single male of this new species was collected by R. Remane in the Mediterranean plant community in Mostaganem Province of Northwestern Algeria.

Currently five species of the genus *Issus* including the new one described below are known from the Mediterranean Northern Africa: *Issus* sp. nov., *I. afrolauri* Sergel, 1986, and *I. kabylicus* Dlabola, 1989 – Algeria; *I. tubiflexus* Gnezdilov, 2017 – Libya; *I. vaucheri* Gnezdilov, 2017 – Morocco (Sergel 1986; Dlabola 1989; Gnezdilov 2017; Gnezdilov et al. 2014).

MATERIAL AND METHODS

Morphological terminology follows Gnezdilov (2003) and Gnezdilov et al. (2014). Taxonomy follows Gnezdilov (2016).

The drawings were made using a Leica MZ 95 light microscope with a camera lucida attached. The photographs were taken using the microscope Leica Z16 APOA and a Leica DFC 490 camera. Images were produced using Leica Application Suite V. 4.5, Helicon Focus V. 6.7.1 and Adobe Photoshop software.

The holotype of the species described is deposited in the Staatliche Naturhistorische Sammlungen, Dresden, Germany (SNSD).

SYSTEMATICS

Family Issidae Spinola, 1839

Subfamily Issinae Spinola, 1839

Tribe Issini Spinola, 1839

Subtribe Issina Spinola, 1839

Genus *Issus* Fabricius, 1803

Type species: *Cicada coleoptrata* Fabricius, 1781.

***Issus christiani* sp. nov.**
(Figs 1–12)

Holotype, Male, "FASMaAl 80–65, Algerien, w / Abdelmalek Ramdan / nö Sidi Lakhdar, / [36°08'10''N 0°21'02''E, Radius" // "20 km, alt. 0–250 m], Krüppel – / wald an Küsten–Berghang / keine Windschur, Pinus marit., / Junip. Phoen., Arbutus, Ulex," // "Calicot., Lav. stoechas, Quer- / cus ? cocc. od ilex – Büschchen, / Lentiske, 29.07.1980, leg. / coll. / R. Remane, Museum Dresden" // "Issus grün ♂ / (lauri?) / det. R. Remane" (SNSD).

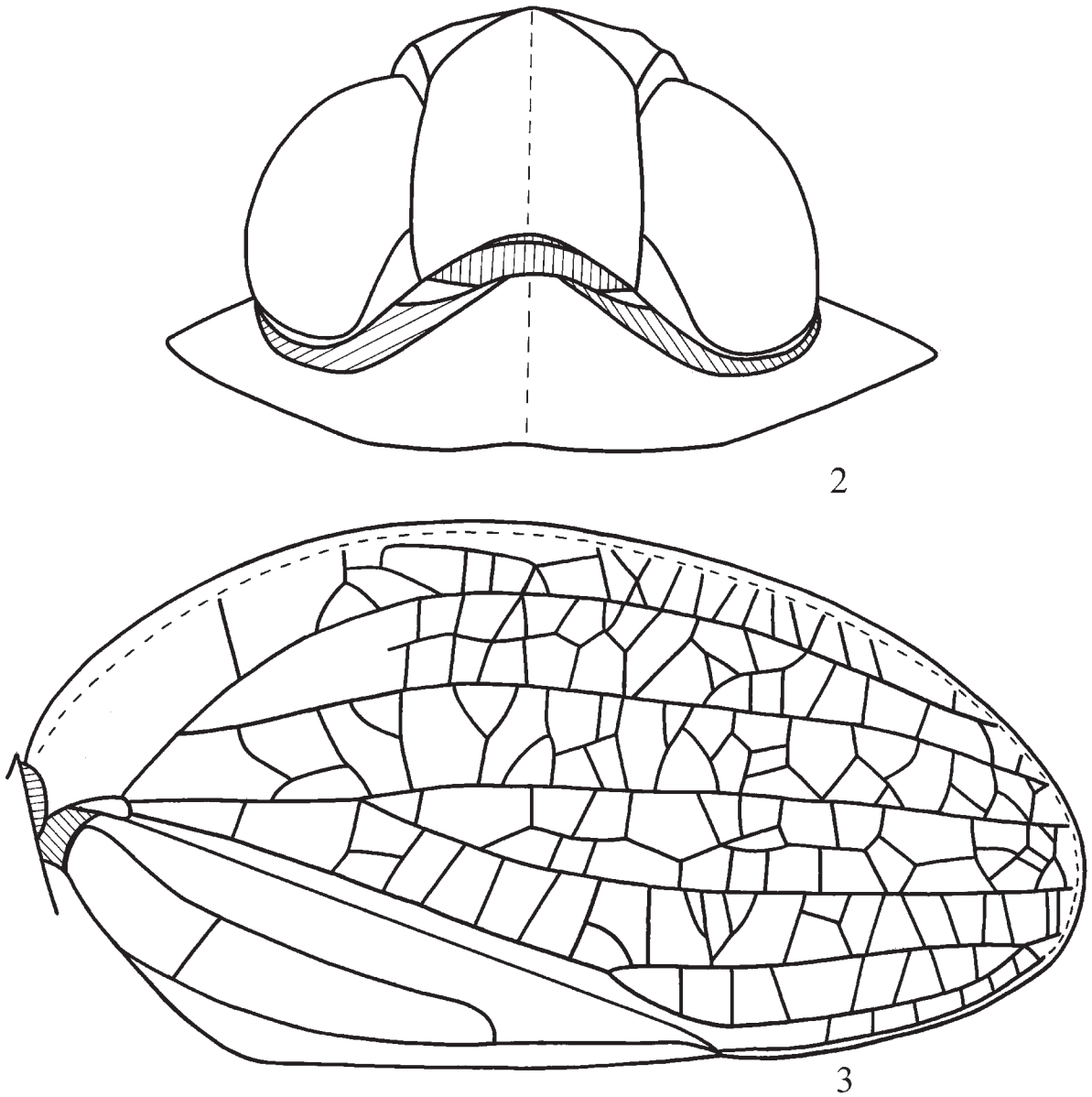
Etymology. The species named after Dr. Christian Schmidt – curator of Hemiptera collection in Staatliche Naturhistorische Sammlungen in Dresden who put his kind efforts to accommodate R. Remane's materials into the main collection and make it available for study.

Type locality. Mostaganem Province, NE Sidi Lakhdar (36°08'10''N, 0°21'02''E).

Diagnosis. General coloration light brown yellowish green. Habitus stout (head with fore wings combined, in dorsal view). Ventral aedeagal hooks short – 0.25 times as long as phallobase.

Description. Body stout, shortly oval (in comparison to *I. tubiflexus* and *I. vaucheri* with fore wings longer) (Figs 1, 13, 14). Coryphe elongate, 1.3 times as long as pronotum at midline, with weak median carina; lateral margins slightly converging apically (Fig. 2). Anterior margin of coryphe strongly convex; posterior margin concave. Metope elongate, weakly enlarged below the eyes, with distinct median carina, running from its upper margin to metopoclypeal suture, and with sublateral carine, distinct only in upper half of metope. Median and sublateral carinae of metope joint at one point on its upper margin. Metopoclypeal suture distinct, convex. Coryphe and metope joint at obtuse angle (in lateral view). Ocelli absent. Pedicel elongate. Pronotum with weak median carina and pair of concavities besides of it; anterior margin strongly convex; posterior margin nearly straight, with weak median concavity. Paradiscal fields of pronotum wide. Paranotal lobes wide, without carinae. Mesonotum 1.3 times as long as pronotum at midline, with weak median carina and distinct lateral carinae. Tegulae small. Fore wings with narrow and short hypocostal plate. Basal cell small. R 2, furcating closely to basal cell. M 2, furcating shortly after R. CuA 2, furcating after wing middle. Many transverse veins (Fig. 3). Hind wings oval, reaching hind margin of abdominal tergite VI. Hind tibia with 2 lateral spines in its distal half and

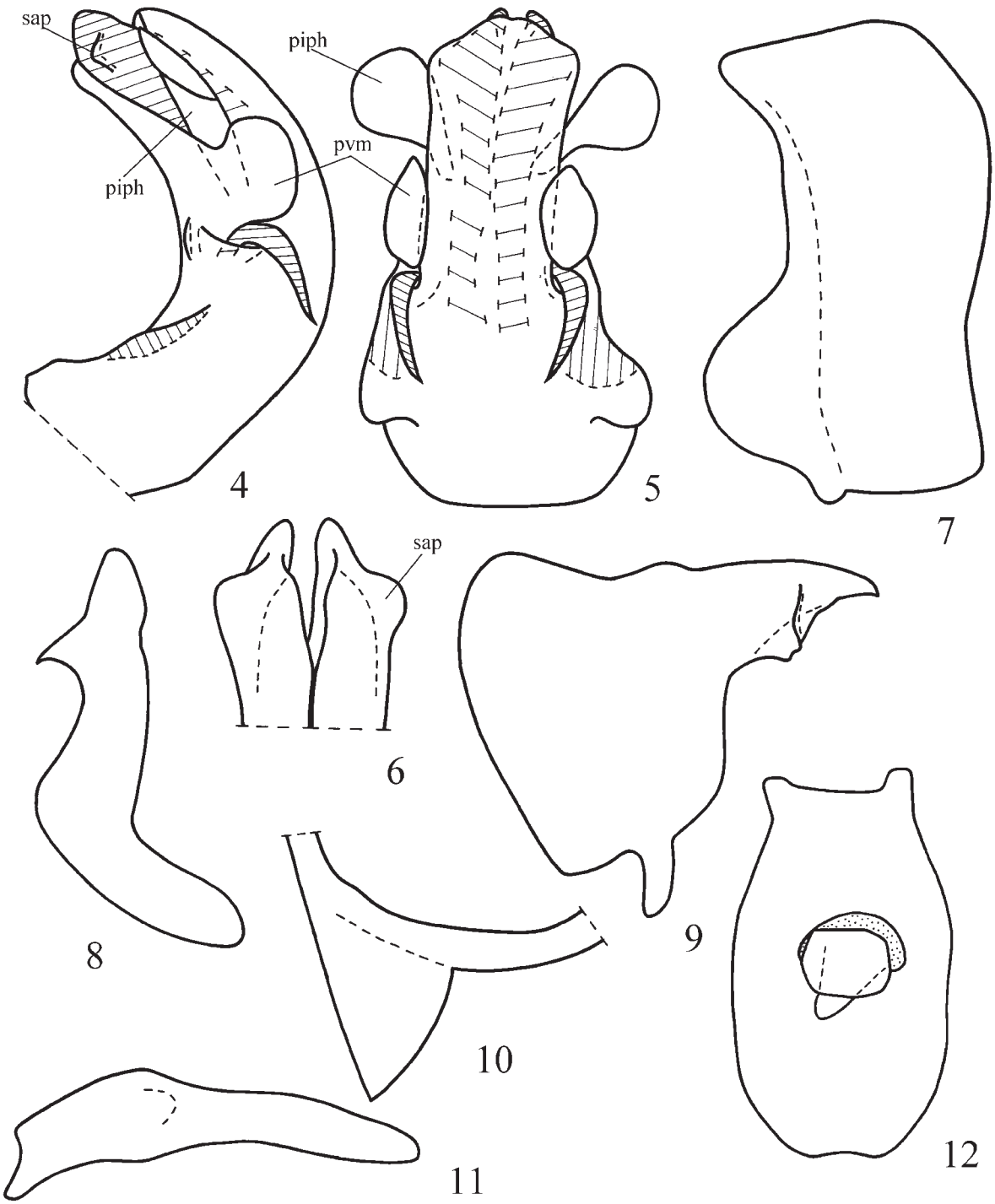
Fig. 1. *Issus christiani* sp. nov., holotype.



Figs 2–3. *Issus christiani* sp. nov., holotype. 2 – head and pronotum, dorsal view, 3 – fore wing.

8 apical spines. First metatarsomere slightly longer that second one, with 2 latero-apical and 5 intermediate spines arranged in a continuous row. Second metatarsomere with only 2 latero-apical spines.

Coloration. General coloration light brown yellowish green (Fig. 1). Head with transverse dark brown stripe running across upper part of metope below coryphe margin, excluding pale median carina and traces of larval sensory pits, and preocular fields. Pedicel light yellow basally and brown in its apical half. Paranotal lobes brown excluding light yellow lower margins and pustules. Fore wing veins green. Leg spines brown, with black apices. Claws dark brown to black.



Figs 4–12. *Issus christiani* sp. nov., holotype, male genitalia. 4 – penis, lateral view; 5 – penis, ventral view; 6 – apical aedeagal processes, ventral view; 7 – pygofer, lateral view; 8 – style, dorsal view; 9 – style, lateral view; 10 – connective, lateral view; 11 – anal tube, lateral view; 12 – anal tube, dorsal view. Abbreviations: *pvm* – projections of ventral margins of dorsolateral lobes of phallobase, *piph* – processes of inner walls of dorsolateral lobes of phallobase, *sap* – subapical projections of apical aedeagal processes.

Figs 13–14. *Issus* spp. 13 – *I. vaucheri* Gnezdilov, male, paratype, 14 – *I. tubiflexus* Gnezdilov, male, holotype (after Gnezdilov, 2017). Total length of the specimens – 5.8 mm.

Male genitalia (Figs 4–12). Anal tube nearly 2.5 times as long as wide (in dorsal view); lateral margins not turned down (in lateral view); apex with weak concavity (Figs 11, 12). Pygofer with convex hind margins in its upper half (in lateral view) (Fig. 7). Phallobase horse-shoe shaped (in lateral view), without median carina ventrally, nearly completely covering the aedeagus (Figs 4, 5). Processes of inner walls of dorsolateral lobes of phallobase (*piph*) (or earlike processes in Gnezdilov 2017) wide and rounded. Projections of ventral margins of dorsolateral lobes of phallobase (*pvm*) (or subapical lobes of phallobase in Gnezdilov 2017) large, rounded. Ventral phallobase lobe long, wide, as long as dorso-lateral lobes, convex apically. Apical aedeagal processes wide (in lateral view), slightly surpassing upper phallobase margin, with rounded subapical projections (*sap*) (Fig. 6). Ventral aedeagal hooks short (0.25 times as long as aedeagus), flat, slightly enlarged basally, narrowing to pointed apices, directed to aedeagus midline (Figs 4, 5). Connective with wide cup (Fig. 10). Style with concave hind margin and rounded caudo-dorsal angle (Fig. 9). Capitulum of style narrowing apically (in dorsal view), with wide neck and wide lateral tooth (Fig. 8).

Total length (from apex of coryphe to apices of fore wings). 5.0 mm.

Comparison. The species belongs to "yellowish green" group of *Issus* species (Figs 13, 14) and it is morphologically very similar and presumably closely related to *I. vaucheri* according to structure of male genitalia, but differs by shorter fore wings and shorter ventral aedeagal hooks. The differences between all African species of the genus are given in the key below.

Key to African species of the genus *Issus*

1. Phallobase with strong median carina below its ventral lobe, anal tube deflexed apically (in lateral view) (Gnezdilov 2017, figs 5, 6, 8) . . . . ***I. tubiflexus*** Gnezdilov
– Phallobase with weak median carina or without it, anal tube straight apically (in lateral view) **2**

2. Phallobase with weak median carina below ventral lobe (Sergel 1986, figs 6, 7) **3**
– Phallobase without median carina below ventral lobe **4**
3. Fore wings yellowish green. . . . . ***I. afrolauri*** Sergel
– Fore wings brown . . . . . ***I. kabylicus*** Dlabola
4. Length of fore wing – 4.7 mm. Ventral aedeagal hooks 0.3 times as long as aedeagus (Gnezdilov 2017, fig. 15) . . . . . ***I. vaucheri*** Gnezdilov
– Length of fore wing – 4.0 mm. Ventral aedeagal hooks 0.25 times as long as aedeagus (Fig. 4) . . . . . ***I. christiani*** sp. nov.

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