

**A new species of *Aedophron* Lederer, 1857 from Iran
(Lepidoptera: Noctuidae, Heliethinae)**

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Abstract – A new *Aedophron* species, *A. sumorita* sp. n. is described from Iran. The genitalia of the four western Palaearctic species of the genus are characterised and illustrated. *Aedophron monotonia* AMSEL, 1935 is synonymised with *A. phlebophora* LEDERER, 1858. With 43 figures.

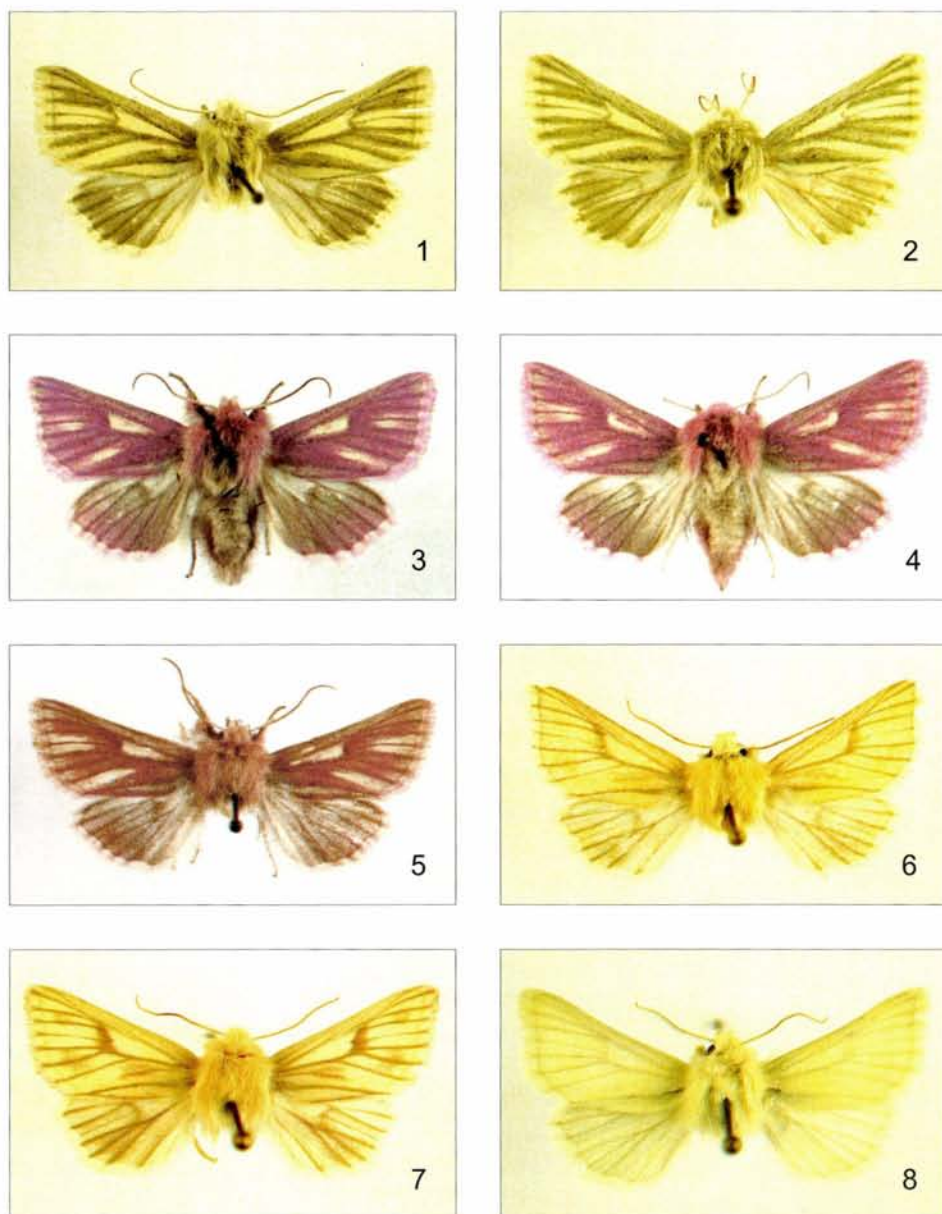
Key words – Lepidoptera, Noctuidae, *Aedophron*, Iran, new species, new synonymy.

INTRODUCTION

As a result of the series of Hungarian entomological expeditions to various parts of Iran in the years 1999–2001, a large material of Noctuidae was collected. The first novelties found in this material have been published by BENEDEK & RONKAY (2001a, b). The present paper contains the description of a new *Aedophron* LEDERER, 1857 species found in the Zagros Mts, SW Iran.

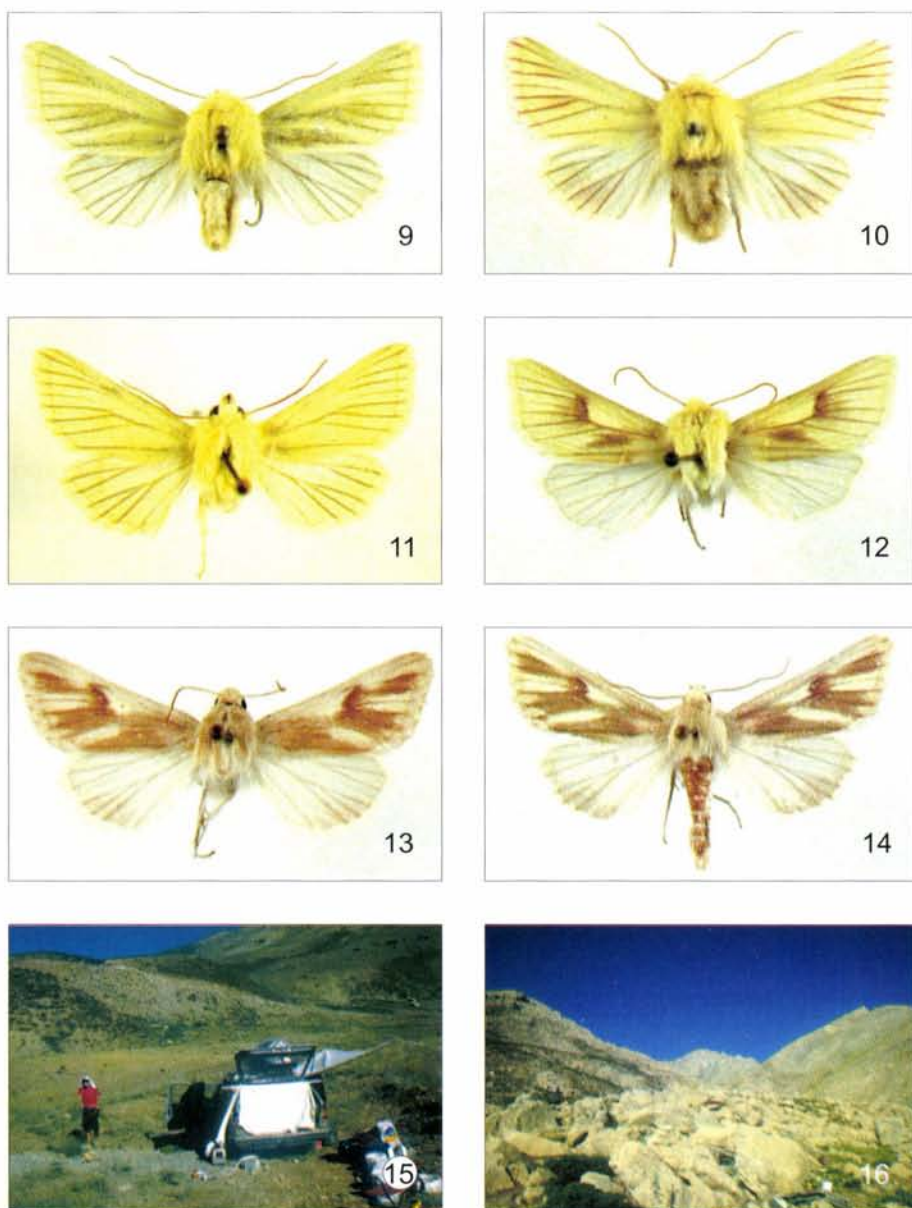
The eremic heliothine genus *Aedophron* LEDERER, 1857 contains altogether six species: *rhodites* (EVERSMANN, 1851), *sumorita* sp. n., *venosa* CHRISTOPH, 1887, *eos* VARGA et RONKAY, 1991, *sueli* THÖNY, 1993 and *phlebophora* LEDERER, 1858, respectively (see Figs 1–14). The taxon *monotonia* AMSEL, 1935, described from Palestine, is not a distinct taxon as mentioned by the recent catalogues (POOLE 1989, HACKER 1990) but a mere synonym of *A. phlebophora* (**syn. n.**) representing a patternless pale form of the nominate species. Such patternless pale yellow forms may appear in different populations of *A. phlebophora*, although they are rather rare; a similarly patternless, ochreous-yellowish form of *A. venosa* is also recorded (see Fig. 8).

The species of the genus inhabit desert and semi-desert habitats of the Near East, Asia Minor, Iran and the western part of Central Asia, only one species, *A. eos*, is recorded from Inner Asia, while two of them are known from the eastern edges of Europe (*A. rhodites* from the Black Sea Coast, SE Ukraine, S Russia and the European part of Kazakhstan; *A. phlebophora* is reported from European Tur-



Figs 1–8. *Aedophron* species: 1 = *A. sumorita* sp. n., holotype, Iran, 2 = *A. sumorita* sp. n., paratype, Iran, 3 = *A. rhodites*, male, Turkey, 4 = *A. rhodites*, female, Turkey, 5 = *A. rhodites*, female, Turkey, 6 = *A. venosa*, male, Turkmenistan, 7 = *A. venosa*, female, Iran, 8 = *A. venosa*, male, Iran, patternless

key). Some of the generic synapomorphies reflect also their adaptation to the eremic conditions, e.g. the large, corneous prominence of the frons and the three



Figs 9–16. 9–14 = *Aedophron* species: 9 = *A. phlebophora*, male, Turkey, 10 = *A. phlebophora*, female, Turkey, 11 = *A. phlebophora*, male, Iran, 12 = *A. sueli*, holotype, Kazakhstan, 13 = *A. eos*, holotype, Mongolia, 14 = *A. eos*, male, Kazakhstan; 15–16 = habitats of *Aedophron sumorita* sp. n., Iran, Zagros Mts

heavily sclerotized digging claws of the distal third of the fore tibiae, serving for the emergence of the adults from the dried soil.

The male genitalia of the taxa of the genus are illustrated by HREBLAY and THÖNY (1992) and THÖNY (1993). These drawings display fairly the characteristics of the clasping apparatuses; the configuration of the vesicae, however, due to their rather complex, more or less globular structure, is somewhat artificial. The female genitalia of three *Aedophron* species, *A. rhodites*, *A. venosa* and *A. eos*, are figured by VARGA and RONKAY (1991), but those of *A. phlebophora* have never been published. Thus, the genitalia of all western Palearctic *Aedophron* species and of *A. eos* are illustrated in the Figs 17–43.

All known *Aedophron* species are univoltine. Adults are on the wing at the late spring and the early summer period. The species are rather local but usually frequent in their habitats. The moths are attracted strongly to artificial light, specimens sometimes can be found resting on flowers during the day. Early stages and foodplants are generally unknown.

SYSTEMATIC PART

Aedophron sumorita sp. n.

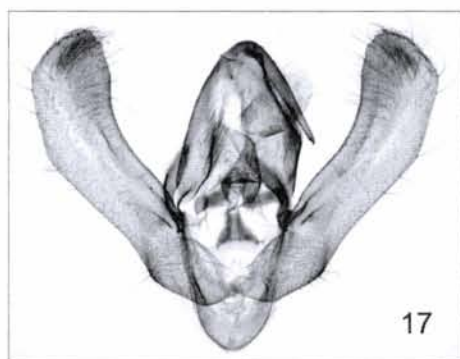
(Figs 1–2, 17–19, 32–33)

Holotype – Male, “IRAN, Prov. Esfahan, Zagros Mts, 10 km S from Shibak, 50°01'22"E, 32°50'16"N, 2700 m, 10.VI.2000, leg. Gy. Fábián”, slide No. RL7442, coll. B. HERCZIG (deposited in the HNHM, Budapest).

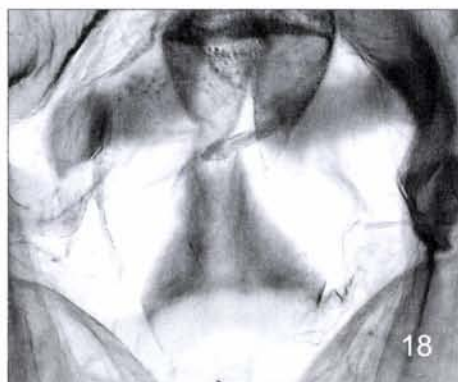
Paratype – Female, “Iran, Prov. Hamadan, Zagros Mts, 25 km W Khakadan, 48°20'30"E, 34°2'53"N, 2200 m, 21.VI.2000, leg. Gy. Fábián, L. Szécsényi & K. Székely”; slide No. RL7470 (coll. L. SZÉCSÉNYI, Budapest).

Diagnosis – The new species is the allopatric sister taxon of *A. rhodites*. They are easily distinguishable by their external appearance as *A. sumorita* (Figs 1–2) is pale lemon-ochreous with olive shade and with diffuse olive-greyish suffusion on and along the veins, while *A. rhodites* (Figs 3–5) is variably dark purple-pinkish with ochreous patches between veins. The reniform stigma of *A. sumorita* is a narrow greyish arch, it is a broad purplish patch in *A. rhodites*; the hindwing and the underside is milky white in *A. sumorita*, without darker pinkish-purplish suffusion, etc. *A. sumorita* differs externally from *A. venosa* (Figs 6–8) by its large size, broader forewings with diffuse olive-greyish covering on veins and reduced reniform stigma; from *A. phlebophora* (Figs 9–11) by its smaller size, more straight outer margin of the forewing, less bright lemon-yellowish forewing ground colour,

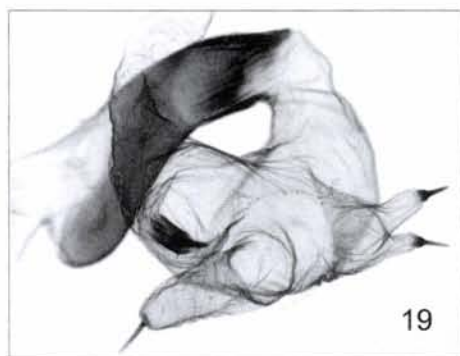
much broader and more diffuse, dark olive-greyish, not pinkish-violaceous covering of the veins, stronger reniform stigma (it is absent in *A. phlebophora*), darker hindwing with much broader marginal suffusion, etc.



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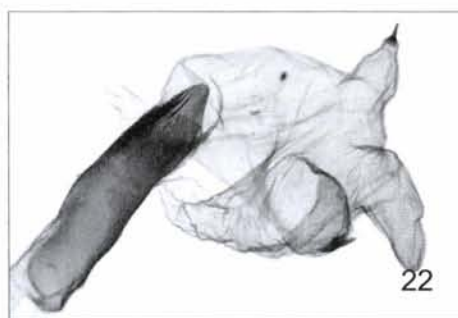
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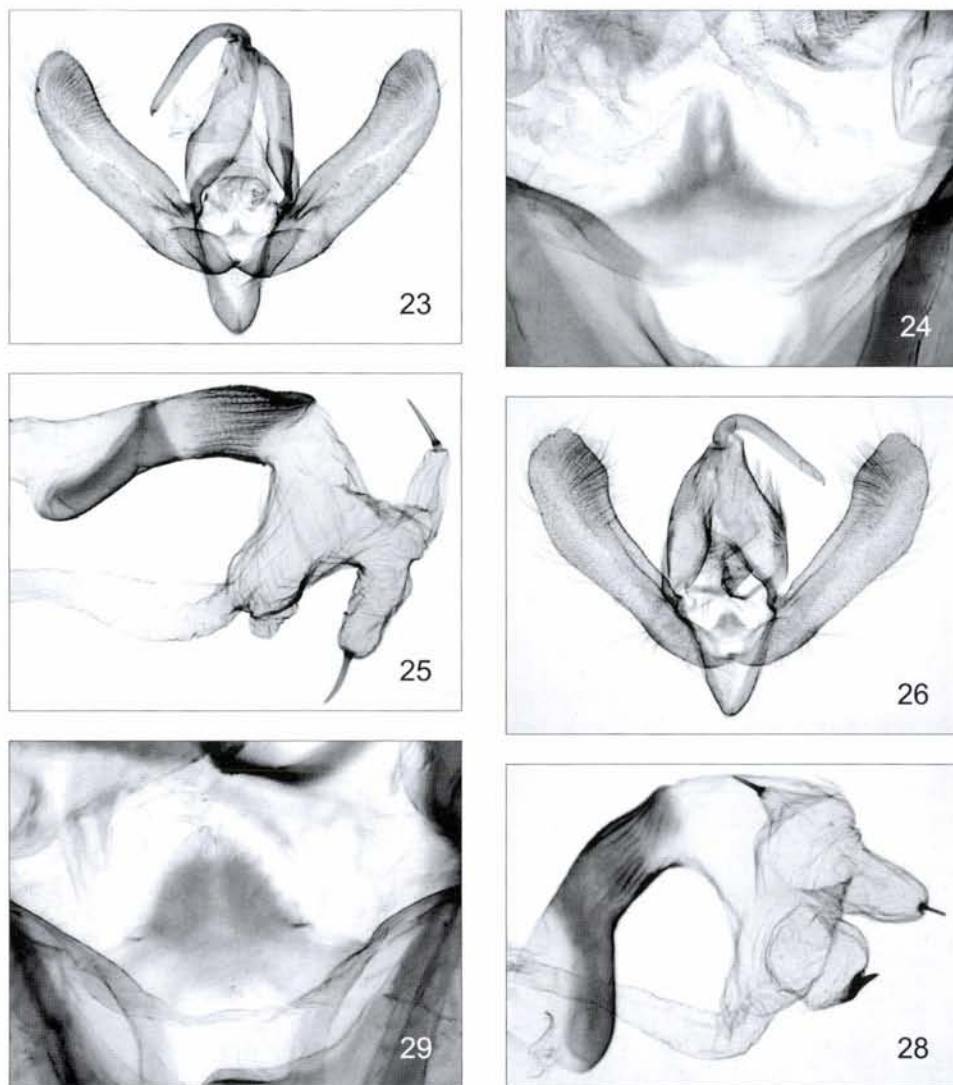
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Figs 17–22. Male genitalia of *Aedophron* species: 17–19 = *A. sumorita*, holotype, Iran (17 = clasp apparatus, 18 = fultura inferior, 19 = aedeagus with vesica), 20–22 = *A. rhodites*, Turkey (20 = clasp apparatus, 21 = fultura inferior, 22 = aedeagus with vesica)

The two Central Asian members of the genus are larger than *A. sumorita*, their forewings are more elongate and the hindwings are white or whitish, without pattern in both sexes, the ground colour is either pinkish-brownish (*A. eos*, Figs 13–14) with milky whitish patches, or ochreous with rosy-reddish spots and well-developed reniform stigma (*A. sueli*, Fig. 12).

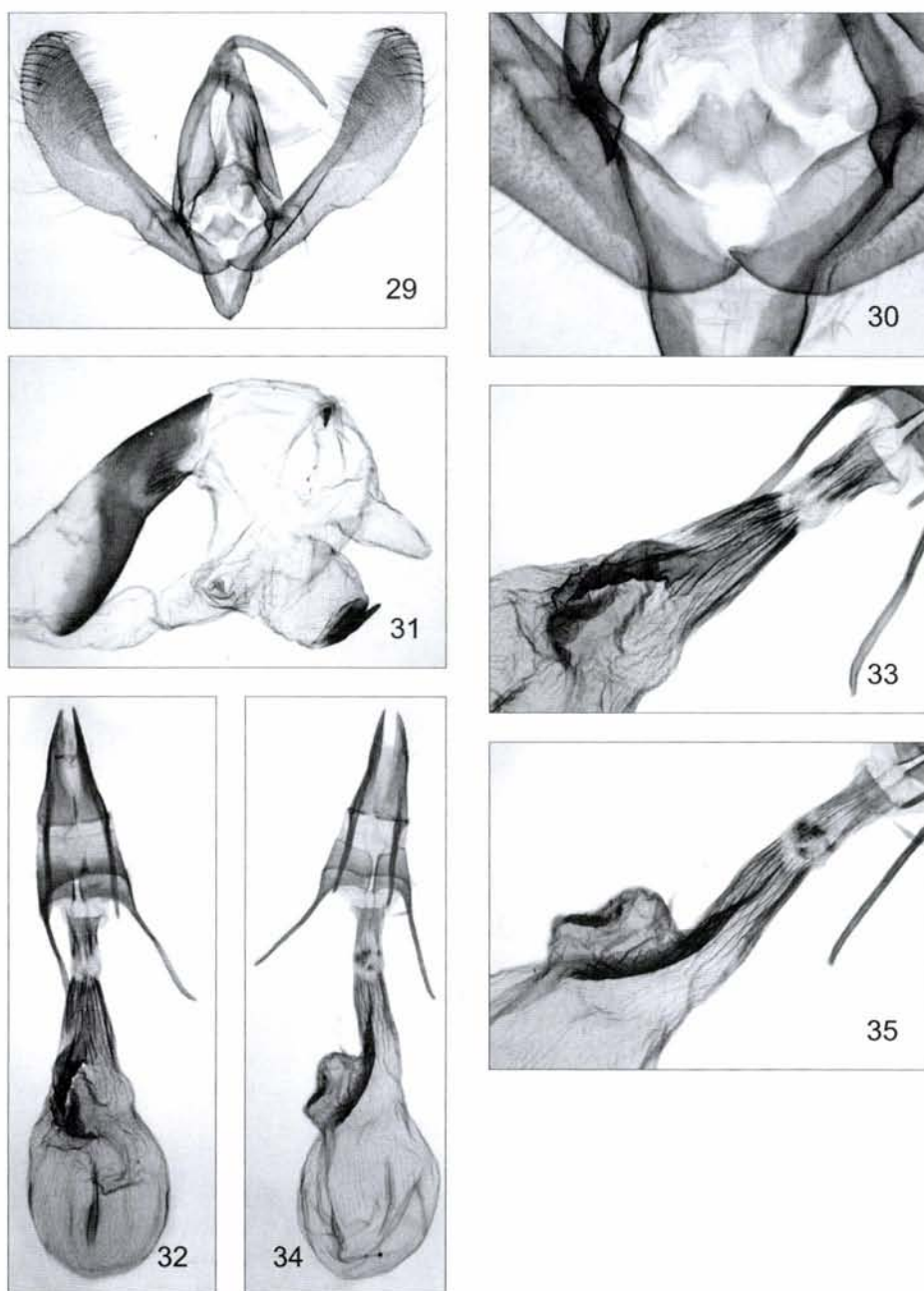


Figs 23–28. Male genitalia of *Aedophron* species: 23–25 = *A. phlebophora*, Iran (23 = clasp apparatus, 24 = fultura inferior, 25 = aedeagus with vesica), 26–28 = *A. venosa*, Iran (26 = clasp apparatus, 27 = fultura inferior, 28 = aedeagus with vesica)

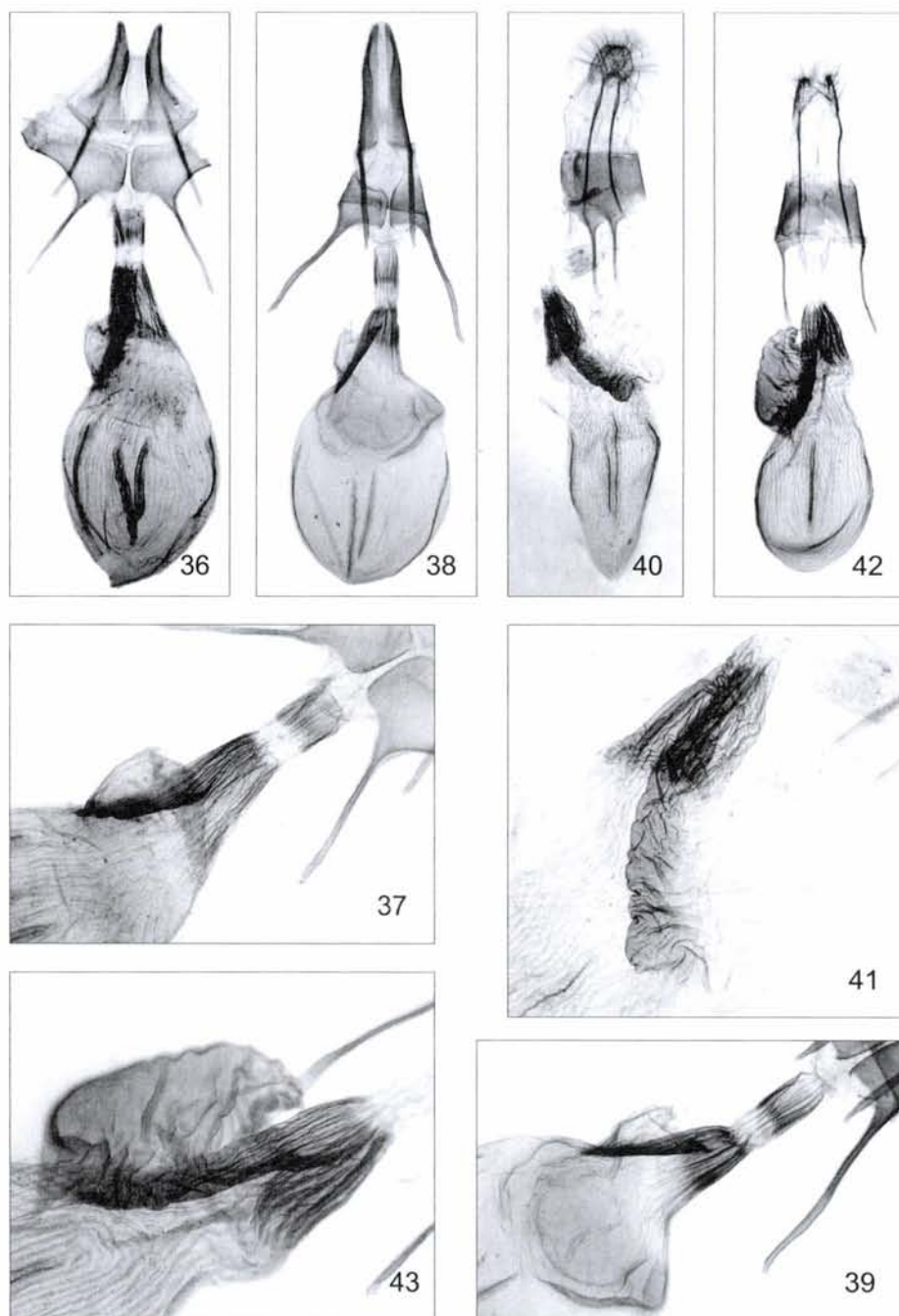
The male genitalia of the species of *Aedophron* differ mostly by the configuration of the vesica, the features of the rather simplified clasping apparatus are usually variable, although the shape of the valva and the fultura inferior show also specific differences. The vesica of the new species (Fig. 19) differs from that of its twin species, *A. rhodites* (Fig. 22) by its larger cornuti and more dentate-serrate carina, and all diverticula are situated more distally, especially of the most proximal one (its bifid structure and the doubled terminal cornuti may be only an individual aberration). (In addition, the valvae of *A. sumorita* are more arched, with broader, apically more rounded cucullus and the fultura inferior is narrower but longer than in *A. rhodites*). The vesica of *A. venosa* (Fig. 28) is narrower, more tubular, less recurved distally, its all diverticula smaller, situated more proximad and somewhat stronger, longer than those of *A. sumorita*. The vesica of *A. sueli* has the longest cornuti within the genus, besides this, this species has the longest, distally slightly, evenly dilated valvae. The two other taxa, *A. phlebophora* and *A. eos*, have only two cornuti in the vesica: *A. phlebophora* has two more or less equally long spinules sitting on two oppositely projecting ventro-medial diverticula (Fig. 25). The proximal cornutus of *A. eos* (Fig. 31) is very small, situated subbasally, the second cornutus is large, broad-based, sitting on large subterminal diverticulum, the third (ventro-medial, long, tubular) diverticulum has no apical cornutus (in case of the two male specimens studied).

The female genitalia of *A. sumorita* (Figs 32–33) are very similar to those of *A. rhodites* (Figs 34–35), but the anterior part of the ductus bursae is more dilated, having longer sclerotized ribs and the ventro-lateral sclerotized ribbon of the ductus bursae is shorter, broader, more cristate-ribbed, extending only to the middle of the pouch-like part of appendix bursae. Comparing the female genitalia of *A. sumorita* and *A. venosa* (Figs 36–37), the ovipositor of the new species is considerably longer, the proximal part of the ostium bursae and the sclerotized ribbon of the ductus bursae are also significantly longer than those of *A. venosa*. The female genitalia of *A. phlebophora* (38–39) are characterizable by the presence of a smoothly sclerotized, large zone on both surfaces of the apical part of the corpus bursae which is missing from the other taxa of the genus, and the comparatively longest ovipositor and the short, rather smooth, crest-like sclerotized ribbon of the ventral part of the ductus bursae. The female genitalia of *A. eos* (40–43) is rather unique within the genus, differing from all known congeners by its weak, short, rounded papillae anales.

Description – Wingspan 27–28 mm, length of forewing 12–12.5 mm. Male. Head large, palpi short, slightly upturned, third joint minute, rounded. Frons with large, corneous prominence having strong horizontal crest at middle. Pubescence of head and thorax pale ochreous, collar, tegulae and mesothorax mixed with olive-greyish hairs; abdomen more ochreous-whitish. Claws of fore tibiae



Figs 29–35. 29–31 = Male genitalia of *Aedophron eos*, Kazakhstan (29 = clasp apparatus, 30 = fultura inferior, 31 = aedeagus with vesica). 32–35 = Female genitalia of *Aedophron* species: 32–33 = *A. sumorita*, paratype, Iran, 34–35 = *A. rhodites*, Turkey



Figs 36–43. Female genitalia of *Aedophron* species: 36–37 = *A. venosa*, Turkmenistan, 38–39 = *A. phlebophora*, Iran, 40–43 = *A. eos* (40–41 = holotype, Mongolia, 42–43 = Kazakhstan)

very strong, curved, blackish. Forewing rather short, broad, with apex pointed, upper two-thirds of outer margin more or less straight, slightly concave, tornal angle rounded. Ground colour pale lemon-ochreous, all veins covered broadly, diffusely with olive-greyish scales. Reniform stigma represented by a fine greyish arch on crossvein; all other elements of noctuid maculation entirely absent. Cilia as ground colour, inner half weakly spotted with olive-greyish at ends of veins. Hindwing shining milky white, veins diffusely covered with brownish grey; marginal suffusion broad, dark brownish grey. Cilia milky white, with a few darker dots at veins. Underside of both wings patternless, shining milky whitish. Female. As male, only slightly darker, with more extensive olive-greyish irroration along veins, forewing ground colour somewhat paler ochreous.

Male genitalia (Figs 17–19): Uncus strong, rather straight, cuneate, apically finely hooked; tegumen narrow and long, peniculus lobes rather angular, relatively small. Fultura inferior small, sclerotized, triangular with finely incised apex; vinculum broad, U-shaped. Valvae elongate, medium-long, relatively broad, slightly arcuate with finely pointed angles at end of sacculus and at base of cucullus. Costal and ventral margins more or less parallel, distal third only slightly broadened; cucullus rounded triangular, with weak, scarce corona and with stronger setae on ventral surface. Sacculus short, rather rounded, without differentiated clavus; harpe reduced to a short sclerotized crest of its basal plate, situated close to basal bar of transtilla. Aedeagus cylindrical, medium-long, thick, finely curved. Dorsal part of carina relatively strongly sclerotized, bill-like, dorsal, ventral and right lateral surfaces ribbed and serrate-dentate with small but acute, strong teeth. Vesica broadly tubular, narrower at carina, then bent ventrally and recurved dorso-laterally on left side. Main part inflated, membranous, medial part with large, apically bifid ventro-lateral diverticulum projecting forward, armed with 1–1 small but strong, pin-like cornuti. Distal half of vesica finely scobinate, with long, tubular-conical ventro-lateral diverticulum bearing fine, rather long pin-like apical cornutus and with larger, semiglobular subterminal (dorso-lateral) diverticulum, armed with broad-based, short but strong terminal cornutus.

Female genitalia (Figs 32–33): Ovipositor long, strong, sclerotized, papillae anales acute, wedge-shaped, only finely setose; both pairs of gonapophyses strong, long, slender. Caudal half of ostium bursae cup-shaped, membranous with somewhat stronger ventro-lateral half-ring; anterior part tubular, short, narrow, strongly cristate-ribbed with sclerotized longitudinal crests and ribs; anterior end of ostium bursae membranous, wrinkled and partly gelatinous. Ductus bursae long, tubular, proximally dilated, strongly cristate and ribbed, ventral side with stronger, broader, cristate-crenulate ribbon running from distal end of ductus bursae to proximo-lateral edge of appendix bursae. Apical part of corpus bursae strongly wrinkled, appendix bursae subconical, strongly ribbed, with large, narrow, foveoid ventral pouch. Main part of corpus bursae elliptical-ovoid, wrinkled and finely scobinate, with four unequal signum-stripes (three of them rather equal, fourth, ventral signum considerably shorter).

Bionomics – Poorly known, the two specimens were collected at light, in a relatively high part of a long, deep rocky valley, nearby a little stream followed by sparse willow stands.

Distribution – The new species is known from a small area of the Zagros Mts only.

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Diaria itinerum *Pauli Kitaibelii III.* 1805–1817

Edited by László Lőkös

Paul Kitaibel, the renowned Hungarian botanist completed 17 longer and several shorter journeys in the 18–19th century during which he wrote a very detailed travel diary. Leaving Pest or Buda, from the boundary of the town he kept a scientifically very thorough itinerary making it as detailed as possible. His observations covered the entire geological and natural geographical aspects of the landscape, laying special emphasis on rocks, minerals, soil, running and still waters. He specifically examined mineral waters, the first analyses of which were made on the spot with his travelling laboratory kit. The most painstaking and thorough observations were made on the plants. With profound thoughtfulness he made his notes also on the animals he saw. Besides the known plants he reported the discovery of numerous new plant species in his diary. He complemented the species list with phytogeographical, ecological, cenological observations still valid today, well preceding the scientific character of his age. He jotted down everything he experienced.

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Kitaibel's travel diary was written in German and Latin. The text is written with the orthography used by Kitaibel, and the same holds also for the species names. The illegible, consequently unprinted parts are indicated by a row of dots (...), while the uncertain readings of some words are (?) question marked.

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