

# *Reliquantha variipes* gen. & sp. nov., a peculiar new taxon of Anthomyzidae (Diptera) from Great Britain with uncertain relationships

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**Abstract.** A new genus *Reliquantha* is established for *R. variipes* sp. nov., an enigmatic species of Anthomyzidae discovered in Great Britain (Wales, England). The new genus and species is distinguished by a very peculiar combination of plesiomorphic and apomorphic characters including several unique structures previously unknown in Anthomyzidae. Although its relationships has not been resolved definitely, it is suggested by certain similarities to fossil *Lacrimyza* Roháček, 2013 from Baltic amber that it could be a remnant of an otherwise extinct Tertiary clade of the subfamily Anthomyzinae. The uniquely hirsute medandrium (= subepandrial sclerite) found in *R. variipes* sp. nov. is considered to be further evidence supporting the hypothesis that this structure is homologous with (fused) basal parts of the gonopods (= gonocoxites, basistyli).

**Key words.** Diptera, Anthomyzidae, *Reliquantha variipes* gen. & sp. nov., taxonomy, relationships, male genitalia, morphology, Great Britain, Palaearctic Region

## Introduction

The West Palaearctic species of Anthomyzidae are considered to be taxonomically well known, particularly thanks to monographic treatment by ROHÁČEK (2006, 2009) where even the rarest members of the family were studied in detail and thoroughly redescribed. However, there were two exceptions: (i) the mysterious *Santhomyza bezzii* (Czerny, 1902) described from a single female from northern Italy, the holotype of which has not been traced but its generic affiliation could be recognized from the original description by CZERNY (1902) and (ii) a distinctive species of Anthomyzidae with yellow and brown variegated femora known from a single female collected in Oxford (England) and deposited in OXUM which was first mentioned by ROHÁČEK (2009: 126) as an unnamed species probably associated

with tree fungi. The latter specimen was previously examined by me in 2005–2006 but because its generic placement could not be recognized even from postabdominal structures, the specimen was returned and the description of this peculiar species postponed until additional material was collected. In August 2012, Peter J. Chandler informed me of an interesting male specimen of Anthomyzidae he collected in Wales (U. K.) that could not be identified by means of the monograph cited above. Because his brief description of the specimen indicated that this male could be conspecific with the Oxford female, I asked for a loan of both specimens for study.

A more thorough examination of this pair with particular emphasis on postabdominal and genital structures resulted in the surprising finding that this undoubtedly new species cannot be associated with any of the described genera of Anthomyzidae including the fossil ones (all described or redescribed in ROHÁČEK 1998, 2013). Therefore, a new genus is established here for the new species (described below) and its relationships are discussed on the basis of comparison with other genera hitherto recognized within the subfamily Anthomyzinae.

### Material and methods

The abdomen of each specimen was detached and cleared for genitalia study and preserved in glycerine. In the male, one wing and some legs also were removed and after examination preserved together with the genitalia. Male genitalia and female postabdominal structures were examined after detachment, treatment in hot 10% KOH, washing in water and dissection of the whole abdomen in a drop of glycerine under a bionocular microscope. After examination, all parts were transferred to glycerine in small plastic tubes in glycerine and pinned below the respective specimens. Detailed examinations were performed with a compound microscope (Jenaval) and genitalic structures drawn by means of Abbe's drawing apparatus on this microscope at higher magnification (130–350 $\times$ ). The wing was photographed on the same microscope with an attached digital camera (Nikon COOLPIX 4500); legs were drawn on squared paper using a binocular microscope (Reichert) with an ocular grid. For more detail see ROHÁČEK (2006). The holotype was photographed (before dissection) by means of a digital camera (Canon EOS 60D) with a macro lens (Canon MP-E 65 mm 1–5 $\times$ ) and ring flash (Canon MR-14EX).

The morphological terminology of the male genitalia and female postabdomen used here are adopted from ROHÁČEK (2006, 2010). That of the male genitalia is largely based on the 'hinge' hypothesis of the origin of the eremoneuran hypopygium, rediscovered and documented by ZATWARNICKI (1996). Therefore, the following alterations of terms of the male genitalia need to be listed (synonymous terms used by other hypotheses in parentheses): ejacapodeme (ejaculatory apodeme), epandrium (periandrium), gonostylus (surstylus), medandrium (intraepandrial sclerite, intraperiandrial sclerite, bacilliform sclerites), pregonite (gonite), postgonite (paramere), phallapodeme (aedeagal apodeme), phallophore (basiphallus), transandrium (posterior hypandrial bridge). For recognition of particular postabdominal and male genitalic structures in Anthomyzidae (including several special terms only used in this family), see also Figs 3, 5–9, 11, 13–15, 17–19 in this paper.

## Abbreviations of morphological terms used in text and/or figures:

A <sub>1</sub> – anal vein;	oc – ocellar (seta);
ac – acrostichal (setulae);	ors – fronto-orbital (setae);
afa – aedeagal part of folding apparatus;	pa – postalar (seta);
ag – accessory gland;	pg – postgonite;
ap – additional projection in front of postgonite;	pha – phallapodeme;
bm – basal membrane;	pp – phallopore;
C – costa;	ppl – propleural (= proepisternal) (seta);
ce – cercus;	prg – pregonite;
cp – caudal process of transandrium;	prs – presutural (seta);
cs – connecting sclerite;	pvt – postvertical (seta);
Cs <sub>2</sub> , Cs <sub>3</sub> , Cs <sub>4</sub> – 2nd, 3rd, 4th costal sector;	R <sub>1</sub> – 1st branch of radius;
CuA <sub>1</sub> – cubitus;	R <sub>2+3</sub> – 2nd branch of radius;
dc – dorsocentral setae;	R <sub>4+5</sub> – 3rd branch of radius;
dm – discal medial cell;	r-m – radial-medial (= anterior, ta) cross-vein;
dm-cu – discal medial-cubital (= posterior, tp) cross-vein;	s – saccus of distiphallus;
ea – ejacapodeme;	S1–S10 – abdominal sterna;
ep – epandrium;	sa – supraalar (seta);
f – filum of distiphallus;	sc – scutellar (seta);
f <sub>1</sub> , f <sub>2</sub> , f <sub>3</sub> – fore, mid, hind femur;	Sc – subcosta;
fc – fulcrum of phallapodeme;	sp – spermatheca;
gs – gonostylus;	stpl – sternopleural (= katepisternal) (seta);
hl – hypandrial lobe;	T1–T10 – abdominal terga;
hu – humeral (= postpronotal) (seta);	t <sub>1</sub> , t <sub>2</sub> , t <sub>3</sub> – fore, mid, hind tibia;
hy – hypandrium;	ta – transandrium;
is – internal sclerite;	vi – vibrissa;
M – media;	vr – ventral receptacle;
ma – medandrium;	vte – outer vertical (seta);
npl – notopleural (setae);	vti – inner vertical (seta).

## Results

*Reliquantha* gen. nov.

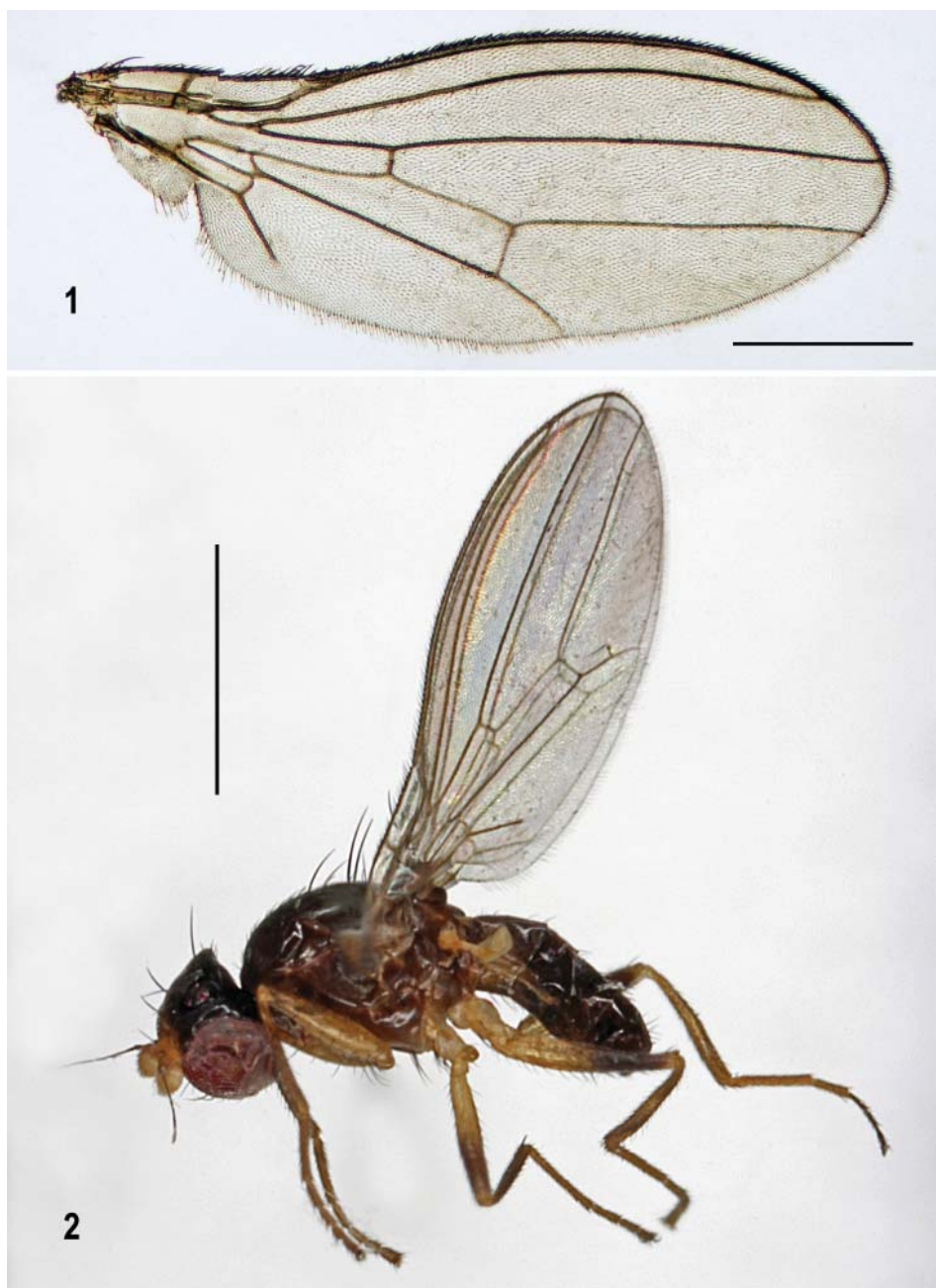
**Type species.** *Reliquantha variipes* sp. nov., hereby designated.

**Diagnosis.** (1) **Head** distinctly higher than long. (2) Eye large, broadly oval, with longest diameter subvertical. (3) Frons moderately broad; frontal triangle long, largely (including ocellar triangle) microtomentose. (4) Ocellar triangle elevated and ocelli relatively large. (5) Frontal lunule small but distinct. (6) Occiput dorsally distinctly concave. (7) Antenna geniculate between pedicel and 1st flagellomere, the latter strongly compressed laterally. (8) Arista very short-ciliate. (9) Palpus whitish, small and slightly clavate, with only 1 (subapical) seta longer. Cephalic chaetotaxy: (10) pvt relatively short, convergent; (11) vte and oc long, vti somewhat shorter; (12) oc normal, not erect; (13) 3 ors, anterior distinctly shorter than others; 1 microsetula in front of anterior ors; (14) several medial microsetulae in front of frontal triangle; (15) postocular setulae short, in single row; (16) vi relatively long, subvibrissa well developed; (17) peristomal setulae small and sparse.

(18) **Thorax** very slightly narrower than head, more or less shining, despite some microtomentum. (19) Scutellum strongly convex, postscutellum well developed. Thoracic chaetotaxy: (20) 1 hu, 2 npl (anterior distinctly longer); (21) 1 moderately long sa, 1 longer pa; (22) 1 distinct moderately long prs; (23) 2 postsutural dc, both relatively long; (24) ac microsetae not very numerous but in 4 rows, ending slightly beyond level of anterior dc; (25) 2 sc (apical longest of thoracic setae and strong, laterobasal short); (26) 1 minute upcurved ppl; (27) 2 relatively long stpl (anterior slightly shorter) plus 1 microseta in dorsal half of sternopleuron; only 2 setae on its ventral corner. (28) Femora distinctly variegated (yellow and brown); (29) tibiae darkened in the middle, yellow on apices; (30)  $f_1$  without ctenidial spine; (31)  $t_2$  with distinct but short ventroapical seta and 3 adjoining thickened setulae; (32) male  $f_3$  with posteroventral row of short and thick setae, 4–5 distal of which shortened and thickened. (33) Wing long, moderately narrow; (34) wing membrane unicolourous. (35) C with inconspicuous thicker setulae among fine hairs on  $Cs_2$ ; (36)  $R_{2+3}$  long, bent parallel to C, ending slightly farther from apex of  $R_{4+5}$  than M; (37)  $R_{4+5}$  very slightly bent; (38) cell dm moderately long and narrow; cross-vein r-m situated in the middle of dm cell. (39)  $CuA_1$  ending near,  $A_1$  far from wing margin. (40) Anal lobe and alula well developed, relatively broad.

**Male abdomen.** (41) T1 separate from T2, at least dorsally; (42) T2–T5 large and broad. (43) S2–S5 becoming wider posteriorly, all brown. Male postabdomen: (44) T6 short, transverse, bare and well sclerotized although paler-pigmented than S6–S8. (45) S6, S7 and S8 partly coalesced together but their borders distinct. (46) S6 short, strongly asymmetrical, band-like tapered on both sides, with longest middle part separated horizontally from S7. (47) S6 and S7 entirely bare, both with usual dark marginal ledge. (48) S8 relatively long, less asymmetrical, more setose and situated dorsally.

**Male genitalia.** (49) Epandrium of moderate size, setose, without particularly long setae. (50) Anal fissure very reduced, low. (51) Medandrium high, almost oblong, its anterior surface covered with dense short setulae. (52) Cercus pale-pigmented, laterally somewhat compressed. (53) Gonostylus darker than epandrium, simply elongate, with rounded apex and external surface largely covered by micropubescence. (54) Hypandrium with anterior flat lobes not projecting dorsally, weakly sclerotized but distinctively tuberculate; (55) transandrium robust, with short, flat and forked caudal process. (56) Pregonite relatively large, anteriorly flat and fused to hypandrium, posteriorly angular and separated by deep ventral notch and with only one (posterior) group of setae. (57) Postgonite slender, long, slightly bent, with some microsetulae in addition to usual anterior seta. (58) Anterior to postgonite there is an additional sclerotized projection (Fig. 7, ap) covered with spinulose tubercles. (59) Phallapodeme with laterally dilated and flattened and shortly forked basal part. (60) Phallosophore short, rather simple, including ventral part; (61) distiphallus composed of distally membranous saccus and slender sclerotized filum. (62) Saccus with relatively small membranous part, distinct basal and internal sclerites, basally with spine-like setae on left side, distally with tubercles and short setae in membrane; (63) filum formed by 2 long, dark, band-like sclerites terminating in narrowed membranous apex. (64) Aedeagal part of folding apparatus attached to base of aedeagus and phallapodeme and provided with dense pale rounded tubercles combined with dark striae. (65) Connecting sclerite strongly sclerotized, dark, and armed with dense blunt spines. (66) Basal membrane below caudal process with dense tuberculiform or short



Figs 1–2. *Reliquantha variipes* sp. nov., male holotype. 1 – left wing; 2 – male holotype before dissection, lateral view. Scales = 0.5 mm (Fig. 1) and 1.0 mm (Fig. 2). Photo by J. Roháček.

spines. (67) Ejacapodeme of moderate size, with subterminal digitiform process, on very short duct.

(68) **Female abdomen** relatively shining, with broader terga (T3–T5) and slightly narrower sterna (S2–S5). (69) Postabdomen relatively long, caudally gradually tapered, telescopically retractable from 7th segment, with less sclerotized and paler S7, T8, S8, T10 and S10. (70) T6 large, broad, also S6 relatively large (wider than S5). (71) T7 and S7 disparate. (72) S7 of elongate ligulate shape, pale, lacking micropubescence and with reduced setosity. (73) Membrane between T7 and S7 narrow and provided posteriorly with distinctive microsetae. (74) T8 simple, somewhat convex and without micropubescence; (75) S8 narrow, elongate, undivided, devoid of micropubescence and its posterior part dorsally curved and somewhat invaginated into 8th segment. (76) Internal structures of female genital chamber (uterus) reduced, with paired plates absent and with only (77) one rather small, somewhat transverse pale-pigmented annular sclerite. (78) Ventral receptacle short, on broad short duct, unpigmented, with plain surface and distally attenuating as a slender projection. (79) Accessory glands small, on slightly dilated plain ducts. (80) Spermathecae (1+1) small, simply ovoid, with scattered short and blunt spines; ducts very short, without distal collar. (81) T10 small, somewhat rounded, bare except for 1 pair of dorsal setae; (82) S10 elongately triangular, with long marginal setae but without micropubescence. (83) Cercus rather short, dorsoventrally flattened, without micropubescence, with a number of fine setae, 3 on apex markedly longer.

**Discussion.** The new genus clearly belongs to the subfamily Anthomyzinae (for its concept and diagnosis see ROHÁČEK 1998, 2006) and is characterized by a unique combination of plesiomorphic and derived, i.e. (supposedly) apomorphic characters. This fact proved to be the main stumbling block in uncovering the relationships of *Reliquantha* gen. nov., particularly when a number of ‘apomorphies’ recognised were found to be shared with various, apparently distantly related, genera. In addition, a more detailed comparison with the fossil genera *Grimalantha* Roháček, 1998 and *Lacrimyza* Roháček, 2013 unfortunately cannot be made because internal structures of the postabdomen and genitalia are largely unknown in these extinct groups of the subfamily.

*Reliquantha* gen. nov. is best diagnosed by the following combination of characters (those apomorphic are marked as ‘A’ and those unique as ‘U’ in parentheses, numbering of characters is the same as in the above diagnosis): (4) ocellar triangle elevated and ocelli relatively large; (11) 3 ors; (27) only 2 setae on ventral corner of sternopleuron (A); (28) femora variegated with brown and yellow (A); (30)  $f_1$  without ctenidial spine (A); (32) male  $f_3$  with postero-ventral row of short and thick setae (A); (47) S6 and S7 entirely bare (A); (50) anal fissure of epandrium very reduced, low (A); (51) medandrium with anterior surface covered with dense short setulae (U); (54) hypandrium with distinctly tuberculate anterior lobes (A); (56) pregonite separated by posterior ventral notch and with only one (posterior) group of setae (U); (58) internal genitalia with an additional sclerotized projection anterior to postgonite (U); (59) phallapodeme with laterally dilated and flattened basal part (A); (62) saccus basally with spine-like setae on left side (A); (63) filum formed by 2 long, dark, band-like sclerites; (65) connecting sclerite strongly sclerotized and tuberculate (A); (72) female S7 elongate, lacking micropubescence (A); (75) S8 undivided, without micropubescence, with posterior



part invaginated into 8th segment (?A); (77) only annular sclerite present in the female genital chamber (A); (78) ventral receptacle short, unpigmented, with plain surface and slender terminal projection (?A); (80) spermathecae on very short ducts (A); (83) female cercus without micropubescence and with 3 long setae on apex (U).

The unique (U) characters (= hitherto unknown in other representatives of Anthomyzidae) are the most diagnostic. However, at least some of them may not necessarily be apomorphic. For example, the dense fine setosity of the medandrium (51, Fig. 5) may well be an ancestral (hence plesiomorphic) character that was lost in other recent lineages of Anthomyzidae, or it could reappear as an atavism only in *Reliquantha* gen. nov. and, if so, it should be treated as apomorphic. On the other hand, the posteriorly notched pregonite (56, Fig. 8), the additional paired sclerite in the male internal genitalia (58, Fig. 7) and the female cercus lacking micropubescence and terminating in 3 long setae (83, Fig. 13) can be considered apomorphic, the latter being unknown also in all fossil genera of Anthomyzidae (cf. ROHÁČEK 1998, 2013).

Noteworthy are some of the above derived (apomorphic, A) characters which are, however, shared with some extant or ancient genera. The reduced number of ventral setae on the sternopleuron (27) is only shared with one species of the fossil genus *Lacrimyza* (*L. lacrimosa* Roháček, 2013); both known species of *Lacrimyza* also possess the greatly reduced anal fissure of the epandrium (50); these two characters could thus indicate a closer relationship of the latter genus with *Reliquantha* gen. nov. Moreover, *Lacrimyza* has the femora and tibiae dark with only the apices lightened (thus resembling the variegated legs of *Reliquantha* but more similar to those of *Fungomyza* Roháček, 1999) and  $f_1$  lacking the ctenidial spine (as in *Reliquantha* and a number of other recent and fossil genera, including *Grimalantha* and some *Protanthomyza* species). The ctenidial spine on  $f_1$  (a ground plan character of Anthomyzidae) is considered to be lost many times in various clades of Anthomyzidae (cf. ROHÁČEK 2009, 2013) and, consequently, its loss (30, Fig. 20) cannot directly demonstrate the relationships of these taxa. The same is true for the male femora armed with short and thickened setae (32, Fig. 22), an apomorphic structure which evolved independently as a consequence of behaviour during copulation in the majority of lineages including the fossil *Lacrimyza* (cf. ROHÁČEK 2013: 467).

The completely bare male S6 and S7 (47, Fig. 3) is a rather unusual feature; normally both these sclerites bear 1–3 setae, sometimes one of them (more often S6) can be bare (e.g. in *Quametopia* Roháček & Barber, 2011, see ROHÁČEK & BARBER 2011) and the setosity of these sclerites can be variably developed even within one genus (ROHÁČEK & BARBER 2005). The tuberculate anterior lobes of the hypandrium (54, Fig. 7, hl) also are not a unique apomorphy of *Reliquantha* because similarly structured lobes also occur in *Paranthomyza* Czerny, 1902 although they are differently shaped and dorsally projecting in the latter genus (ROHÁČEK 2006: Fig. 485). The setose left basal side of the saccus (52, Fig. 11) also seems to be a distinct apomorphy, but a similar armature is known in *Carexomyza* Roháček, 2009 (see ROHÁČEK 2006: Fig. 502), *Amygdalops* Lamb, 1914 (cf. ROHÁČEK 2004) and, much finer setosity can also be seen in *Paranthomyza* (cf. ROHÁČEK 2006: Fig. 483).

The heavily sclerotized and tuberculate connecting sclerite (65, Fig. 11, cs) is another distinctive apomorphic feature of *Reliquantha* because in the majority of (extant) Anthomyzidae this structure is weakly developed and pale pigmented (although often spinulose). However,

a well-sclerotized and spinose connecting sclerite occurs also in some *Anthomyza* species (e.g. *A. dissors* Collin, 1944, see ROHÁČEK 2006: Fig. 119) or in both *Epischnomyia* species, but in the latter case it is markedly shortened (ROHÁČEK 2009: Fig. 113). Very diagnostic of *Reliquantha* seem to be the female postabdominal sclerites (S7, T8, S8, T10, S10) that are devoid of micropubescence (72, 75, Figs 13–15). Such extensive reduction of micropubescence is surely apomorphic (in other known genera only some of these sclerites, usually T10 and/or S10, are not pubescent). The micropubescence is even absent on the cerci which should be considered a unique apomorphy of the new genus (see above). Also the female S8 of *Reliquantha* is unusual (75, Fig. 15), of (plesiomorphic) undivided shape, but with the posterior part bent dorsally, recurved and partly invaginated (Fig. 17) into the 8th segments (as in some taxa of the *Anthomyza* clade where, however, S8 is longitudinally divided). The polarity of this character is difficult to determine because there are several possibilities for how it could have evolved. The same holds for the short, unsclerotized and terminally projecting ventral receptacle (78, Fig. 18) being hardly comparable to that of other known (extant) genera of Anthomyzidae – only the unrelated *Amygdalops* species have a short and membranous ventral receptacle (see ROHÁČEK 2004, 2008) somewhat resembling that of *Reliquantha*. The reduction of internal sclerotization of the female genital chamber with paired sclerites absent and only the annular sclerite preserved (77, Fig. 19) seems to be also apomorphic but a similar situation occurs as a homoplasy in some other genera, e.g. the unrelated *Anagnota* Becker, 1902 and *Santhomyza* Roháček, 1984 (the annular sclerite is also absent in the latter genus, cf. ROHÁČEK 2006). Spermathecae of *Reliquantha* are worthy of discussion. Their simple ovoid shape is undoubtedly plesiomorphic but the short spermathecal ducts (80, Fig. 17) are considered apomorphic and, apart from *Reliquantha*, were found also in species of *Fungomyza*, *Arganthomyza* Roháček, 2009 (see ROHÁČEK & BARBER 2013) and in *Receptrixia* Roháček, 2006. The small spermathecae of the latter genus (cf. ROHÁČEK 2006: Fig. 518) are somewhat similar to those of *Reliquantha* but otherwise these groups are very dissimilar. It should be noted that somewhat less shortened spermathecal ducts occur in *Carexomyza* and other genera, too.

Generally the plesiomorphic features distinctly predominate in the new genus, viz. complete chaetotaxy of head (including 3 ors and subvibrissa) and thorax (with all macrosetae present), large eye with subvertical diameter, rather long frontal triangle, unicolourous wing with venation unmodified, C with spinulae small but present, pregenital sterna relatively large, gonostylus simply shaped, filum formed by 2 ribbon-shaped sclerites (Fig. 11), female S7 disparate, simple ovoid spermathecae etc. Most of these characters (if known) are shared with the fossil *Lacrimyza*, including the distinctly elevated frontal triangle and relatively large ocelli (4). Besides *Lacrimyza* there are only a few genera of Anthomyzidae where these plesiomorphies (and, particularly, 3 ors) are present, as discussed under the latter genus by ROHÁČEK (2013): the fossil *Grimalantha* from Dominican amber, and extant *Fungomyza*, *Santhomyza* and *Zealantha* Roháček, 2007. However, *Grimalantha*, *Santhomyza* and *Zealantha* differ significantly from *Reliquantha* in general habitus in addition to strong dissimilarities in structures of the male and female genitalia. *Fungomyza*, on the contrary, closely resembles the new genus in general appearance, including the dark and relatively shining body, structures of the frons, and the variegated femora (cf. ROHÁČEK & BARBER 2004, ROHÁČEK 2009). In spite



of all this, *R. variipes* cannot be affiliated with *Fungomyza* because of the absence of most of the synapomorphies of this genus (e.g. subvibrissa absent, male S8 prolonged, medandrium narrowed dorsally, phallopore with ventral process, saccus with adpressed surface spinulae, S8 longitudinally divided and invaginated into 8th segment, female annular (= looped) sclerite reduced, spermathecae with terminal invagination, etc., see ROHÁČEK 2009). On the other hand, the new genus surprisingly shares with *Fungomyza* some apomorphies, which probably evolved independently as homoplasies: the variegated femora (mentioned above), the caudal process of the transandrium forked and the spermathecal ducts markedly shortened.

Based on the above comparison it is suggested that the closest relative of *Reliquantha* gen. nov. is possibly the Eocene genus *Lacrimyza*. The apomorphic features shared by these two genera (discussed above) are few in number but others may occur in the internal structures of the male and female genitalia which cannot be studied in detail in amber fossils. However, the genus *Lacrimyza* is diagnosed by several apomorphies lacking in *Reliquantha*, viz. oc arising close to each other and peculiarly erect (see ROHÁČEK 2013: Figs 14A, 14E); ac microsetae very sparse and with two medial rows situated very close to each other; also 2 stpl arising unusually close to each other; male femora ( $f_3$  in particular) thickened; epandrium with 1 pair of strong setae; male cercus reduced, small; aedeagal part of folding apparatus densely pubescent; female T7 dorsomedially pale-pigmented; female S7 only marginally dark. In addition, *Lacrimyza* differs in having the wings somewhat shortened and narrowed with rm situated more proximally, very reduced peristomal setulae, prolonged male S8, very short and transverse female S8, with the latter sclerite, S10 and cerci distinctly micropubescent, etc. All these characters clearly prevent inclusion of *R. variipes* within the genus *Lacrimyza*.

The genus *Reliquantha* can be separated from other extant Palaearctic genera of Anthomyzidae using the key in ROHÁČEK (2009) where it runs to couplet 5 (see ROHÁČEK 2009: 13) which is to be modified and supplemented as follows:

- 5(4) Arista short-ciliate; head higher than long; 3 strong ors. .... 5a  
 – Arista pectinate or long-plumose; head longer than high; only 2 strong ors. .... 6  
 5a(5) Thorax unicolourous dark brown; legs with femora brown and yellow variegated; 2 dc; male  $f_3$  with a row of short thick posteroventral setae (Fig. 22); cross-vein r-m situated in the middle of dm cell (Fig. 1); anal fissure of epandrium very reduced, low (Fig. 6); pregonite simple, without projections (Fig. 8). Female S10 and cerci without micropubescence (Fig. 15); cerci short and robust (Fig. 13). ....  
 ..... ***Reliquantha* gen. nov.**  
 – Thorax yellow to pale brown, with dark longitudinal bands on mesonotum and/or pleuron; legs with femora unicolourous yellow; 3 dc (anterior short); male  $f_3$  with uniform fine setosity; r-m situated markedly distal to the middle of dm cell (ROHÁČEK 2006: Figs 535, 536); anal fissure of epandrium well developed, high and narrow (ROHÁČEK 2006: Figs 524, 538); pregonite with slender rod-like projection and a shorter process (ROHÁČEK 2006: Figs 527, 539). Female S10 and cerci distinctly micropubescent (ROHÁČEK 2006: Fig. 531); cerci long and slender (ROHÁČEK 2006: Fig. 543). ....  
 ..... ***Santhomyza* Roháček, 1984**

**Etymology.** The name of the genus is constructed from the abbreviated conjunction of *reliqu*[us] + *anth*[omyz]*a* because the taxon is probably a relic of an otherwise extinct clade of Anthomyzidae.

**Species included.** *Reliquantha variipes* sp. nov. (described below) from Great Britain.

***Reliquantha variipes* sp. nov.**

(Figs 1–22)

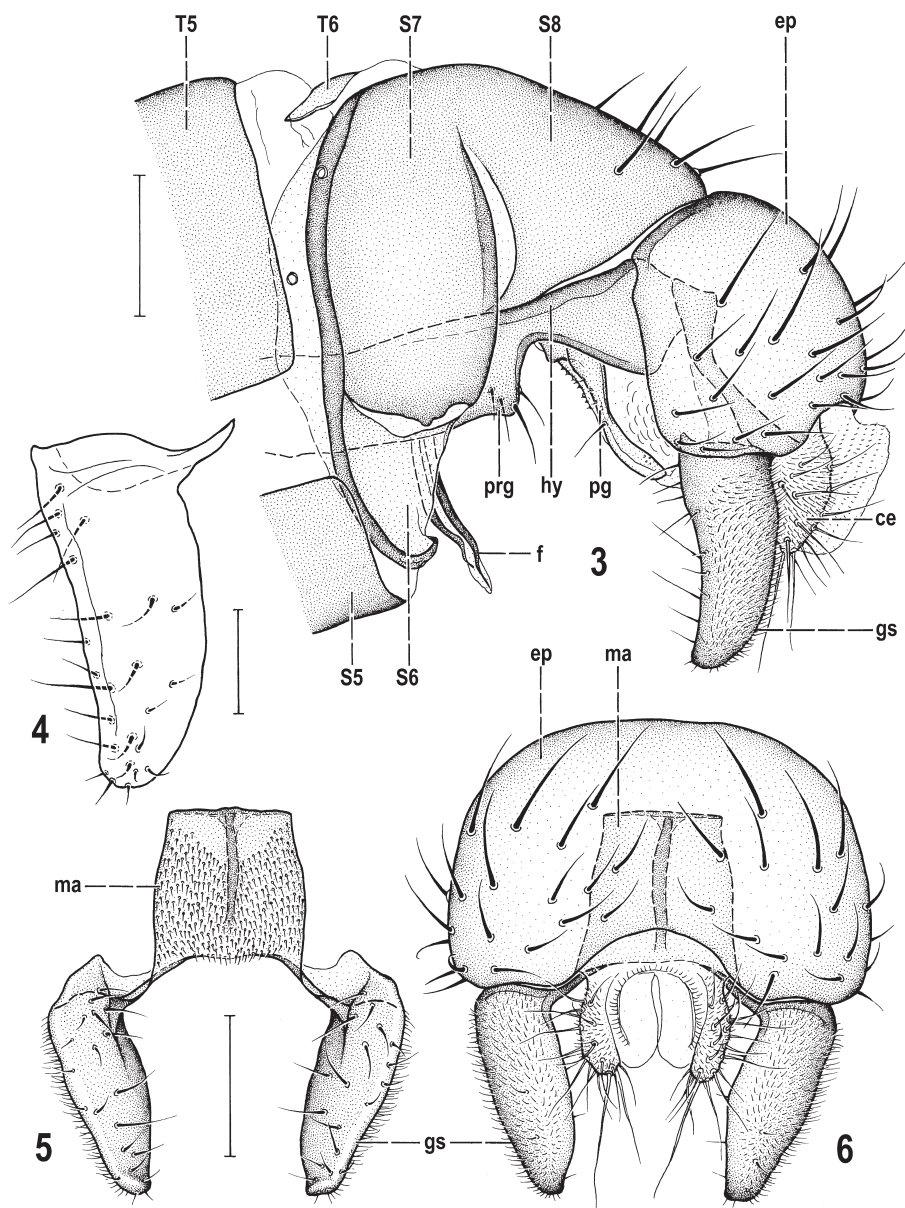
**Type material.** HOLOTYPE: ♂, labelled: ‘GLAMORGAN, Oxwich Wood, SS5085/5086, 5.vii.2009, P. J. Chandler’ and ‘HOLOTYPUS ♂, *Reliquantha variipes* sp.n., J. Roháček det. 2013’ (red label); left antenna of the holotype broken off (lost during dissection), both mid legs and left wing detached and all (except for one mid leg being glued on plastic bricket below specimen) preserved together with cleared abdomen and dissected genitalia in glycerine in a sealed plastic tube pinned below specimen.

PARATYPE: ♀, labelled: ‘Bracket fungus, Elm 15 VII 75, Oxford GCV’ (pencil handwriting), ‘Oxford University Museum of Natural History (OUMNH)’ and ‘PARATYPUS ♀, *Reliquantha variipes* sp.n., J. Roháček det. 2013’ (yellow label); abdomen detached and genitalia dissected and all parts preserved in glycerine in plastic tube pinned below specimen).

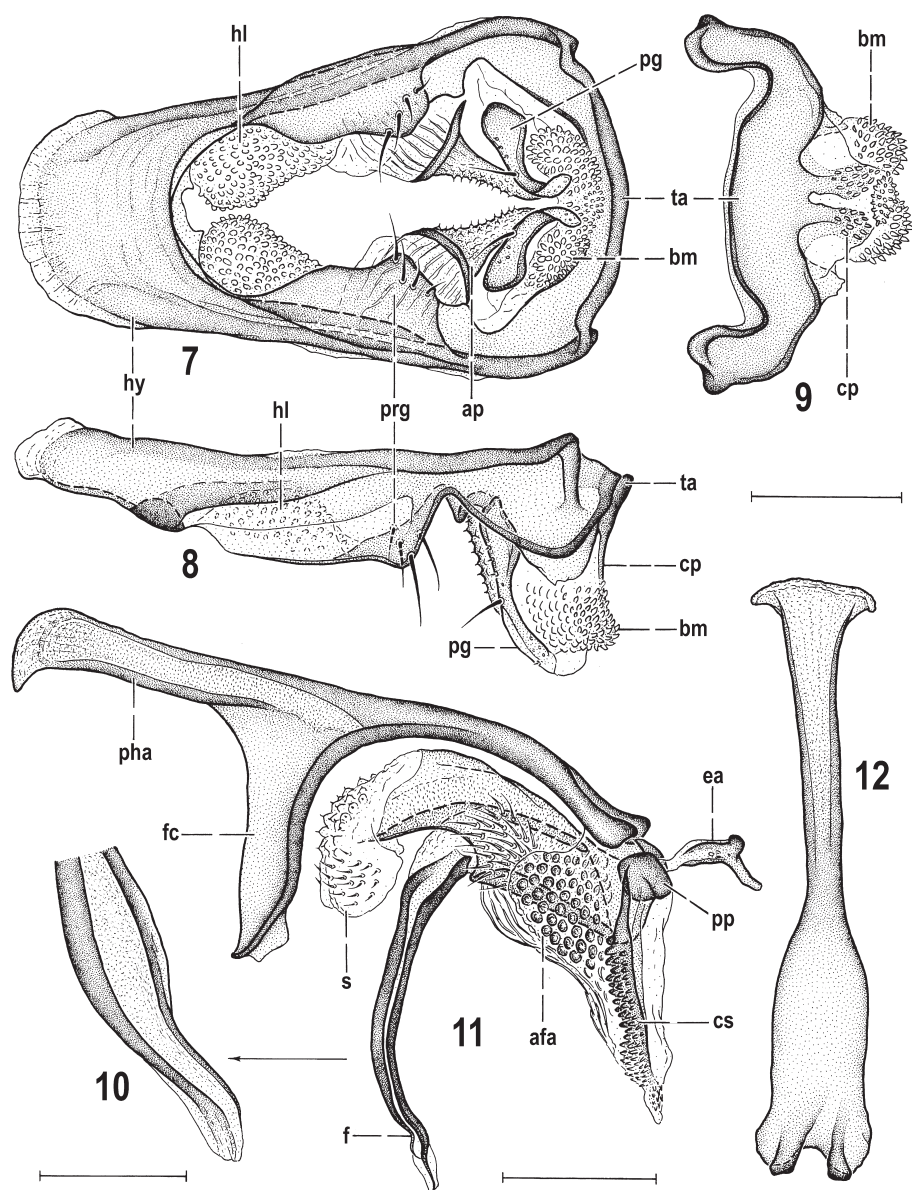
Both specimens deposited in Oxford University Museum of Natural History, Hope Entomological Collections, Oxford, England, U.K (= OXUM).

**Description. Male.** Total body length 2.14 mm; general colour dark brown, with extremities and extreme anterior part of head mostly yellow; thorax and abdomen distinctly shining despite sparse greyish brown microtomentum (Fig. 2).

Head distinctly higher than long (almost 1.3 times as high as long), dorsally very slightly wider than thorax; dorsal part of occiput distinctly concave. Occiput blackish brown, subshining, with dark grey microtomentum. Frons moderately broad, slightly tapering anteriorly, orange-yellow in anterior fourth, brown to blackish brown posteriorly, microtomentose up to ocellar triangle. Orbit brown (paler anteriorly), densely microtomentose and dull anteriorly, with sparse microtomentum and distinctly shining posteriorly (behind posterior ors). Frontal triangle relatively long, reaching to anterior fourth of frons, dark brown and largely (including entire ocellar triangle) dark grey microtomentose but not dull, with only a horseshoe-shaped area surrounding (anteriorly and laterally) ocellar triangle bare and lustrous. Ocellar triangle distinctly elevated and ocelli large. Frontal lunule small but distinct, yellow. Face (prae-frons) narrow, medially concave, dirty whitish yellow and microtomentose. Parafacialia and gena whitish yellow, with silvery white microtomentum and ochreous- to brown-bordered; this border darker and wider dorsally on parafacialia but very narrow and lighter ventrally on gena. Postgena pale brown ventrally, darker and less densely microtomentose dorsally. Cephalic chaetotaxy: pvt relatively short, convergent but not crossed; vti distinctly shorter than vte (longest cephalic seta) and oc, but slightly longer than posterior ors; 3 relatively short ors (the right foremost lost in the holotype), the hindmost ors longest (but distinctly shorter than oc), the middle somewhat shorter, the foremost small (only half of middle ors); there is 1 orbital microsetula in front of the foremost ors and 4 pairs of microsetulae medially, between anterior point of frontal triangle and anterior margin of frons; postocular setulae (9–10) in a single row, none of them enlarged; postgena with 2 (1 longer) ventral setae and about 3 short setulae; vi relatively long (almost as long as posterior ors) and also subvibrissa well developed (three-fourths of vi length) being twice longer than 5 short peristomals. Eye large, covering most of



Figs 3–6. *Reliquantha variipes* sp. nov., male holotype. 3 – postabdomen laterally (in situ, setosity of T5 and S5 omitted); 4 – left gonostylus posterolaterally (widest extension, micropubescence omitted); 5 – medandrium and gonostyli frontally; 6 – external genitalia caudally. Scales = 0.1 mm (Figs 3, 5, 6) and 0.05 mm (Fig. 4). For abbreviations see text (p. 795).



Figs 7–12. *Reliquantha variipes* sp. nov., male holotype. 7 – hypandrial complex ventrally; 8 – ditto, laterally; 9 – ditto, caudally; 10 – apex of filum anteroventrally; 11 – aedeagal complex, laterally; 12 – phallapodeme dorsally. Scales = 0.1 mm (Figs 7–9, 11, 12) and 0.05 mm (Fig. 10). For abbreviations see text (p. 795).

head in profile, with longest diameter (about 1.3 times as long as shortest) subvertical. Gena relatively short (low); its height 0.10 times as long as shortest eye diameter. Palpus short and slightly clavate, distally with 3–4 dark setulae, the subapical markedly longer. Mouthparts pale yellow, palpus whitish. Antenna geniculate, dark yellow with 1st flagellomere light yellow, the latter strongly laterally compressed and very shortly whitish ciliate on anterior margin. Arista pale ochreous, 1.9 times as long as antenna, with small and slender basal segment and very short cilia (yet shorter than those on 1st flagellomere).

Thorax very slightly narrower than head, dark brown, with small paler brown areas (humeral callus, anterior part of notopleural line, around suture) and pale ventral corner of sternopleuron being distally grading to ochreous-yellow. Mesonotum relatively shining despite sparse grey to brownish grey microtomentum; no bare areas on scutum or scutellum; pleural part of thorax more densely microtomentose and, particularly ventrally, duller. Thoracic chaetotaxy: 1 relatively short hu (shorter than posterior npl), 2 npl (anterior distinctly longer), 1 sa (slightly shorter than pa), 1 pa (relatively long), 1 distinct prs (only as long as sa); 2 dc (both postsutural), anterior longer than half of posterior, the latter long and strong, 6–7 dc microsetae in front of anterior dc; ac microsetae short but not very dense, in 4 rows, posteriorly only reaching slightly beyond level of anterior dc; 2 sc, apical strong and slightly longer than posterior dc (hence longest of thoracic setae), laterobasal much shorter and weaker but about as long as scutellum length; 1 minute upcurved ppl; 2 relatively long stpl (anterior only slightly shorter) and 1 microseta in front of them; only 2 (1 long) curved setae on ochreous-yellow ventral corner of sternopleuron. Scutellum rounded triangular and strongly convex dorsally; postscutellum well developed.

Legs yellow and brown variegated (Fig. 2), with all coxae, trochanters, basal parts of femora and all tarsi (except for at least partly brownish apical segments) yellow to dark yellow. All femora with distal third ( $f_1$ ) or half ( $f_2$ ,  $f_3$ ) brown to dark brown, otherwise (basally and on knees) yellow (Figs 20–22). Tibiae also somewhat variegated but this variegation less contrasting than that on femora;  $t_1$  and  $t_2$  with small proximal and distal parts yellow and large pale-brown darkened middle section;  $t_3$  similarly coloured but with lighter annulus in the middle of darkened section in addition (Fig. 22).  $f_1$  with ctenidial spine entirely lacking (Fig. 20), with only usual rows of long thin but relatively sparse posterodorsal and posteroventral setae;  $f_2$  simply setulose;  $f_3$  with posteroventral row of 8 erect setae, 4–5 of which in apical half shortened and more or less thickened (Fig. 22).  $t_1$  and  $t_3$  uniformly short-setulose;  $t_2$  with short ventroapical seta and 3 short thickened setulae adjacent to it (Fig. 21). Tarsi without peculiarities; mid basitarsus long and slender, fore and hind basitarsus with a few slightly longer setulae proximoventrally.

Wing (Fig. 1) moderately wide, hyaline, membrane and veins pale ochreous brown. C with slightly thicker (and thus rather indistinct), short and sparse setulae among usual fine hairs on  $Cs_2$ . Sc fused with  $R_1$  apically to form a distinct preapical kink.  $R_{2+3}$  bent, parallel to C and only apically straighter, ending slightly farther from wing apex than does M.  $R_{4+5}$  very slightly bent, distally slightly convergent to M. Discal (dm) cell moderately long and narrow; its distal part (beyond r-m) slightly widened distally; anterior cross-vein (r-m) situated in the middle of discal cell.  $CuA_1$  almost reaching wing margin,  $A_1$  ending far from it. Terminal section of  $CuA_1$  about 1.7 times as long as posterior cross-vein (dm-cu). Alula small but relatively



broad. Wing measurements: length 2.48 mm, width 0.83 mm,  $Cs_3 : Cs_4 = 1.15$ ,  $r-m \backslash dm-cu : dm-cu = 2.64$ . Haltere yellow, knob yellowish white.

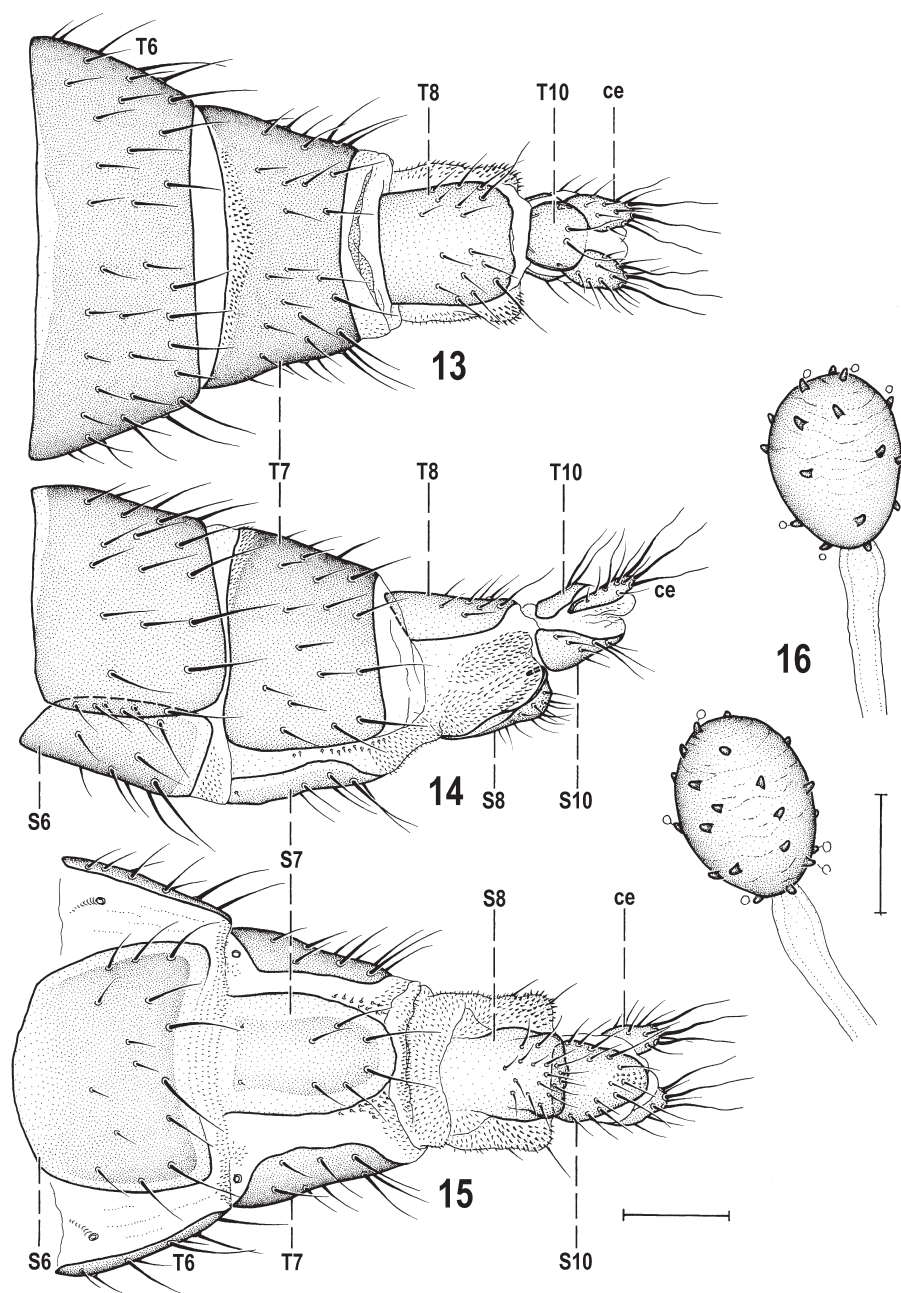
Abdomen dark brown and more shining than thorax despite sparse greyish brown microtomentum. All preabdominal terga rather sparsely and shortly setose. T1 dorsally distinctly delimited, only laterally fused with T2, with only a few short setulae. T2–T5 large and broad (T3 widest), extended ventrolaterally; T2 shorter than T3, others subequal in length but becoming slightly narrower caudally. Preabdominal sterna brown and moderately broad; pleural membrane between terga and sterna narrower than in female. S1 damaged in holotype and therefore not described. S2 as long as wide, slightly shorter and narrower than S3; S3–S5 almost subequal in length but becoming distinctly wider posteriorly. S3 as long as wide, S4 slightly wider than long, S5 largest, markedly wider than long and hence transverse, trapezoidal (posteriorly wider). S2–S5 simply shortly setulose.

Postabdomen (Fig. 3) strongly sclerotized, more shining because of reduced microtomentum. T6 distinctly sclerotized but lighter brown than other sclerites, medially undivided, forming a simple, strongly transverse dorsal sclerite. S6, S7 and S8 partly coalesced but their borders distinct. S6 the shortest, of distinctive form, strongly asymmetrical, band-like tapered on left and right side, and its largest (middle) part situated rather ventrally and separated horizontally from S7 (Fig. 3), pale-pigmented to membranous except for dark, sclerotized marginal ledge on the border with S7; S7 longer, slightly asymmetrical, situated on left side of postabdomen, dark brown with yet darker anterior bordering ledge (fused with that of S6). Both S6 and S7 without setae. S8 longest, dark and heavily sclerotized, slightly asymmetrical (longer on left side) and situated dorsally, with sparse moderate setae in posterodorsal half. 6th spiracle situated laterally in anterior membranous part of S6, 7th spiracle laterodorsally in dark bordering ledge between S6 and S7 (Fig. 3).

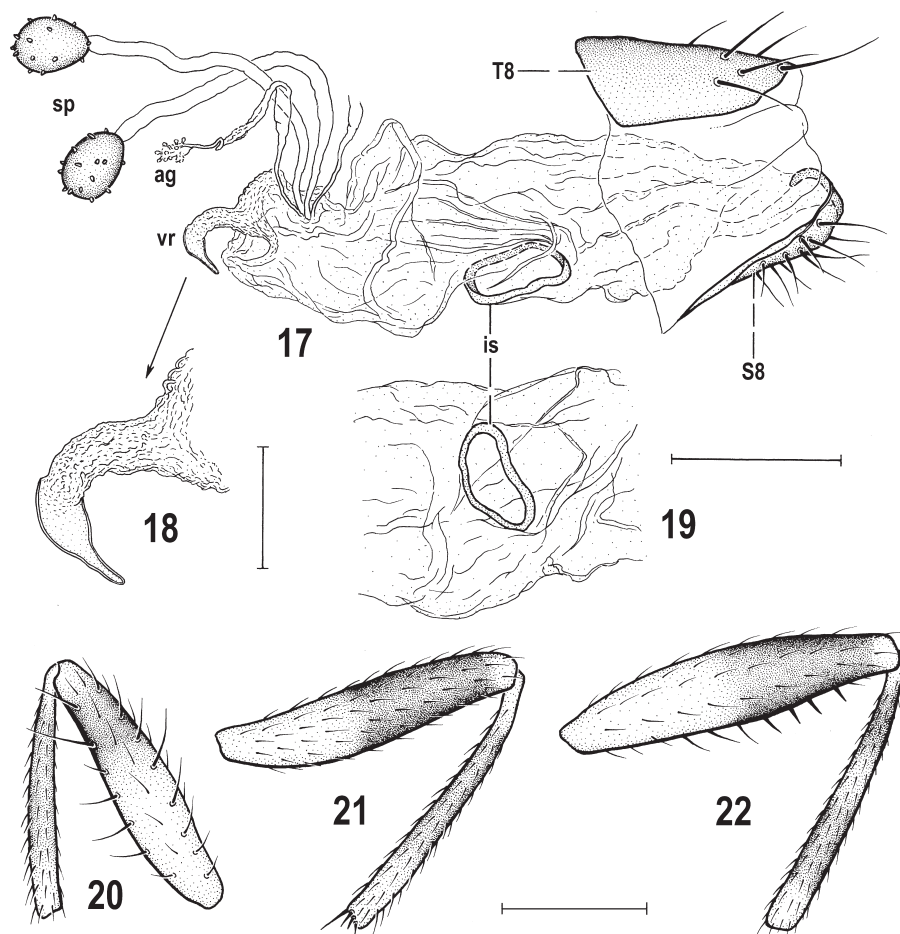
Genitalia. Epandrium (Figs 3, 6) not very large, globose, somewhat wider than high (Fig. 6), shining blackish brown, without particularly enlarged setae, although some (3–4 pairs) are slightly longer and more robust than others. Anal fissure reduced (Fig. 6), unusually low (yet smaller than in *Fungomyza* spp., most resembling that of fossil *Lacrimyza lacrimosa*); cercus about half length of gonostylus, laterally somewhat flattened, pale-pigmented including setae, apical of which longest (Figs 3, 6). Medandrium relatively high (long), of almost rectangular outline, only very slightly narrower dorsally, with dark medial ridge and very dense short setosity on anterior (internal) surface (see Fig. 5); its ventral arms short, fused with posterodorsal, internally projecting corners of gonostyli. Gonostylus (Figs 3–6) darker brown than epandrium, relatively simple, almost as long as epandrial height, elongate, slightly bent in profile, broadest proximally and slightly gradually tapered apically, with apex broadly rounded but not inclinate. Outer convex side of gonostylus (Fig. 3) largely covered by dense long micropubescence (leaving only anterior margin bare) and bearing only a few small setulae. Most setae (some relatively long) are inserted on inner concave and otherwise bare side at anterior margin of gonostylus (Figs 4, 5). Hypandrium (Figs 7, 8) forming together with transandrium usual frame-shaped structure, moderately robust, with distinct and weakly sclerotized, flat but peculiarly tuberculate anterior internal lobes (Fig. 7) being posteriorly also appended to pregonites. Posterior part of hypandrium separated from pregonite by deep ventral incision and its ventral side somewhat projecting as small pale flat lobe (visible on Figs 8, 9). Transandrium robust (Fig. 9), with dark

dorsal marginal ledge, ventromedially projecting in flat, forked and distally spinose caudal process (Fig. 9, cp); basal membrane below caudal process medially provided with a group of small tuberculiform spines; its lateroventral bulging lobes armed by dense short spines (Figs 8, 9). Pregonite relatively large, anteriorly flat and fused to hypandrium, incurved, but without setae; posteriorly ventrally angular, dark and heavily sclerotized, separated from posterior part of hypandrium by deep notch and with 4, mostly internal, setae (Figs 7, 8). Postgonite relatively long and slender (Figs 7, 8), very slightly bent, proximally broader and darker, apically blunt, with 1 seta in the middle of anterior margin, 3 microsetulae in proximal half and 1 subapically and several fine grain-like sensillae on outer surface. In front of postgonite there is another unusual structure – an anteriorly striated membranous lobe continued posteroventrally as a sclerotized, pigmented, distally tapered projection provided with spinulose tubercles (see Fig. 7, ap). This structure is obviously not homologous with the “basal sclerite” of *Amygdalops* species (see ROHÁČEK 2004, 2008) because it is not attached to basal part of postgonite, and could be a secondarily sclerotized outer part of the folding apparatus whose inner aedeagal part (see Fig. 11, afa) is attached to the base of the aedeagus and phallapodeme and covered by dense but pale, rounded tubercles and (anteriorly) dark striae. Connecting sclerite strongly sclerotized and dark pigmented, largely overgrown by dense blunt spines being distally smaller and more numerous (Fig. 11, cs). Phallapodeme (Figs 11, 12) relatively slender, distinctive due to laterally dilated and flattened and only shortly forked basal part; its ventral fulcrum slender and apex slightly bicuspidate. Aedeagus (Fig. 11) with small phallopore only posterodorsally dark and strongly sclerotized, anteroventrally paler and connected with ventrobasal sclerite of distiphallus; distiphallus bifid as usual, composed of relatively small, distally membranous saccus and slender, long sclerotized filum. Saccus internally reinforced with slightly bent elongate sclerite and also its proximal part more or less sclerotized and with left side (Fig. 11) covered by distinctive spine-like setae (similar to those in *Carexomyza* spp.); smaller apical membranous part of saccus provided with pale rounded tubercles each having a microspine on apex, and (more distally) with pale short setulae. Filum of primitive form, slender, relatively long and composed of two dark, band-like sclerites; apex of filum (Fig. 10) simple, narrowed, membranous, with attenuated band-like sclerites terminating in narrowed membranous apex. Ejacapodeme on very short duct, but of usual shape, with slightly sinuous digitiform process and dark clubbed distal end (Fig. 11, ea).

**Female.** Similar to male unless mentioned otherwise. Total body length 1.98 mm. Frons darker, brown also anteriorly, with yellowish colour restricted to narrow anterior margin of frons and lower orbit in front of anterior ors. Antenna distinctly darker than in male, with 1st flagellomere dorsally brownish, yellow only on ventral half of outer side to ventral third of inner side and arista brown. Face, parafacialia and gena as in male but palpus yellow. Pedal chaetotaxy as in male but  $f_3$  without posteroventral thickened setae. Tibiae of all legs less darkened but this may be caused by greater age of the female paratype because the dark femoral pattern is also somewhat faded in this specimen. Anterior stpl shorter than in male holotype. Wing with r-m situated more distally, slightly beyond middle of dm cell. Wing measurements: length 2.28 mm, width 0.79 mm,  $Cs_3 : Cs_4 = 1.28$ , r-m/dm-cu : dm-cu = 2.29, distal section of  $CuA_1$  1.76 times as long as dm-cu cross-vein. Abdomen with T2 and, particularly, T3–T5 broader and shorter (hence more transverse) than in male but of similar



Figs 13–16. *Reliquantha variipes* sp. nov., female paratype. 13 – postabdomen dorsally; 14 – ditto, laterally; 15 – ditto, ventrally; 16 – spermathecae. Scales = 0.1 mm (Figs 13–15) and 0.03 mm (Fig. 16). For abbreviations see text (p. 795).



Figs 17–22. *Reliquanthia variipes* sp. nov. 17 – female internal genitalia and 8th segment laterally (micropubescence of pleural part of 8th segment omitted); 18 – ventral receptacle laterally; 19 – internal annular sclerite ventrally; 20 – left  $f_1$  and  $t_1$  posteriorly; 21 – right  $f_2$  and  $t_2$  posteriorly; 22 – left  $f_3$  and  $t_3$  anteriorly. Figs 17–19 based on female paratype, Figs 20–22 on male holotype. Scales 0.1 mm (Figs 17, 19), 0.03 mm (Fig. 18) and 0.3 mm (Figs 20–22). For abbreviations see text (p. 795).

colour and microtomentose pattern. T1 distinctly separate from T2, fused only at lateral margins. T2–T4 subequal in length, T4 broadest; T5 distinctly longer than T4 but narrower, very slightly tapered caudally. All preabdominal terga bent lateroventrally far onto sides of abdomen. S1 and S2 torn off in female paratype and, therefore, not described; S3–S5 much narrower than terga, dark brown and well sclerotized, with short sparse setosity; membranous pleural areas between sclerites relatively large. S3–S5(S6) becoming distinctly wider posteriorly; S3 slightly longer than wide, S4 and S5 wider than long and somewhat transverse, of rounded trapezoidal shape.

Postabdomen (Figs 13–15) telescopically retractable, relatively long, gradually tapered caudally. T6 broad, transverse, reaching far onto ventral side of abdomen, dark brown pigmented with pale anterior marginal stripe (medially longest) and moderately setose. S6 (Fig. 15) wider than long, larger than S5, posteriorly slightly emarginate, brown but with pale (almost unpigmented) margins, posteriorly and laterally distinctly contrasting with dark remainder of sclerite surface; setae sparse, arising in posterior half, mainly submarginally. T7 and S7 not fused, separate, although T7 reaching far onto ventral side of 7th segment. T7 (Figs 13, 14) distinctly narrower than T6, dark and heavily sclerotized, caudally tapered, having anterior pale marginal stripe covered by strong micropubescence and remaining dark surface with relatively short setae. S7 (Fig. 15) of distinctive ligulate shape, much longer than broad, pale-pigmented only centrally, marginally broadly unpigmented, without micropubescence and with only 6 setae in posterior half apart from a pair of usual setulae (sensillae) near anterior margin. 7th spiracle situated anterolaterally (Fig. 15), in front of anterior corner of T7. Membrane between T7 and S7 largely without micropubescence but posteriorly, along margin of S7, with distinctive short microsetulae. Intersegmental membrane between 7th and 8th segment longer ventrally where distinctly pubescent. T8 (Fig. 13) relatively large though much narrower than T7, longer than broad, convex, pale brownish pigmented, entirely lacking micropubescence and with setae in posterior two-thirds. S8 (Figs 15, 17) also peculiar, elongate, undivided, and, like S7, anteriorly poorly delimited from membrane. Posterior marginal part of S8 curved dorsally and somewhat invaginated into 8th segment (see Fig. 17); its surface completely without micropubescence and with short setae restricted to posterior half. Internal structures of the female genital chamber very weakly developed; there is only a relatively small, pale-pigmented, slightly transversely irregular annular sclerite in centre of ventral side of genital chamber (Figs 17, 19). Accessory glands (Fig. 17, ag) small with minute globuli on surface, and with ducts somewhat dilated but with plain middle part. Ventral receptacle membranous (Fig. 17, vr), unpigmented, very short, with plain surface, tapered distally to form a beak-like but apically blunt projection (Fig. 18), set on broad short duct. Spermathecae (1+1) small, of primitive simply ovoid form (Fig. 16), brown, with relatively plain surface irregularly overgrown by darker brown, short blunt spines some of which have minute stalked globuli on tips; spermathecal ducts very short (Fig. 17), entirely membranous, without distinct collar. T10 (Fig. 13) small (smaller than S10), pale, about as long as broad, rounded laterally, bare (lacking micropubescence), with only a pair of medial setae. S10 (Fig. 15) of distinctive, elongately triangular but posteriorly broadly rounded shape, with relatively long marginal setae, otherwise bare. Cercus (Figs 13–15) also without micropubescence, relatively short and robust, dorsoventrally somewhat flattened, with rich setae, 3 of which (1 apical, 2 subapicals) are markedly longer than others.

**Discussion.** This new species is distinguished by yellow and brown variegated femora and (less distinctly) tibiae (Figs 2, 20–22). Hitherto, the partly (distally) brown-coloured femora (all or only some of them) have only been known in some Afrotropical (see ROHÁČEK 2004) and Oriental (ROHÁČEK 2008) species of *Amygdalops* and in species of *Fungomyza*. While the *Amygdalops* species differ markedly from *R. variipes* sp. nov. in having a long-pectinate arista, only 2 long and widely spaced ors, strongly convex elongately suboval eyes, the pleural part of thorax pale yellow with only the dorsal longitudinal band dark, different wing



venation and ornamentation and many other characters, members of *Fungomyza* resemble the new species in general external appearance, colouration of the body and wings. However, only the Nearctic *F. buccata* Roháček & Barber, 2004 has dark markings on all femora as in *R. variipes* sp. nov. but differs from the latter (as in both remaining *Fungomyza* species) by lacking a distinct subvibrissa and having a ctenidial spine on  $f_1$ , longer prs, more setae on the ventral corner of the sternopleuron, the r-m situated distal to the middle of the dm cell and a number of characters in the male genitalia and female terminalia (see discussion above under genus *Reliquantha*).

**Biology.** Poorly known. Both type specimens originate from woodland habitats and were caught in the first half of July. The holotype male was collected in an ash woodland on a limestone hill overlooking the coast of the Gower Peninsula in South Wales (P. J. Chandler, pers. comm., 2013). The paratype female was collected by G. C. Varley in Oxford on a bracket fungus on elm (*Ulmus* sp.), probably during his research on the insects associated with elms suffering from Dutch elm disease (J. W. Ismay and J. Hogan, pers. comm., 2006). Therefore, ROHÁČEK (2009) considered this (then undescribed) species a potential feeder of tree fungi. It is to be stressed that in Anthomyzidae only species of *Fungomyza* have, to date, been known to be associated with fungi (DELY-DRASKOVITS 1972; CHANDLER 1978, 2010; ROHÁČEK 1999, 2009; ROHÁČEK & BARBER 2004; ROHÁČEK & ŠEVČÍK 2013) and the development of larvae in macrofungal sporocarps has only been demonstrated for *F. albimana* (Meigen, 1830).

**Etymology.** The species is named *variipes* to reflect its yellow and brown variegated legs.

**Distribution.** The species is hitherto known only from Great Britain (Wales, England).

### Discussion on the homology of the medandrium in the male genitalia

The distinctively densely setose medandrium (= bacilliform sclerites; subepandrial sclerite) found in *Reliquantha variipes* sp. nov. (see above and Fig. 5) raises again the question about the homology of this genitalic structure. According to ZATWARNICKI (1996), the medandrium represents a remnant of medially fused basal parts of the gonopods. This hypothesis seems to be supported by distinct articulation of the gonostyli with the medandrium in the majority of Cyclorrhapha (the fusion of the gonostyli with the epandrium, sometimes occurring in the group, is considered to be secondarily derived). The recent study of the formation of the medandrium in Stenomicroidae (*Stenocyamops* Papp, 2006, *Podocera* Czerny, 1929, *Stenomicro* Coquillett, 1900) by ROHÁČEK (2011) where it is developed as two slender disparate setose sclerites articulating with both gonostyli and posterior arms of hypandrium, seems to support well the above hypothesis. Also in some species of Anthomyzidae the medandrium was found to bear setae, at least on its lateral arms, as found in the genus *Quametopia* Roháček & Barber, 2011 by ROHÁČEK & BARBER (2011) and, most recently also in species of the *Anthomyza macra* group (Roháček & Barber, unpublished) despite the medandrium forming here a single sclerite as in all other recent Anthomyzidae. It can be presupposed that similar setae on the medandrium will be found not only in Anthomyzidae but also in other acalyptrate families.

The uniquely setulose medandrium of *Reliquantha variipes* sp. nov. can be considered additional indirect evidence of the gonopodal origin of the medandrium provided this setosity

is an atavistic structure which was lost in the majority of recent Anthomyzidae. Unfortunately, we are unable to examine medandrium in fossil *Lacrimyza* species from Baltic amber (cf. ROHÁČEK 2013) to verify whether this setosity was really present in these ancient Anthomyzidae or not. However, the largely plesiomorphic set of morphological characters of *Reliquantha* and also its general similarity to *Lacrimyza* indicate that *R. variipes* could be a relic of an otherwise extinct clade in which such primitive features persisted up to the present but were lost in other contemporary taxa of Anthomyzidae.

### Acknowledgements

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