

LEGENDS TO THE TABLE

- * Pheromone component, chemically identified in the pheromone gland.
- () Optimized blend for attraction in a field or a flight tunnel.
- [] The ratio identified in a pheromone extract.
- E Pheromone candidate estimated by the EAG study.
- N No field attraction data, or no field attractancy.

The chemical formulae are symbolized by

- 1) the number before the hyphen giving the position of double bond [$Z = (Z)$ -configuration, $E = (E)$ -configuration, Δ = terminal] or the following functional groups in the chain,
≡ = triple bond
epo = *cis*-epoxy ring
tepo = *trans*-epoxy ring
Me = branched methyl group
- 2) the number before the colon giving the carbon atoms in the straight chain,
- 3) the words after the colon giving the functional groups as follows,
H = hydrocarbon
OH = primary alcohol
OFo = formate of alcohol
OAc = acetate of alcohol
OPr = propionate of alcohol
OBu = butyrate of alcohol
OisoBu = isobutyrate of alcohol
OisoVa = isovalerate (3-methylbutanoate) of alcohol
ONO₂ = nitrate
Ald = aldehyde
one = ketone
CN = nitrile
Ate = ester of a long chain acid

(In the case of secondary alcohols and ketones, the position of the functional group is indicated by inserting the number before its symbol, such as 2-one for a carbonyl group at the 2-position. Terminal functional groups are indicated by the symbols without the number.)

Distribution information in Japan.

- A This species is distributed in Japan, and Japanese common name is shown in < >.
- B Sub-species is distributed in Japan.
- C Species in the same genus is distributed in Japan.
- D Species in this genus is not distributed in Japan.

Number of Species Counted in the List of Lepidopterous Sex Pheromones and Attractants
Revised on 2026. 1. 31

(Pheromones produced by male moths are not counted.)
 Number in parenthesis indicates the species distributed in Japan.

[Superfamily]	Number of species				
Family		Sex		Sex	
Subfamily		pheromone		attractant	
[Eriocranioidea]	スイコバネガ上科				
Eriocraniidae	スイコバネガ科	3	(1)	1	(1)
[Nepticuloidea]	モグリチビ上科				
Nepticulidae	モグリチビガ科	1	(0)	2	(0)
[Incurvarioidea]	マガリガ上科				
Heliozelidae	ツヤコガ科	3	(0)	1	(0)
Prodoxidae	ホソヒゲマガリガ科	1	(0)	0	(0)
[Tischerioidea]	ムモンハモグリガ上科				
Tischeriidae	ムモンハモグリガ科	1	(0)	0	(0)
[Tineoidea]	ヒロズコガ上科				
Tineidae	ヒロズコガ科	4	(2)	22	(1)
Psychidae	ミノガ科	5	(1)	1	(0)
[Gracillarioidea]	ホソガ上科				
Bucculatricidae	チビガ科	1	(0)	0	(0)
Gracillariidae	ホソガ科	18	(5)	31	(8)
[Yponomeutoidea]	スガ上科				
Yponomeutidae	スガ科	14	(4)	26	(11)
Ypsolophidae	クチブサガ科	0	(0)	5	(1)
Plutellidae	コナガ科	1	(1)	1	(1)
Acrolepiidae	アトヒゲコガ科	3	(2)	3	(3)
Glyphipterigidae	ホソハマキモドキガ科	0	(0)	3	(2)
Lyonetiidae	ハモグリガ科	6	(1)	0	(0)
[Gelechioidea]	キバガ上科				
Ethmiidae	スヒロキバガ科	0	(0)	2	(0)
Elachistidae	クサモグリガ科	2	(0)	1	(0)
Xyloryctidae	ヒロバキバガ科	1	(0)	0	(0)
Oecophoridae	マルハキバガ科	1	(0)	8	(2)
Depressariidae	ヒラタマルハキバガ科	2	(0)	12	(4)
Stathmopodidae	ニセマイコガ科	2	(2)	1	(1)
Lecithoceridae	ヒゲナガキバガ科	0	(0)	2	(2)
Batrachedridae	ホソキバガ科	1	(0)	1	(1)
Coleophoridae	ツツミノガ科	1	(0)	45	(3)
Momphidae	アカバナキバガ科	0	(0)	1	(0)
Cosmopterigidae	カザリバガ科	1	(1)	13	(11)

Gelechiidae	キバガ科	16	(6)	55	(7)
[Zygaenoidea]	マダラガ上科				
Limacodidae	イラガ科	7	(2)	3	(2)
Himantopteridae	リボンマダラガ科	0	(0)	2	(0)
Zygaenidae	マダラガ科	3	(1)	46	(2)
[Sesioidea]	スカシバガ上科				
Sesiidae	スカシバガ科	28	(8)	86	(4)
Brachodidae	ヒロハマキモドキガ科	0	(0)	1	(0)
[Cossoidea]	ボクトウガ上科				
Cossidae	ボクトウガ科	12	(1)	4	(0)
[Tortricidea]	ハマキガ上科				
Tortricidae	ハマキガ科				
Tortricinae	ハマキガ亜科	114	(10)	133	(46)
Olethreutinae	ノコメハマキガ亜科	65	(22)	230	(52)
Chlidanotinae	マダラハマキガ亜科	0	(0)	3	(0)
[Choreutoidea]	ハマキモドキガ上科				
Choreutidae	ハマキモドキガ科	1	(1)	3	(3)
[Schreckensteinoidea]	ホソマイコガ上科				
Schreckensteiniidae	ホソマイコガ科	0	(0)	1	(1)
[Pterophoroidea]	トリバガ上科				
Pterophoridae	トリバガ科	2	(1)	22	(8)
[Copromorphoidea]	マルバシンクイガ上科				
Carposinidae	シンクイガ科	3	(1)	4	(4)
[Thyridoidea]	マドガ上科				
Thyrididae	マドガ科	0	(0)	2	(1)
[Pyraloidea]	メイガ上科				
Pyralidae	メイガ科				
Galleriinae	ツヅリガ亜科	2	(0)	0	(0)
Pyralinae	シマメイガ亜科	1	(1)	3	(2)
Epipaschiinae	フトメイガ亜科	1	(0)	0	(0)
Phycitinae	マダラメイガ亜科	37	(11)	11	(1)
Crambidae	ツトガ科				
Schoenobiinae	オオメイガ亜科	3	(3)	0	(0)
Scopariinae	ヤマメイガ亜科	0	(0)	4	(1)
Crambinae	ツトガ亜科	19	(5)	8	(3)
Cybalomiinae	モンメイガ亜科	1	(1)	0	(0)
Acentropinae	ミズメイガ亜科	0	(0)	2	(1)
Glaphyriinae	ニセノメイガ亜科	2	(2)	4	(2)
Spilomelinae	ヒゲナガノメイガ亜科	26	(17)	7	(4)
Pyraustinae	ノメイガ亜科	14	(8)	20	(8)
[Lasiocampoidea]	カレハガ上科				
Lasiocampidae	カレハガ科	14	(3)	0	(0)
[Drepanoidea]	カギバガ上科				

Drepanidae	カギバガ科	0	(0)	6	(3)
[Geometroidea]		シャクガ上科			
Geometridae	シャクガ科	56	(14)	82	(33)
Uraniidae	ツバメガ科	0	(0)	2	(2)
[Bombycoidea]		カイコガ上科			
Endromidae		1	(0)	0	(0)
Bombycidae	カイコガ科	4	(2)	0	(0)
Saturniidae	ヤママユガ科	22	(4)	1	(0)
Sphingidae	スズメガ科	11	(7)	11	(3)
[Noctuoidea]		ヤガ上科			
Notodontidae	シャチホコガ科	11	(0)	1	(0)
Noctuidae	ヤガ科				
Dilobinae		0	(0)	1	(0)
Acronictinae	ケンモンヤガ亜科	0	(0)	5	(0)
Heliothinae	タバコガ亜科	11	(3)	7	(2)
Noctuinae	モンヤガ亜科	18	(5)	83	(7)
Hadeninae	ヨトウガ亜科	41	(9)	146	(37)
Cucullinae	セダカモクメ亜科	4	(0)	44	(11)
Amphipyridae	カラスヨトウガ亜科	6	(6)	24	(5)
Sarothripinae	キノカワガ亜科	0	(0)	1	(1)
Chloephorinae	リングア亜科	2	(1)	1	(0)
Acontiinae	コヤガ亜科	1	(1)	9	(5)
Plusinae	キンウワバ亜科	24	(16)	26	(5)
Metoponiinae		1	(0)	0	(0)
Nolidae	コブガ科	1	(0)	1	(1)
Erebidae	トモエガ科				
Calpinae	エグリバ亜科	1	(1)	0	(0)
Catocalinae	シタバガ亜科	11	(3)	18	(4)
Ophiderinae	クチバ亜科	9	(3)	9	(6)
Hypeninae	アツバ亜科	0	(0)	4	(0)
Herminiinae	クルマアツバ亜科	1	(0)	9	(3)
Lymantriinae	ドクガ亜科	29	(16)	8	(1)
Arctiinae	ヒトリガ亜科				
Lithosiini	コケガ族	5	(4)	1	(1)
Synthomini	カノコガ族	3	(1)	2	(0)
Arctiini	ヒトリガ族	26	(4)	9	(0)
Total		739	(220)	1347	(333)

LIST OF SEX PHEROMONES AND ATTRACTANTS

[Super-family]

(Family; Sub-family)

Species Common name <Japanese common name>	Sex pheromone and sex attractant	Reference	Distribution in Japan
--	--	-----------	--------------------------

(1) [Micropterigoidea] コバネガ上科

no species

(2) [Eriocranioidea] スイコバネガ上科
(Eriocraniidae) スイコバネガ科

<i>Eriocrania cicatricella</i> Zett. phe.	*Z4-7:2-OH (2R)-isomer + *7:2-OH (2R)-isomer (20:3) + another component	Zhu, 1995(a)	C
<i>Eriocrania sangii</i> Wood phe.	*Z6-9:2-OH (2S)-isomer + other components	Kozlov, 1996 Lassance, 2019	C
<i>Eriocrania semipurpurella</i> Stephens <oo-suikobane> phe.	*Z6-9:2-OH (2R)-isomer + other components	Kozlov, 1996 Lassance, 2019	A
<i>Eriocrania sparrmannella</i> Bosc <kinmadara-suikobane> att.	Z4-7:2-OH (2S)-isomer + 7:2-OH (2S)-isomer (20:3)	Zhu, 1995(a)	A

(3) [Hepialoidea] コウモリガ上科

no species

(4) [Nepticuloidea] モグリチビガ上科
(Nepticulidae) モグリチビガ科

<i>Stigmella crataegella</i> Klimesch att.	⁻⁻ Z6,8-9:2-OH (2S)-isomer + E6,8-9:2-OH (2S)-isomer (1:1)	Tóth, 1995	C
<i>Stigmella malella</i> Stainton Klimesch banded apple pigmy phe.	*Z6,8-9:2-OH (2S)-isomer + *E6,8-9:2-OH (2S)-isomer (10:3)	Tóth, 1995	C
<i>Trifurcula melanoptera</i> att.	Z6,8-9:2-OH (2R)-isomer + E6,8-9:2-OH (2R)-isomer (1:1)	Tóth, 1995	C

(5) [Incurvarioidea] マガリガ上科
(Heliozelidae) ツヤコガ科

<i>Antispila oinophylla</i> van Nieukerken & Wagner phe.	*Z7-14:Ald + *Z5-14:Ald (20:3)	Wang, 2019	C
<i>Antispila treitschkiella</i> Fr. att.	Z7-14:Ald	Tóth, 1992(d)	C
<i>Holocacista capensis</i> van Nieukerken & Greertsema phe.	*Z7-14:Ald + *Z5-14:Ald (3:1) + another component	Wang, 2015(b)	D
<i>Holocacista rivillei</i> Stainton phe.	*Z5-12:Ald + *Z7-14:Ald (50:3)	Wang, 2019	D

(Prodoxidae) ホソヒゲマガリガ科

<i>Lampronia capitella</i> Litner phe.	Z11-14:OAc	Löfstedt, in Arn, 1997	C
	*Z9,Z11-14:OH + *Z9,Z11-14:OAc + *Z9,Z11-14:Ald (100:26:13)	Löfstedt, 2004 Svensson, 2025	

(6) [Tischerioidea] ムモンモグリガ上科
(Tischeriidae) ムモンモグリガ科

<i>Tischeria ekebladella</i> Bjerkander oak leafminer phe.	*Z3,Z6,Z9,Z19-23:H + another component	Molnár, 2012	C
(7) [Tineoidea] ヒロズコガ上科 (Tineidae) ヒロズコガ科			
<i>Archimeessia</i> sp. att.	E3,Z13-18:OAc + E2,Z13-18:OH (1:1)	Bûda, 1993	D
<i>Celestica angustipennis</i> att.	E3,Z13-18:OAc + E3,Z13-18:OH (1:1)	Bûda, 1993	D
<i>Ereunetis</i> (= <i>Decadarchis</i>) <i>simulans</i> Butler att.	Z3,Z13-18:OAc	Brennan, 1977	D
<i>Infurcitinea albicomella</i> HS. att.	Z11-16:OH + Z11-16:Ald (1:1)	Tóth, 1992(d)	D
<i>Infurcitinea finalis</i> Gozm. att.	Z11-16:OH	Tóth, 1992(d)	D
<i>Kermania pistaciella</i> Amsel Klimesch pistachio twig borer Phe.	*Z12-17:2-OAc (2S)-isomer + other components	Gries, 2006(b)	D
<i>Matratinea rufulicaput</i> att.	Z3,Z13-18:OH	Sziráki in Arn, 1992	D
<i>Monopsis monachella</i> Hübner att.	E2,Z13-18:OH + Z3,Z13-18:OH (9:1)	Karalius, 2001	C
<i>Monopsis palidella</i> Zagulajev att.	E2,Z13-18:Ald	Karalius, 2005	C
<i>Monopsis rusticella</i> Hübner att.	E2,Z13-18:OH + Z3,Z13-18:Ald (10:1–1:1)	Szöcs, 1989	C
<i>Nemapogon albipunctellus</i> Haworth att.	E3,Z13-18:OAc + Z3,Z13-18:OAc	Voerman, 1983	C
<i>Nemapogon apicisignalellus</i> Dietz att.	Z9-14:OAc	Roelofs, 1971(a)	C

<i>Nemapogon clematella</i> F. <i>att.</i>	Z3,Z13-18:OAc	Fassotte in Arn, 1986(a) Bûda, 1993	C
<i>Nemapogon falstriellus</i> Bang-Haas. <i>att.</i>	Z3,Z13-18:OAc + Z3,Z13-18:Ald (10:1–1:1)	Szöcs, 1989	C
<i>Nemapogon flavifrons</i> Pt. <i>att.</i>	Z3,Z13-18:OAc + Z3,Z13-18:OH (9:1)	Bûda, 1993	C
<i>Nemapogon granellus</i> L. European grain moth <kokuga> <i>phe.</i>	*Z3,Z13-18:OAc N	Ohshima, 1993	A
<i>Nemapogon heydeni</i> Peterson <i>att.</i>	E3,Z13-18:OAc + Z3,Z13-18:OAc (19:1)	Voerman, 1983	C
<i>Nemapogon personellus</i> P. & M. <i>att.</i>	Z3,Z13-18:OH	Szöcs, 1989	C
<i>Nemapogon variatella</i> Clemens <i>phe.</i>	*Z3,Z13-18:OH N	Radžiutė, 2023	C
<i>Nemaxera betulinella</i> F. <i>att.</i>	E2,Z13-18:OAc + E2,Z13-18:OH (9:1)	Bûda, 1993 Karalius, 2001	D
<i>Opogona sacchari</i> Bojer <i>att.</i>	Z11-16:Ald E	Rotundo, 1982	C
<i>Opogona</i> sp. <i>att.</i>	Z8-12:OAc + E8-12:OAc (99:1)	Hall, 1984	
<i>Tinea nonimella</i> Zagulajev <i>att.</i>	E2,Z13-18:OH + E3,Z13-18:OH (9:1)	Karalius, 2001	C
<i>Tinea pellionella</i> L. (= <i>translucens</i> Meyrick) case-making cloth moth <iga> <i>att.</i>	E2-18:Ald	Yamaoka, 1990	A
<i>Tineola bisselliella</i> Hummel webbing clothes moth <koiga>	* E2,Z13-18:Ald + *E2-18:Ald N	Yamaoka, 1985	A

phe.	+ *E2,Z13-18:OH (2:1)	Takács, 2001	
<i>Triaxomera fulvimitrella</i> Sod. att.	Z3,Z13-18:OAc	Mäeorg in Arn, 1992 Bûda, 1993	C
	+ Z3,Z13-18:OH (9:1) or + E3,Z13-18:OH (5:5)	Karalius, 2005	

(Psychidae) ミノガ科

<i>Clania</i> (= <i>Eumeta</i>) <i>variegata</i> Snell. Paulownia bagworm <oo-minoga> phe.	* (S)-1-ethyl-2-methylpropyl Me3,Me13-15:Ate (3R,13R,3'S)-isomer	Gries, 2006(a) Mori, 2010	A
<i>Diplodoma laichartingella</i> Goeze att.	E11-14:Ald + Z11-14:Ald (20:1)	Ostrauskas, 2010(a)	C
<i>Megalophanes viciella</i> Denis & Schiffermüller phe.	* isopropyl 8:Ate	Subchev, 2000(a)	D
<i>Oiketicus kirbyi</i> Guiding bagworm phe.	* (R)-1-methylbutyl 10:Ate + other components	Rhainds, 1994	D
<i>Thyridopteryx ephemeraeformis</i> Haworth bagworm moth phe.	* (R)-1-methylbutyl 10:Ate (R)-1-methylpentyl 10:Ate	Leonhardt, 1983 Warthen, 1996	D
<i>Whittleia retiella</i> Newman phe.	* (S)-sec-butyl Z5-10:Ate + * isopropyl Z5-10:Ate (1:2)	Rahmani,2020	D

(8) [Gracillarioidea] ホソガ上科
(Bucculatrigenidae) チビガ科

<i>Bucculatrix thurberiella</i> Busck. cotton leafperforator phe.	* Z9-14:ONO₂ + * Z8-13:ONO₂ (20:1)	Hall, 1992	C
---	---	------------	---

(Gracillariidae) ホソガ科

a: Gracillariinae ホソガ亜科, b: Lithocolletinae キンモンホソガ亜科,
c: Phyllocnistinae コハモグリガ亜科, d: Oecophyllembiinae オビギンホソガ亜科

<i>Acrocercops</i> ^a sp. 1 att.	E8,E10-14:Ald	Ando, 1987	A
<i>Acrocercops</i> sp. 2 att.	E8,E10-14:Ald	Ando, 1987	A
<i>Aspilapteryx</i> ^a <i>tringipennella</i> Zeller att.	Z11-14:OAc + E11-14:OAc (1:1)	Heikinheimo, 1978	D
<i>Caloptilia</i> ^a <i>fraxinella</i> Fly att.	Z11-16:Ald + Z11-16:OH (10:1)	Lemmen, 2009	C
<i>Caloptilia porphyretica</i> Braun blueberry leafminer phe.	*E11-16:Ald	Zhang, 2004	C
<i>Caloptilia theivora</i> Walsingham tea leafroller <chanohamaki-hosoga> phe.	E11-16:Ald *E11-16:Ald + Z11-16:Ald (9:1–7:3)	Ando, 1981 Ando, 1985(a)	A
<i>Calybites</i> ^a <i>auroguttella</i> Stephens att.	Z11-14:OAc + Z9-14:OAc + Z11-14:OH (18:1:1)	Hrdý, 1989	C
<i>Cameraria</i> ^b <i>ohridella</i> Deschka et Dimic horse-chestnut leafminer phe.	*E8,Z10-14:Ald	Svatos, 1999 Francke, 2002 Kalinová, 2003	C
<i>Conopomorpha</i> ^a <i>cramerella</i> Snellen cocoa pod borer moth phe.	*E4,E6,Z10-16:OAc + *E4,Z6,Z10-16:OAc + *E4,E6,Z10-16:OH + *E4,Z6,Z10-16:OH (30:20:3:2)	Beevor, 1986	D
	(55:40:6:4)	Niogret, 2022	
<i>Conopomorpha sinensis</i> Bradley litchi fruit borer att.	E4,E6,Z10-16:OAc + E4,Z6,Z10-16:OAc (3:2)	Hwang, 1996(b)	D

	+ E4,E6,Z10-16:OH + E4,Z6,Z10-16:OH	Hung, 2006	
<i>Gracillaria</i> ^a <i>elongella</i> att.	Z10,E12-16:Ald	Priesner in Arn, 1986(a)	C
<i>Gracillaria syringella</i> F. <ibota-hosoga> att.	E11-14:Ald + Z11-14:Ald (9:1)	Ando, 1981	A
	E11-14:Ald	Knauf in Arn, 1986(a) Booij, 1985 Frerot, 1985	
<i>Marmara</i> ^a <i>gulosa</i> Guillen & Davis citrus peelminer phe.	*E8,E10-14:OFo + other components	McElfresh, 2009	D
<i>Phyllocnistis</i> ^c <i>citrella</i> Stainton citrus leafminer moth <mikan-kohamoguri> phe. Japanese strain	Z7,Z11-16:Ald	Ando, 1985(b)	A
	*Z7,Z11-16:Ald	Mafi, 2005	
Brazil & USA strain	*Z7,Z11,E13-16:Ald + *Z7,Z11-16:Ald (3:1) + another component	Leal, 2006; Moreira, 2006 Lapointe, 2006	
Vietnam strain	Z7,Z11,E13-16:Ald + Z7,Z11-16:Ald (3:1)	Vang, 2008	
<i>Phyllocnistis insignis</i> Frey & Boll att.	Z7,Z11,E13-16:Ald + Z7,Z11-16:Ald (3:1)	Keathley, 2013 Kawahara, 2013	C
<i>Phyllocnistis vitegenella</i> Clemens att.	Z7,Z11,E13-16:Ald + Z7,Z11-16:Ald (3:1)	Kawahara, 2013	C
<i>Phyllocnistis wampella</i> Liu & Zeng. att.	Z7,Z11-16:Ald	Du, 1989	C
<i>Phyllocnistis</i> sp. att.	Z7,E11-16:Ald	Ando, 1985(b)	A

<i>Phyllonorycter</i> ^b <i>blancardella</i> F. spotted tentiform leafminer phe.	E10-12:OAc	Roelofs, 1977(b) Voerman, 1978(a) El-Sayed, 2004(b)	C
	E4,E10-12:OAc	Gries, 1993(d)	
	*E10-12:OAc + other components	Mozūraitis, 1999(b) El-Sayed, 2005(b)	
<i>Phyllonorycter crataegella</i> Clemens apple blotch leafminer phe.	*Z10,Z12-14:OAc + *E10,E12-14:OAc (10:1)	Ferrao, 1998	C
<i>Phyllonorycter coryli</i> att.	E9-14:OAc + Z10-14:OAc (10:1)	Mozūraitis, 1998	C
<i>Phyllonorycter</i> (= <i>Lithocolletis</i>) <i>corylifoliella</i> Hübner att.	E4,Z7-13:OAc E4-12:OAc	Voerman, 1978(a) Voerman, 1991	C
<i>Phyllonorycter cydoniella</i> Den. & Schiff. att.	E10-12:OAc	Mozūraitis, 1998	C
<i>Phyllonorycter dubitella</i> att.	E9-14:OAc + Z10-14:OAc (10:1)	Mozūraitis, 1998	C
<i>Phyllonorycter elmaella</i> Doganlar & Mutuura att.	E10-12:OAc	Shearer, 1994	C
<i>Phyllonorycter emberizaepenella</i> Z. phe.	*E8,E10-14:OAc + *E8,E10-14:OH (minor) N	Mozūraitis, 2002	C
<i>Phyllonorycter harrisella</i> att.	E9-14:OAc + Z10-14:OAc (10:1)	Mozūraitis, 1998	C
<i>Phyllonorycter heegerella</i> Z. phe.	*Z8-14:OAc + *Z8-14:OH + *14:OAc (10:1:2)	Mozūraitis, 2000	C
<i>Phyllonorycter insignitella</i> Zeller phe.	*Z8,E10-14:OAc + *Z8,E10-14:OH + *E8,Z10-14:OAc (176:24:0.2)	Mozūraitis, 2008	C
<i>Phyllonorycter junoniella</i> Z.	Z10-12:OAc	Mozūraitis, 1998	C

<i>Phyllonorycter kleemanella</i> F.	Z10-14:OAc + E11-14:OAc (1:0–1:3)	Booij, 1984(a)	C
<i>Phyllonorycter mespilellus</i> Hübner tentiform leafminer	E10-12:OAc	Hrdý, 1989	C
<i>Phyllonorycter nigrescentella</i> Logan	*E4,E10-12:OAc + another component	Gries, 1993	
<i>Phyllonorycter orientalis</i> Kumata <kaedekinmon-hosoga>	*Z8,E10-14:OAc + other components	Mozūraitis, 2008	C
<i>Phyllonorycter oxyacanthae</i> Frey.	Z10-14:OAc	Ando, 1977	A
<i>Phyllonorycter platani</i> Staudinger	E10-12:OAc + E10-12:OH (10:1)	Mozūraitis, 1998	C
<i>Phyllonorycter pulchra</i> Kumata <nakagurokinmon-hosoga>	*Z10-14:OAc	Subchev, 2003	C
<i>Phyllonorycter pygmaea</i> Kumata <himekinmon-hosoga>	E8,E10-14:OAc	Ando, 1987	A
<i>Phyllonorycter pyrifoliella</i>	Z8-14:OH	Ando, 1977	A
<i>Phyllonorycter ringoniella</i> Matsumura apple leafminer moth <kinmon-hosoga>	E10-12:OAc	Laanmaa in Arn, 1992	C
	*Z10-14:OAc + *E4,Z10-14:OAc	Ujiye, 1986 Sugie, 1986	A
Japan	(10:1)		
Korea	(2:3)	Boo, 1998(a)	
China	(0.5:10–0:10)	Du, 2013	
	epoxyfarnesol	Nagaki, 2009	

<i>Phyllonorycter saportella</i> Dup. <i>att.</i>	E8-14:OAc + E10-14:OAc (1:1)	Voerman, 1988	C
<i>Phyllonorycter sorbi</i> Frey. <i>att.</i>	E10-12:OH	Mozūraitis, 1998	C
<i>Phyllonorycter sylvella</i> Hübner (= <i>acerifoliella</i> Z.) <i>phe.</i>	*Z10-14:OAc + *Z8-14:OAc + *E10-14:OAc (46:3:1) N (10:1:0)	Borg-Karlson, 1996 Mozūraitis, 2000	C
	E9-14:OAc + Z10-14:OAc (10:1)	Mozūraitis, 1998	
<i>Phyllonorycter ulmifoliella</i> Hübner <tsumasujikinmon-hosoga> <i>phe.</i>	Z10-14:OAc *Z10-14:OAc	Voerman, 1988 Mozūraitis, 1997	A
<i>Phyllonorycter watanabei</i> Kumata <watanabekinmon-hosoga> <i>att.</i>	Z10-13:OAc	Ando, 1977	A
<i>Phyllonorycter</i> sp. 1 <i>att.</i>	E8,E10-14:OAc or E8,E10-14:Ald	Reed, 1985(b)	
<i>Phyllonorycter</i> sp. 2 <i>att.</i>	E10-12:OAc	Reed, 1985(b)	
<i>Phyllonorycter</i> sp. 3 <i>att.</i>	E8-14:OAc	Priesner in Arn, 1986(a)	
<i>Spulerina</i> ^a <i>asturota</i> Meyrick pear barkminer moth <nashikawa-hosoga> <i>phe.</i>	*Z9,Z11-14:OH + *Z9,Z11-14:OAc (7:3) + another component	Do, 2011	A

(9) [Yponomeutoidea] スガ上科
(Yponomeutidae) スガ科
a: Yponomeutinae スガ亜科, b: Praydinae ニセスガ亜科, c: Argyrethiinae メムシガ亜科

<i>Argyresthia</i> ^c <i>albistria</i> Haworth <i>att.</i>	Z7-12:OAc + Z7-12:OH	Tóth, 1992(d)	C
---	-------------------------	---------------	---

	+ Z9-14:OAc (20:1:1)		
<i>Argyresthia beta</i> Friese & Moriuti <mochitsutsuji-memushiga> att.	Z11-14:OH Z7,E11-16:OH	Ando, 1981 Ando, 1985(b)	A
<i>Argyresthia chamaecypariae</i> Moriuti <hinoki-hamoguriga> att.	E11-16:Ald	Ando, 1981	A
<i>Argyresthia conjugella</i> Zeller apple fruitle moth <ringohime-shinkui> phe.	Z11-16:OAc + Z13-18:OAc (3:1–1:3) *Z11-16:OAc + other components	Booij, 1984(a) Jaastad, 2002	A
<i>Argyresthia cornella</i> F. att.	Z11-16:OAc or + Z13-18:OAc (1:1)	Booij, 1984(a)	C
<i>Argyresthia fundella</i> Fischer von Röslerstamm att.	Z11-16:Ald	Booij, 1984(a)	C
<i>Argyresthia goedartella</i> L. att.	Z11-16:OAc + Z11-16:Ald (3:1)	Booij, 1984(a)	C
<i>Argyresthia mendica</i> att.	Z11-16:Ald	Subchev in Arn, 1992	C
<i>Argyresthia nemorivaga</i> Moriuti <todomatsu-memushiga> att.	Z11-16:Ald	Ando, 1981	A
<i>Argyresthia pruniella</i> Clerck att.	Z8-12:OAc or E8,E10-12:OH Z11-16:Ald	Alford, 1978 Booij, 1984(a)	C
<i>Argyresthia retinella</i> Zeller <amimeshiro-memushiga> att.	Z11-16:Ald	Tóth, 1992(d)	A
<i>Argyresthia semifusca</i> Haworth att.	Z7-12:OAc	Tóth, 1992(d)	C
<i>Argyresthia semitestacella</i>	Z11-16:OAc	Priesner	C

att.			in Arn, 1986(a)	
<i>Argyresthia sorbiella</i> Tr.	Z7-12:OAc + Z9-12:OAc (20:1)	Tóth, 1992(d)		C
att.				
<i>Argyresthia thuiella</i> Packard	Z11-16:Ald	Booij, 1984(a)		C
att.				
<i>Euhyponomeutoides</i> ^a <i>albithoracellus</i> Gaj currant bud moth	*Z11-14:OAc + *E11-14:OAc (3:1)	Svensson, 2023		C
phe.	(1:1)	Svensson, 2025		
<i>Euhyponomeutoides rufella</i>	Z11-14:OAc + E11-14:OAc	Peltotalo, 1986		C
att.				
<i>Euhyponomeutoides trachydeltus</i> Meyrick <hoso-suga>	Z11-14:OAc	Ando, 1981		A
att.				
<i>Ocnerostoma</i> ^a <i>friesei</i> Svensson <akamatsuhmoguri-suga>	E6-13:OAc	Willemse, 1987		A
att.				
<i>Paraargyresthia</i> ^c <i>japonica</i> Moriuti <nihonnise-memushiga>	E11-16:OAc	Ando, 1981		A
att.				
<i>Paraswammerdamia</i> ^a <i>lutarea</i> Hw.	Z7-14:OAc	Mozūraitis, 1998		C
att.				
<i>Prays</i> ^b <i>citri</i> Mill. citrus flower moth	*Z7-14:Ald	Nesbitt, 1977 Sternlicht, 1978		C
phe.				
<i>Prays endocarpa</i> Meyrick citrus pock caterpillar	*Z7-14:Ald + other components	Vang, 2011		C
phe.				
<i>Prays nephelomima</i> Meyrick citrus flower moth	*Z7-14:Ald	Gibb, 2005		C
phe.				

<i>Prays oleae</i> Bern. olive moth phe.	*Z7-14:Ald	Campion, 1979 Renou, 1979 Sakin, 2023	C
<i>Swammerdamia</i> ^a <i>compunctella</i> H. S. att.	Z11-14:OAc + Z11-14:OH (9:1)	Novotný, 1990	C
<i>Swammerdamia pyrella</i> Villers <usugurohime-suga> att.	Z5-14:OAc + Z7-14:OAc (1:1)	Tóth, 1991(b)	A
<i>Swammerdamia</i> sp. att.	Z11-14:OAc + Z7-14:OAc (3:2)	Szöcs, 1981	
<i>Thecobathra</i> ^a (= <i>Niphonympha</i>) <i>anas</i> Stringer <maruginbane-suga> att.	E11-14:OAc + E11-14:Ald (9:1)	Ando, 1981	A
<i>Xyrosaris</i> ^a <i>lichneuta</i> Meyrick <hosobako-suga> att.	Z11-14:OAc Z9,E11-14:OH	Ando, 1981 Ando, 1987	A
<i>Yponomeuta</i> ^a <i>cagnagellus</i> Hübner phe.	Z11-14:OAc *Z11-14:OAc + *E11-14:OAc + *Z11-14:OH (200:3:40) + other components (200:5:74) + Z11-14:Ald (100:2:0.75:1)	Hendrikse, 1982 Löfstedt, 1985(a) Löfstedt, 1988 Ostrauskas, 2010(b)	C
<i>Yponomeuta evonymellus</i> L. <sakura-suga> phe.	Z12-15:OAc + E12-15:OAc (3:1) *Z11-14:OAc + *E11-14:OAc + *Z11-14:OH + *14:OAc + *14:OH (10:2:2:6:1)	Ritter, 1975 Löfstedt, 1985(a)	A

	+ Z11-14:Ald (100:2:0.75:1)	Ostrauskas, 2010(b)	
<i>Yponomeuta irrorellus</i> Hübner phe.	*Z11-14:OAc + *E11-14:OAc + *Z11-14:OH + *E11-14:OH (100:60:3:1.8) + other components	Löfstedt, 1988	C
<i>Yponomeuta malinellus</i> Zeller apple ermine moth <ringo-suga> phe.	Z11-14:OAc + E11-14:OAc (97:3) Z11-14:OAc *Z11-14:OH + *Z9-12:OAc (500:3) + other components	Stockel, 1981 Hendrikse, 1982 McDonough, 1990(b)	A
<i>Yponomeuta padellus</i> L. phe.	Z11-14:OAc + E11-14:OAc (4:1) or Z12-15:OAc + E12-15:OAc (1:3) *Z11-16:OAc + *Z11-14:OAc + *E11-14:OAc (200:50:17) + other components + Z9-14:OAc (400:100:34:5)	Herrebout, 1978 Hendrikse, 1982 Löfstedt, 1985(a) Du, 1987(a) Löfstedt in Arn, 1986(a)	B
<i>Yponomeuta padellus</i> Malinellus att.	Z11-14:OAc	Arn, 1974	B
<i>Yponomeuta plumbellus</i> Denis & Schiffermüller phe.	E12-15:OAc + Z12-15:OAc (3:1) *E11-14:OAc + *Z11-14:OAc (3:2) + other components	Ritter, 1975 Löfstedt, 1988	C
<i>Yponomeuta rorellus</i> Hübner small ermine moth phe.	E12-14:OAc or Z12-14:OAc or E6-14:OAc *14:OAc	Hendrikse, 1982 Löfstedt, 1990 Löfstedt, 1986(a)	C

	+ other components	Du, 1987(a)	
<i>Yponomeuta vigintipunctatus</i> Retzius <benkeisou-suga> phe.	*Z11-14:OAc + *E11-14:OAc + *Z11-14:OH (10:2:1) + other components	Löfstedt, 1985(a)	A
<i>Yponomeuta yanagawanus</i> Matsumura <tsumagurohai-suga> att.	Z11-14:OAc	Ando, 1977	A

(Ypsolophidae) クチブサガ科

<i>Ypsolopha dentella</i> att.	Z7-12:OAc or Z7-12:OH + Z7-12:OH (1:1)	Roelofs, 1971(a) Priesner in Arn, 1986(a)	C
<i>Ypsolopha falcella</i> att.	Z5-14:OAc or Z7-14:OAc	Priesner in Arn, 1986(a)	C
<i>Ypsolopha longus</i> Moriuti <mayumiookuchibusa-suga> att.	Z7-12:OAc	Ando, 1981	A
<i>Ypsolopha lucella</i> F. att.	Z11-16:OAc + Z11-16:Ald (20:1)	Tóth, 1992(d)	C
<i>Ypsolopha nemorella</i> att.	Z7-12:OAc + Z5-12:OAc (1:1)	Priesner in Arn, 1986(a)	C

(Plutellidae) コナガ科

<i>Leuroperna sera</i> Meyrick <hiroba-konaga> att.	Z11-16:Ald + Z9-16:Ald (19:1)	Kohno, 2014	A
<i>Plutella xylostella</i> L. diamondback moth <konaga> phe.	*Z11-16:OAc + *Z11-16:Ald (2:3–3:2) (1:1)	Tamaki, 1977(b) Koshihara, 1978 Chow, 1977	A

	(3:2)	Zilahi-Balogh, 1995
+ Z11-16:OH	(10:10:1)	Ando, 1979
	(50:50:1)	Lin, 1982
+ Z9-14:OAc	(30:70:1:0.01)	Chisholm, 1983
or + Z9-14:OH	(30:70:1:10)	
+ *Z11-16:OH	(3:6:1)	Suckling, 2002
	[3:8:2]	Lee, 2005
	(10:90:1)	Yang, 2007
	(5:5:1)	Chi, 2024

(Acrolepiidae) アトヒゲコガ科

<i>Acrolepiopsis assectella</i> Zeller leek moth phe.	Z11-16:Ald *Z11-16:Ald + Z11-16:OAc (10:1)	Rahn, 1979 Renou, 1981(a) Minks, 1994	C
<i>Acrolepiopsis issikiella</i> Moriuti <tokoromi-koga> att.	Z11-16:Ald	Ando, 1981	A
<i>Acrolepiopsis nagaimo</i> Yasuda <nagaimo-koga> phe.	*Z11-16:OAc + *Z11-16:Ald + *Z11-16:OH (25:25:1)	Wakamura, 2001(b) Tanaka, 2001	A
<i>Acrolepiopsis sapporensis</i> Matsumura (= <i>alliella</i> Semenov & Kuznetsov) stone leek moth (allium leafminer) <negi-koga> phe.	Z11-16:Ald + Z11-16:OAc + Z11-16:OH (9:9:2) (5:5:1) (3:1:1)	Sato, 1979 Yamada, 1980 Ando, 1981	A
Korea strain	*Z11-16:OAc + *Z11-16:Ald + *Z11-16:OH (13:5:2)	Yang, 2008	

Japanese strain	(1:7:2)	Shimizu, 2009	
<i>Acrolepiopsis suzukiella</i> Matsumura <yamanoimo-koga> <i>att.</i>	Z11-16:Ald + Z11-16:OAc (9:1)	Ando, 1981	A
<i>Acrolepiopsis</i> sp. <i>att.</i>	Z11-16:OAc + Z11-16:OH (9:1)	Ando, 1981	A

(Glyphipterigidae) ホソハマキモドキガ科

<i>Glyphipterix eulucotoma</i> Diakonoff & Arita <atofutamom- hosohamakimodoki> <i>att.</i>	Z11-16:OAc + Z11-16:Ald (1:1)	Ando, 1981	A
<i>Glyphipterix nigromarginata</i> Issiki <heriguro-hosohamakimodoki> <i>att.</i>	Z11-16:OAc + Z11-16:Ald (1:1)	Ando, 1981	A
<i>Glyphipterix simplicella</i> Stephens <i>att.</i>	Z11-16:OAc + Z11-16:Ald (3:1)	Booij, 1984(a)	C

(Lyonetiidae) ハモグリガ科

<i>Leucoptera malifoliella</i> Costa (= <i>scitella</i> Zeller) mountain-ash bentwing <i>phe.</i>	*Me5,Me9-17:H (major) + *Me5,Me9-16:H Me5,Me9-17:H (5S,9S)-isomer	Francke, 1987; 1988 Tóth, 1989(c)	C
	*Me5,Me9-17:H + *Me5,Me9-18:H (100:0.1–100:5)	Riba, 1990	
<i>Leucoptera sinuella</i> Reutti <i>phe.</i>	*Me3,Me7-15:H + *Me3,Me7-14:H + *Me7-15:H (95:2:3)	Barros-Parada, 2020	C
<i>Leucoptera spartifoliella</i> Hübner broom twig miner <i>phe.</i>	*Me5-17:H	El-Sayed, 2024	C

<i>Lyonetia clerkella</i> L. peach leafminer moth <momo-hamoguriga> phe.	* $\Delta 1, \text{Me}14-18:\text{H}$ (S)-isomer	Sugie, 1984(a) Sato, 1985,1986	A
<i>Lyonetia prunifoliella</i> Hübner apple leafminer moth <ringo-hamoguriga> <ginmon-hamoguriga> phe. in Korea in Japan	* $\Delta 1, \text{Me}10, \text{Me}14-18:\text{H}$ + $\text{Me}5, \text{Me}9-18:\text{H}$ + $\text{Me}5, \text{Me}9-17:\text{H}$ (1:1:1) $\Delta 1, \text{Me}10, \text{Me}14,-18:\text{H}$ (10S,14S)-isomer	Gries, 1997(b) Park, 2002 Taguri, 2014	B
<i>Perileucoptera</i> (= <i>Leucoptera</i>) <i>coffeella</i> Guér.-Ménev. coffee leafminer moth phe.	* $\text{Me}5, \text{Me}9-15:\text{H}$ (major) + * $\text{Me}5, \text{Me}9-16:\text{H}$ * $\text{Me}5, \text{Me}9-15:\text{H}$ (5S,9R)-isomer	Francke, 1988 Malo, 2009	D

(10) [Gelechioidea] キバガ上科
(Ethmiidae) スヒロキバガ科

<i>Ethmia monticola</i> Walsingham att.	E11-14:OAc	Daterman, 1977	C
<i>Ethmia punctella</i> F. att.	E11-14:OAc	Löfstedt, 1988	C

(Elachistidae) クサモグリガ科

<i>Elachista consortella</i> Stainton att.	E11-14:Ald + Z11-14:Ald (20:1)	Ostrauskas, 2010(a)	C
<i>Stenoma catenifer</i> Walsingham avocado seed moth phe.	*Z9, $\equiv$ 11, Δ 13-14:Ald + other components	Millar, 2008 Hoddle, 2009	D
<i>Stenoma cecropia</i> Meyrick phe.	*Z9,E11, Δ 13-14:Ald + *Z9,E11-14:Ald (83:17) + other components	Zagatti, 1996	D

(Xyloryctidae) ヒロバキバガ科

<i>Opisina arenosella</i> Walker phe.	*Z3,Z6,Z9-23:H	N	Bhanu, 2018	D
--	----------------	---	-------------	---

(Oecophoridae) マルハキバガ科

a: Oecophoriinae マルハキバガ亜科, b: Chimabachinae メスコバネマルハキバガ亜科,
c: Amphisbatinae d Autostichinae ホシマルハキバガ亜科

<i>Bisigna</i> ^a <i>procerella</i> Denis & Schiffermüller att.	E5-16:OAc		Willemse, 1987	D
<i>Cheimophila</i> ^b <i>salicella</i> Hübner phe.	*E11-14:OAc + *E11-14:OH + *14:OAc + *E11-14:Ald (100:15:10:2)		Gillespie, 1984	C
<i>Cheimophila</i> sp. att.	E11-14:OAc		Ando, 1977	A
<i>Diurnea</i> ^b (= <i>Xenomicta</i>) <i>cupreifera</i> Butler <mesukobane- maruhakibaga> att.	Z11-14:OAc		Ando, 1977	A
<i>Diurnea phryganella</i> Hübner att.	Z11-14:OAc + E11-14:OAc (10:1)		Tóth, 1979 Priesner in Arn, 1986(a)	C
<i>Donaspastus</i> ^d <i>pannonicus</i> Gozm att.	Z8-13:OAc		Subchev, 1999	D
<i>Pseudatemelia</i> ^c <i>josephinae</i> Toll. att.	Z10-14:OAc + E9-14:OAc (10:1)		Mozūraitis, 1998	D
<i>Pseudatemelia</i> sp. 1 att.	Z9-13:OAc		Willemse, 1987	D
<i>Pseudatemelia</i> sp. 2	Z10-13:OAc		Willemse, 1987	D

att.

(Depressariidae) ヒラタマルハキバガ科

<i>Acria ceramitis</i> Meyrick <nezumiegurihirata- maruhakibaga> att.	E8,Z10-12:Ald + E8,Z10-12:OAc (1:1)	Ando, 1987	A
<i>Agonopterix alstroemeriana</i> Cl. att.	Z7-12:OAc + Z9-14:OAc (1:1)	Szöcs. 1981	C
<i>Agonopterix assimilella</i> att.	Z7-14:OAc + Z9-14:OAc	Priesner in Arn, 1986(a)	C
<i>Agonopterix encentra</i> Meyrick <yamaukogihirata- maruhakibaga> att.	Z7-12:OH + Z7-12:OAc (9:1)	Ando, 1981	A
<i>Agonopterix liturella</i> Denis & Schiffermüller att.	Z7-12:OAc + Z7-12:OH + Z9-14:OAc (1:1:1)	Tóth, 1992(d)	C
<i>Agonopterix ulicetella</i> gorse soft shoot moth att.	Z5-10:OAc + Z7-12:OH (1:1)	Suckling, 2000	C
<i>Agonopterix yeatiana</i> F. att.	Z3-10:OAc + Z5-10:OAc (1:1)	Priesner, 1988(b)	C
<i>Agonopterix</i> sp. 1 att.	Z7-10:OAc	Ando, 1977	A
<i>Agonopterix</i> sp. 2 att.	Z7-12:OAc + Z9-14:OAc (1:1)	Ando, 1981	A
<i>Agriophara rhombata</i> Meyr. tea grain moth phe.	*E5,Z7-12:OAc + *Z12-18:OAc N	Qu, 2024	C
<i>Cerconota anonella</i> Sepp. phe.	*Z9-18:OH + *Z9-18:Ald + *Z9-18:OAc (5:3:1)	Pires, 2016	D

<i>Depressaria depressana</i> att.	Z3-10:OAc	Sziráki in Arn,1997	C
<i>Depressaria olerella</i> Zeller att.	Z3-10:OAc	Priesner, 1988(b)	C
<i>Depressaria sordidatella</i> Tengström att.	E11-14:Ald + Z11-14:Ald (20:1)	Ostrauskas, 2010(a)	C

(*Stathmopodidae*) ニセマイコガ科

<i>Oedematopoda</i> (= <i>Atkinsonia</i>) <i>ignipicta</i> Butler <segurobenitogeashiga> att.	E4,Z6-16:OAc	Kim, 2014(a)	A
<i>Stathmopoda auriferella</i> Walker (= <i>theoris</i> Meyrick) <kiiro-maikoga> phe.	Z7-16:OAc or Z7,Z11-16:OAc + Z7,E11-16:OAc *E5-16:OAc + another component	Nagano, 1979 Yang, 2013	A
<i>Stathmopoda masinissa</i> Meyrick persimmon fruit moth <kakinohetamushiga> Japanese strain phe.	*E4,Z6-16:OAc + other components	Naka, 2003	A
Korean strain	*E4,Z6-16:OAc + *E4,Z6-16:OH (1:1)	Kim, 2014(a)	

(*Lecithoceridae*) ヒゲナガキバガ科

<i>Odites</i> (= <i>Protobathra</i>) <i>leucostola</i> Meyrick <gomafushiro-kibaga> att.	Z7-12:OH	Ando, 1977	A
<i>Rhizosthenes falciformis</i> Meyrick <maechao- hirobakibaga> att.	Z7-12:OAc + Z7-12:Ald (9:1)	Ando, 1981	A

(*Batrachedridae*) ホソキバガ科

<i>Batrachedra amydraula</i> Lesser date moth <i>phe.</i>	*Z4,Z7-10:OAc + *Z5-10:OAc + *Z4-10:OAc (1:2:1) + other components + *Z5-10:OH (1:2:2) + other components	Levi-Zada, 2011(a); Levi-Zada, 2013	C
<i>Batrachedra pinicolella</i> Zeller <usujiro-hosokibaga> <i>att.</i>	Z5-10:OAc + Z5-10:OH (1:1)	Willemse, 1987 Priesner, 1989(a)	A

(*Coleophoridae*) ツツミノガ科

<i>Augasma aeratellum</i> Zeller <i>att.</i>	Z7-12:OAc	Tóth, 1992(d)	D
<i>Coleophora albidella</i> Denis & Schiffermüller <yanagipisutoru-minoga> <i>att.</i>	E5-10:OAc + E5-10:OH (17:3)	Sziráki, 1980	A
<i>Coleophora alticolella</i> Zeller <i>att.</i>	Z5-10:OH	Priesner, 1987(a)	C
<i>Coleophora amellivora</i> Bald. <i>att.</i>	Z5-10:OH or Z5-10:OAc	Priesner, 1987(a)	C
<i>Coleophora anatipennella</i> Hübner <i>att.</i>	E5-10:OAc + E5-10:OH (17:3)	Sziráki, 1980	C
<i>Coleophora arbitarsella</i> <i>att.</i>	Z5-10:OAc + Z7-12:OAc (1:1)	Subchev, 1990	C
<i>Coleophora artemisicolella</i> Bruand <yomogihana-tsutsuminoga> <i>att.</i>	E5-10:OAc + E5-10:OH (17:3) Z9-14:OAc + Z7-12:OAc	Sziráki, 1980 Ostrauskas, 2003	A
<i>Coleophora auricella</i> F.	Z3-10:OAc	Priesner, 1988(b)	C

<i>att.</i>				
<i>Coleophora binderella</i> Koll.	Z5-10:OAc	Priesner, 1987(a)	C	
<i>att.</i>				
<i>Coleophora clypeiferrella</i> Hofm.	Z5-10:OAc	Priesner, 1987(a)	C	
<i>att.</i>				
<i>Coleophora coracipennella</i> Hübner	Z5-10:OH or Z5-10:OAc	Priesner, 1987(a)	C	
<i>att.</i>				
	+ Z5-10:OAc + Z7-12:OAc (1:1:1)	Tóth, 1992(d)		
<i>Coleophora dahurica</i> Flkv.	Z5-10:OH	Priesner, 1991	C	
<i>att.</i>				
<i>Coleophora deauratella</i> Zeller red clover casebearer	Z5-10:OAc + Z5-10:Ald + Z7-12:OAc (1:1:1)	Tóth, 1992(d)	C	
<i>phe.</i>				
	*Z7-12:OAc + *Z5-12:OAc (10:1) + another component	Evenden, 2010		
<i>Coleophora flavipennella</i> Dup.	Z5-10:OH	Priesner, 1987(a)	C	
<i>att.</i>				
<i>Coleophora frischella</i> L.	Z5-12:OAc + Z7-12:OAc (1:1)	Willemse, 1987	C	
<i>att.</i>				
<i>Coleophora glaucicolella</i> Wood	Z5-10:OAc	Priesner, 1987(a)	C	
<i>att.</i>				
<i>Coleophora glitzella</i> Hofm.	Z5-10:OH	Priesner, 1987(a)	C	
<i>att.</i>				
<i>Coleophora gryphipennella</i> Hübner	Z5-10:OAc	Priesner, 1987(a)	C	
<i>att.</i>				
<i>Coleophora hemerobiella</i> Sc.	Z5-10:OH + Z7-12:OH (1:1)	Tóth, 1992(d)	C	
<i>att.</i>				
<i>Coleophora juncicolella</i> Staint	Z5-10:OH or Z5-10:OAc	Priesner, 1987(a)	C	
<i>att.</i>				

<i>Coleophora laricella</i> Hübner European larch casebearer moth att.	Z5-10:OH	Priesner, 1982(b)	B
<i>Coleophora laripennella</i> Zeller att.	E5-10:OAc + E5-10:OH (17:3)	Sziráki, 1980	C
<i>Coleophora lineolea</i> Haw. att.	Z5-10:OH or Z5-10:OAc	Priesner, 1987(a)	C
<i>Coleophora lithargyrinella</i> Zeller att.	Z5-10:OH or Z5-10:OAc	Priesner, 1987(a)	C
<i>Coleophora mayrella</i> Hübner att.	Z5-10:OAc	Priesner, 1987(a)	C
<i>Coleophora millefolii</i> Zeller att.	E5-10:OAc + E5-10:OH (17:3)	Sziráki, 1980	C
<i>Coleophora obscenella</i> Herrich-Schäffer att.	Z9-14:OAc + Z7-12:OAc	Ostrauskas, 2003	C
<i>Coleophora ochripennella</i> Zeller att.	Z5-10:OH or Z5-10:OAc	Priesner, 1987(a)	C
<i>Coleophora orbitella</i> Zeller att.	Z5-10:OAc	Priesner, 1987(a)	C
<i>Coleophora ornatipennella</i> Hübner att.	Z5-10:OAc	Priesner, 1987(a)	C
<i>Coleophora palliatella</i> Zink. att.	E5-10:OH + E5-10:OAc (17:3)	Hrdý, 1989	C
<i>Coleophora peissoniella</i> Kasy att.	E5-10:OAc + E5-10:OH (17:3)	Sziráki, 1980	C
<i>Coleophora prunifoliae</i> Doets att.	Z5-10:OH or Z5-10:OAc	Priesner, 1987(a)	C
<i>Coleophora serpylletorum</i> E. Her. att.	Z3-10:OAc	Priesner, 1988(b)	C
<i>Coleophora serratella</i> L.	Z5-10:OH	Priesner, 1987(a)	A

<ringo-tsutsuminoga>

att.

<i>Coleophora sinensis</i> Yang Chinese larch casebearer att.	Z5-10:OH	Zhang, 1993	C
<i>Coleophora sternipennella</i> Zett. att.	Z3-10:OAc	Priesner, 1988(b)	C
<i>Coleophora trigeminella</i> Fuchs att.	Z5-10:OH Z7-12:OAc + Z7-12:OH + Z5-10:OAc (20:20:1)	Priesner, 1987(a) Tóth, 1992(d)	C
<i>Coleophora unipunctella</i> Zeller att.	Z7-12:OAc + Z7-12:OH (1:1)	Tóth, 1992(d)	C
<i>Coleophora vacciniella</i> Herrich-Schäffer att.	Z5-10:OAc	Priesner, 1987(a) Willemse, 1987	C
<i>Coleophora versurella</i> att.	Z3-10:OAc	Capizzi in Arn, 1986(a)	C
<i>Coleophora viminetella</i> Zeller att.	Z5-10:OAc + Z3-10:OAc (1:1)	Priesner, 1988(b)	C
<i>Coleophora virgaureae</i> Staint att.	Z5-10:OAc	Priesner, 1987(a)	C
<i>Oecogonia decuratella</i> Herrich-Schaffer att.	Z8-13:OAc + Z10-15:OAc (10:1)	Subchev, 1999	D
<i>Oegoconia quadripuncta</i> Haworth att.	Z8-12:OAc + E8-12:OAc (24:1) or + E8,E10-12:OAc + 12:OAc (8:12:25)	Hrdý, 1989	D

(Momphidae) アカバナキバガ科

<i>Mompha sturnipennella</i> Treitschke	E11-14:Ald	Ostrauskas, 2010(a)	C
---	------------	---------------------	---

att. + Z11-14:Ald (20:1)

(Cosmopterigidae) カザリバガ科

<i>Anatrachyntis</i> (= <i>Sathrobrotia</i>) sp. 1 att.	E11-14:OAc	Ando, 1975	A
<i>Anatrachyntis</i> (= <i>Sathrobrotia</i>) sp. 2 att.	E11-14:OH	Ando, 1977	A
<i>Anatrachyntis</i> sp. 3 att.	E11,Δ13-14:OAc	Ando, 1987	A
<i>Chrysochrista</i> sp. att.	Z8-13:OAc or E8-13:OAc	Ando, 1977	A
<i>Cosmopterix fulminella</i> Stringer <kazariba> att.	Z7-12:OAc Z11-14:OAc + Z9-12:OAc + Δ11-12:OAc (30:3:1)	Ando, 1977 Shry, 1985	A
<i>Cosmopterix gemmiferella</i> Clemens att.	Z9,Δ11-12:OAc + E9,Δ11-12:OAc (2:1)	Chisholm, 1985(b)	C
<i>Cosmopterix victor</i> Stringer <usuירו-kazariba> att.	Z10-12:OAc or Z10-13:OAc	Ando, 1977	A
<i>Cosmopterix</i> sp. 1-4 att.	Z9-12:OAc	Ando, 1975;1977	A
<i>Labdia citracma</i> Meyrick <tsumaki-togarihosoga> att.	E11-14:Ald	Ando, 1981	A
<i>Labdia issikii</i> Kuroko <sejiro-togarihosoga> att.	Z11-16:Ald + Z9-16:Ald (19:1)	Kohno, 2014	A
<i>Labdia semicoccinea</i> Stainton <benimon-togarihosoga> att.	E11-14:Ald	Ando, 1981	A
<i>Limnaecia phragmitella</i> Stainton	E11-14:OAc	Struble, 1977(a)	A

<gama-togarihosoga> phe.	+ Z11-14:OAc (10:1)		
	*E11-14:OAc + *Z11-14:OAc (19:1)	Bestmann, 1993(c)	
<i>Pancalia leuwenhoeckella</i> L. att.	Z8-13:OAc	Subchev, 1999	C
<i>Stigmatophora niphosticta</i> Meyrick <ginsuji-togarihosoga> att.	E11-14:OAc + Z11-14:OAc (7:3)	Ando, 1981	A

(Gelechiidae) キバガ科

a: Gelechiinae, b: Teleiodinae, c: Metzneriinae, d: Anacampsinae, e: Aristotelinae,
f: Dichomeridinae

<i>Acompsia</i> ^f <i>tripunctella</i> Denis & Schiffermüller att.	E11-14:OAc	Liska, 1990	D
<i>Anarsia</i> ^f <i>lineatella</i> Zeller peach twing borer phe.	*E5-10:OAc + *E5-10:OH (17:3) (5:1) + other components + *Me11-23:H + *18:OAc (body scale)	Roelofs, 1975(b) Rice, 1975 Millar, 1992(b) Schlamp, 2005	C
<i>Anthistarcha</i> ^d <i>binocularis</i> Meyrick cashew stem borer phe.	*E6-12:OAc + *E6-12:OH (5:2)	Soares, 2020	D
<i>Aproaerema</i> ^d <i>anthyllidella</i> <kurochibi-kibaga> att.	Z3-12:OAc + Z3-14:OAc (1:1)	Priesner, 1987(b)	A
<i>Aproaerema modicella</i> phe.	*Z7,Δ9-10:OAc + *E7-10:OAc (5:1) + another component	Hall in Arn, 1997	C
<i>Argolamprotes</i> ^c <i>micella</i>	Z3-14:OAc	Priesner, 1987(b)	A

Denis & Schiffermüller
<ginboshiakagane- kibaga>
att.

<i>Battaristis</i> ^d sp. att.	Z7-10:OAc	Roelofs, 1970(a)	D
<i>Brachmia</i> ^f <i>arotrea</i> Meyrick <tatejima-kibaga> att.	E7-14:OAc	Ando, 1977	A
<i>Brachmia blandella</i> F. att.	E9-13:OAc	Willemse, 1987	C
<i>Brachmia inornatella</i> Douglas att.	E9-13:OAc or E8-13:OAc	Willemse, 1987	C
<i>Brachmia triannulella macroscopa</i> Meyrick sweet potato leaf folder worm <imo-kibaga> phe.	*E11-16:OAc	Hirano, 1976	A
<i>Bryotropha</i> ^d <i>dryadella</i> Zeller att.	Z11-14:OAc	Tóth, 1992(d)	C
<i>Bryotropha galbanella</i> Zeller att.	E9-13:OAc E9-14:OAc + Z10-14:OAc (1:1)	Willemse, 1987 Mozūraitis, 1998	C
<i>Bryotropha senectella</i> Zeller att.	Z9-14:OAc E8-13:OAc E11-14:Ald + Z11-14:Ald (20:1)	Kovaleva, 1975 Willemse, 1987 Ostrauskas, 2010(a)	C
<i>Bryotropha similis</i> Stain att. gray-race yellow-race	Z9-14:OAc E9-14:OAc	Roelofs, 1969(b); 1970(a)	C

<i>Bryotropha terrella</i> att. Denis & Schiffermüller	E9-14:OAc	Arn, 1974	C
<i>Bryotropha</i> sp. att.	E9-14:OAc	Roelofs, 1970(a)	
<i>Caryocolum</i> ^a <i>alsinellum</i> att.	Z5-12:OAc	Sziráki in Arn, 1997	C
<i>Caryocolum marmoreum</i> Haworth att.	Z5-12:OAc	Tóth, 1992(d)	C
<i>Caryocolum proximum</i> Haworth att.	Z5-12:OAc + Z7-12:OAc (1:1)	Tóth, 1992(d)	C
<i>Catelaphris</i> sp. att.	Z7,Z11-16:OAc + Z7,E11-16:OAc (1:1)	Marks, 1976	D
<i>Chionodes</i> ^a <i>electella</i> Zeller att.	Z3-14:OAc	Willemse, 1987 Priesner, 1987(b)	C
<i>Chionodes fuscomaculella</i> Chambers att.	Z5-12:OAc	Roelofs, 1970(a)	C
<i>Chionodes holosericella</i> H. Sch. att.	E3-12:OAc	Priesner, 1987(b)	C
<i>Chionodes luctuella</i> Hübner att.	Z3-14:OAc	Priesner, 1987(b)	C
<i>Chionodes lugubrella</i> F. att.	E3,Z5-12:OAc + Z3,E5-12:OAc (10:1)	Reed, 1985(b)	C
<i>Chionodes nebulosella</i> Hein. att.	Z3-14:OAc	Priesner, 1987(b)	C
<i>Chionodes perpetuella</i> H. Sch. att.	E3-14:OAc	Priesner, 1987(b)	C
<i>Chionodes psiloptera</i> Barnes & Busck att.	Z7,E11-16:OAc	Oetting, 1977	C
<i>Chionodes</i> sp. 1 att.	E11-14:OAc	Daterman, 1977	

<i>Chionodes</i> sp. 2 att.	E3-12:OAc	Reed, 1985(b)	
<i>Dactylethrella</i> ^f (= <i>Dactylethra</i> , <i>Ethmiopsis</i>) <i>tegulifera</i> Meyrick <kurokumoshiro-kibaga> att.	E7-12:OAc	Ando, 1981	A
<i>Dichomeris</i> ^f <i>ligulella</i> att.	E11-14:OAc	Roelofs, 1971(a)	C
<i>Dichomeris oceanis</i> Meyrick <fujifusa-kibaga> att.	Z7,E11-16:OAc	Ando, 1985(b)	A
<i>Evippe</i> ^e <i>prunifoliella</i> att.	Z3-12:OAc	Reed, 1985(b)	C
<i>Filatima</i> ^a sp. att.	Z7-12:OAc	Roelofs, 1970(a)	D
<i>Gaesa</i> ^f <i>sparsella</i> Christoph <kurumioofusa-kibaga> att.	Z8-11:OAc	Ando, 1977	A
<i>Gelechia</i> ^a <i>betulae</i> Haworth att.	E9-14:OAc	Priesner, 1980(a)	C
<i>Gelechia sororculella</i> Hübner att.	Z7-14:OAc + Z5-14:OAc	Priesner in Arn, 1986(a)	C
	Z5-12:OAc	Willemse, 1987	
<i>Gnorimoschemini</i> sp. att.	Z5-12:OAc	Ando, 1977	A
<i>Hypatima</i> ^f <i>rhomboidella</i> L. att.	E7-12:OAc	Booij, 1984(a)	C
<i>Isophrictis similiella</i> Chambers att.	Z7-12:OAc + Z5-12:OAc (10:1)	Underhill, 1987(b)	D

<i>Isophrictis</i> sp. att.	Z5-12:OAc	Tóth, 1992(d)	D
<i>Keiferia</i> ^a <i>lycopersicella</i> Walsingham tomato pinworm phe.	*E4-13:OAc + Z4-13:OAc (39:11)	Charlton, 1991 Hobosyan, 2025	D
<i>Lixodessa ochrofasciella</i> Toll. att.	Z7-10:OAc	Kovaleva, 1975	D
<i>Metzneria</i> ^c sp. att.	E3-12:OAc	Renou, 1980	
<i>Monochroa</i> ^c <i>divisella</i> Douglas Iris gelechiid moth <ayame-kibaga> phe.	*Z3-12:OAc + *Z5-14:OAc (20:3)	Tabata, 2017	A
<i>Monochroa</i> <i>tenebrella</i> Hübner att.	Z3-14:OAc	Willemse, 1987 Priesner, 1987(b)	D
<i>Pectinophora</i> ^f <i>endema</i> Common att.	Z7,Z11-16:OAc + Z7,E11-16:OAc (2:1)	Rothschild, 1975	C
<i>Pectinophora gossypiella</i> Saunders pink bollworm moth <wataakamimushiga> phe.	Z7-16:OAc *Z7,Z11-16:OAc + *Z7,E11-16:OAc (1:1) + other components	Green, 1969 Hummel, 1973 Bierl, 1974 Zhu, 1981	A
In Malawi	(11:9)	Marks, 1976	
In the world	(1:1)	Flint, 1979	
In India	(1:1)	Tamhankar, 1993	
<i>Pectinophora scutigera</i> Holdaway pink-spotted bollworm att.	Z7,Z11-16:OAc	Rothschild, 1975	C
<i>Pexicopia malvella</i> Hübner att.	Z7,E11-16:OAc + Z7,Z11-16:OAc (5:1–1:1)	Tóth, 1986(a)	D
<i>Pexicopia</i> sp. att.	Z7,E11-16:OAc + Z7,Z11-16:OAc (4:1)	Flint, 1979	D

<i>Phthorimaea</i> ^a <i>operculella</i> Zeller potato tuberworm <jagaimo-kibaga> phe.				A
	U.S.A.	Z7,Z11-13:OAc	Fouda, 1975	
	U.S.A.	*E4,Z7-13:OAc	Roelofs, 1975(c) Bacon, 1976	
	Japan	*4,7,10-13:OAc	Yamaoka, 1976	
	Cyprus	*E4,Z7,Z10-13:OAc + *E4,Z7-13:OAc (1:1)	Persoons, 1976(a,b)	
	Australia, Cyprus	E4,Z7,Z10-13:OAc + E4,Z7-13:OAc (1:1)	Voerman, 1978(c)	
	Peru	(3:2)	Raman, 1982	
	Australia	*E4,Z7,Z10-13:OAc + *E4,Z7-13:OAc (1:1)	Tóth, 1984	
	U.S.A.	[88:12 – 27:73]	Ono, 1990	
	Japan	[71:29 – 16:84]		
	Thailand	[36:64]	Ono, 1997	
	China	poteto field (7:1–4:1) tobacco field (1:8–1:4)	Yan, 2022	
<i>Phthorimaea</i> sp. att.		Z5-12:OAc	Steck, 1979(c)	
<i>Platyedra subcinerea</i> Haworth att.		Z7,Z11-16:OAc	Tóth, 1986(a)	D
<i>Recurvaria</i> ^a <i>leucatella</i> Clerck white-barred groundling moth att.		E3,Z5-14:OAc	Tóth, 1992(b)	C
<i>Recurvaria nanella</i> Hübner lesser bud moth att.		E3-14:OAc	Tóth, 1992(b)	C
<i>Rhynchopacha</i> sp. att.		E5-14:OAc	Subchev, 1974	D

<i>Scrobipalpa</i> ^a <i>atriplicella</i> Fischer von Röslevstamm <hamaakaza-kibaga> phe.	Z5-12:OAc *Z5-12:OAc + *E5-12:OAc (19:1)	Roelofs, 1970(a) Hussain, 2023	A
<i>Scrobipalpa heliopa</i> Lower tobacco stem borer phe.	*E3-13:OAc	Baker, 1985	C
<i>Scrobipalpa ocellatella</i> Boyd. sugar beet moth phe.	*E3-12:OAc	Renou, 1980	C
<i>Scrobipalpa salinella</i> Zeller phe.	*Z3-12:OAc + *Z5-12:OAc (20:1) + other components	Yang, 2011(c)	C
<i>Scrobipalpa</i> sp. att.	Z7,Z11-16:OAc + Z7,E11-16:OAc	Nagano, 1979	
<i>Scrobipalpuloides</i> ^a (= <i>Scrobipalpula</i> , = <i>Tuta</i>) <i>absoluta</i> Meyrick tomato leafminer phe.	*E3,Z8,Z11-14:OAc + *E3,Z8-14:OAc (9:1)	Attygalle, 1995; 1996 Filho, 2000 Ferrara, 2001 Svatos, 1996 Griepink, 1996	D
<i>Sitotroga</i> ^c <i>cerealella</i> Oliver Angoumois grain moth <bakuga> phe.	*Z7,E11-16:OAc + Z7,E11-16:Ald (9:1)	Vick, 1974 Ando, 1985(b)	A
<i>Sophronia</i> ^d <i>semicostella</i> Hübner att.	Z4-13:OAc	Willemse, 1987	C
<i>Symmetrischema</i> ^a <i>tangolias</i> Gyen South American potato tuber moth phe.	*E3,Z7-14:OAc + *E3-14:OAc (2:1) + other components	Griepink, 1995	D
<i>Syncopacma</i> ^d <i>vorticella</i> Scopoli att.	Z7-10:OAc or Z7-11:OAc	Kovaleva, 1975	D

<i>Tecia</i> ^a (=Scrobipalopsis) solanivora Povolny Guatemalan potato moth phe.	*E3-12:OAc + *Z3-12:OAc (49:1) + *12:OAc (100:1:20)	Nesbitt, 1985 Bosa, 2005	D
<i>Teleiodes</i> ^b decorella Haworth att.	E10-12:OAc	Hrdý, 1989	C

(11)[Zygaenoidea] マダラガ上科
(Limacodidae) イラガ科

<i>Darna bradleyi</i> phe.	*isobutyl E7,Δ9-10:Ate + *metyl E7,Δ9-10:Ate (10:1)	Sasaerila, 2000(a)	D
<i>Darna pallivitta</i> Moore phe.	*butyl E7,Δ9-10:Ate + other components	Siderhurst, 2007	D
<i>Darna trima</i> phe.	*(E)-2-hexenyl E7,Δ9-10:Ate + *(S)-2-methylbutyl E7,Δ9-10:Ate (1:1–2:1)	Sasaerila, 2000(a)	D
<i>Heterogenea asella</i> Denis & Schiffermüller <kagiba-iraga> att.	Z9,E11-14:Ald	Priesner in Arn, 1986(a)	A
<i>Microleon longipalpis</i> Butler <tengu-iraga> att.	Z7-12:Ald	Ando, 1981	A
<i>Monema flavescens</i> Walker Oriental moth <iraga> phe.	*E8-10:OH + *E7,Δ9-10:OH (9:1)	Shibasaki, 2013	A
<i>Parasa lepida</i> Cramer blue-striped nettle grub moth <hiroheriao-iraga> phe.	*Z7,Δ9-10:OH	Wakamura, 2007(a) Islam, 2009	A
<i>Setora nitens</i> phe.	*Z9-12:Ald + *Z9,Δ11-12:Ald (1:1) + other components	Sasaerila, 2000(b)	D

<i>Setothosea asigna</i> Van Eecke nettle caperpillar phe.	*E9,Δ11-12:Ald + *E9-12:Ald (1:1) + other components	Sasaerila, 1997	D
<i>Tortricidia testacea</i> Packard att.	Z9,Δ11-12:Ald + E9,Δ11-12:Ald (10:1)	Chisholm, 1985(b)	D

(Himantopteridae) リボンマダラガ科

<i>Doratopteryx plumigera</i> Butler att.	Z11-14:OAc + E11-14:OAc (3:1)	Hall, 1979	D
<i>Staphylinochrous whytei</i> Butler att.	Z11-14:OAc or + Z11-14:OH (4:1)	Hall, 1979	D

(Zygaenidae) マダラガ科

<i>Acoloithus falsarius</i> Clemens att.	(R)-sec-butyl Z7-14:Ate	Landolt, 1986(a)	D
<i>Acoloithus novaricus</i> Barnes & McDunough att.	(S)-sec-butyl Z7-14:Ate	Landolt, 1991	D
<i>Acoloithus rectarius</i> Dyar att.	(R)-sec-butyl Z9-14:Ate	Tarmann in Subchev, 2014	D
<i>Adscita alpina</i> Alberti att.	(R)-sec-butyl 2-12:Ate	Efetov, 2020(b)	D
<i>Adscita bolivari</i> Agenjo att.	sec-butyl 2-12:Ate	Efetov, 2019	D
<i>Adscita geryon</i> Hübner att.	(S)-sec-butyl Z7-12:Ate	Subchev, 2010	D
<i>Adscita italica</i> Alberti att.	(R)-sec-butyl 2-12:Ate or (S)-sec-butyl 2-12:Ate	Efetov, 2020(b)	D
<i>Adscita mannii</i> Lederer att.	(S)-sec-butyl Z7-12:Ate + (S)-sec-butyl Z9-14:Ate	Subchev, 2010 Razov, 2017	D

<i>Adscita obscura</i> Zeller att.	(R)-sec-butyl 2-12:Ate (R)-sec-butyl 2-12:Ate	Efetov, 2020(b) Can, 2019	D
<i>Adscita statices</i> att.	(R)-sec-butyl 2-12:Ate	Efetov, 2020(a)	D
<i>Adscita subtristis</i> Staudinger att.	sec-butyl 2-12:Ate	Efetov, 2020(a)	D
<i>Goazrea lao</i> Mollet att.	sec-butyl 2-12:Ate	Efetov, 2020(a)	D
<i>Harrisina americana</i> Guénee att.	(R)-sec-butyl Z7-14:Ate	Landolt, 1986(a)	D
<i>Harrisina brillians</i> Barnes & McDunnough western grapeleaf skeletonizer phe.	*sec-butyl Z7-14:Ate (S)-(+)-isomer	Myerson, 1982 Soderstrom, 1985 Curtis, 1989	D
<i>Harrisina coracina</i> Clemens att.	(S)-sec-butyl Z7-14:Ate	Landolt, 1991	D
<i>Harrisina guatemalena</i> Druce att.	(S)-sec-butyl Z7-14:Ate	Landolt, 1991	D
<i>Illiberis pruni</i> Dyar <ringohamaki-kuroba> att.	(R)-sec-butyl Z7-12:Ate + (R)-sec-butyl Z9-14:Ate (10:1) sec-butyl Z7-12:Ate + sec-butyl Z9-14:Ate (1:1)	Subchev, 2013 Liu, 2021(b)	A
<i>Illiberis rotundata</i> Jordan plum moth <umesukashi-kuroba> phe.	*(R)-sec-butyl Z7-12:Ate + *(R)-sec-butyl Z9-14:Ate (1:1)	Subchev, 2009	A
<i>Illiberis ulmivora</i> Graeser att.	(S)-sec-butyl Z7-12:Ate + (S)-sec-butyl Z9-14:Ate + (S)-sec-butyl Z5-10:Ate (8:4:1)	Liu, 2022	C
<i>Jordanita anatolica</i> Naufock att.	(S)-sec-butyl Z7-12:Ate + (R)-sec-butyl Z7-12:Ate (1:1) sec-butyl 2-12:Ate	Efetov, 2010 Can, 2019	D

<i>Jordanita globulariae</i> att.	sec-butyl 2-12:Ate	Efetov, 2016	D
	(R)-sec-butyl 2-12:Ate	Efetov, 2021	
<i>Jordanita graeca</i> att.	sec-butyl 2-12:Ate	Efetov, 2014; 2016	D
	(R)-sec-butyl 2-12:Ate	Efetov, 2021	
<i>Jordanita horni</i> att.	(S)-sec-butyl Z7-12:Ate + (R)-sec-butyl Z7-12:Ate	Efetov in Subchev, 2014	D
<i>Jordanita notate</i> Zeller att.	(R)-sec-butyl Z7-12:Ate	Subchev, 2010	D
	+ (S)-sec-butyl Z7-12:Ate	Razov, 2017	
	sec-butyl 2-12:Ate	Efetov, 2016	
	(R)-sec-butyl 2-12:Ate	Efetov, 2021	
<i>Jordanita rietzschei</i> Keil att.	sec-butyl 2-12:Ate	Keil in Efetov, 2020(a)	D
<i>Jordanita splendens</i> Staudinger att.	sec-butyl 2-12:Ate	Efetov, 2020(a)	D
<i>Jordanita subsolana</i> Staudinger att.	(R)-sec-butyl 2-12:Ate	Can, 2019 Efetov, 2020(b) Efetov, 2021	D
<i>Neoalbertia constans</i> att.	(S)-sec-butyl Z9-14:Ate	Tarmann in Subchev, 2014	D
<i>Neoilliberis fusca</i> att.	(R)-sec-butyl Z9-14:Ate	Tarmann in Subchev, 2014	D
<i>Neoprocris aversa</i> att.	(R)-sec-butyl Z9-14:Ate	Tarmann in Subchev, 2014	D
<i>Pyromorpha dyari</i> att.	(S)-sec-butyl Z7-12:Ate	Tarmann in Subchev, 2014	D
<i>Rhagades amasina</i> Herrich-Schäffer att.	(S)-sec-butyl 2-12:Ate	Can, 2019	D
<i>Rhagades predotae</i>	(S)-sec-butyl 2-12:Ate	Efetov, 2019	D

<i>Rhagades pruni</i> Denis & Schiffermüller <i>att.</i>	(R)-sec-butyl Z7-12:Ate	Subchev, 2010; 2014	D
<i>Theresimima ampellophaga</i> Bayle-Barella vine bud moth <i>phe.</i>	(S)-sec-butyl 2-12:Ate *(S)-sec-butyl Z7-14:Ate sec-butyl 2-12:Ate (R)-sec-butyl 2-12:Ate	Efetov, 2021 Subchev, 1998; 2004 Efetov, 2014 Efetov, 2021	D
<i>Triprocris cyanea</i> <i>att.</i>	(S)-sec-butyl Z9-14:Ate	Tarmann in Subchev, 2014	D
<i>Zygaena carniolica</i> Scopoli <i>att.</i>	Z7-12:OAc + Z9-14:OAc + Z11-16:OAc (100:30:3)	Priesner, 1984(a)	C
<i>Zygaena ephialtes</i> L. <i>att.</i>	Z11-14:OAc + E11-14:OAc + 12:OAc (7:3:40) Z11-14:OAc + E11-14:OAc (1:1) Z11-14:OAc	Hrdý, 1979 Konyukhov in Arn, 1986(a) Decamps, 1981	C
<i>Zygaena filipendulae</i> L. <i>att.</i>	Z7-12:OAc + Z9-14:OAc + Z5-12:OAc (100:10:3)	Priesner, 1984(a)	C
<i>Zygaena hippocrepidis</i> Hübner <i>att.</i>	Z11-14:OAc	Decamps, 1981	C
<i>Zygaena niphona</i> Butler <benimon-madara> <i>att.</i>	Z7-12:OAc + Z9-14:OAc	Toshova in Efetov, 2020(a)	A
<i>Zygaena purpuralis</i> Brunn <i>att.</i>	Z7-12:OAc + Z9-14:OAc + Z7-14:OAc (10:10:1)	Priesner, 1984(a)	C
<i>Zygaena scabiosae</i> Scheven <i>att.</i>	Z8-12:OAc + E8-12:OAc (24:1)	Hrdý, 1989	C

<i>Zygaena transalpina</i> Esper <i>att.</i>	Z11-14:OAc or Z11-14:OH	Benz, 1973	C
<i>Zygaena trifolii</i> Esper <i>att.</i>	Z7-12:OAc + Z5-12:OAc + Z9-14:OAc (10:10:3)	Priesner, 1984(a)	C
<i>Zygaena viciae</i> Denis & Schiffermüller <i>att.</i>	Z7-12:OAc + Z9-14:OAc + Z5-12:OAc (10:1:1)	Priesner, 1984(a)	C
<i>Zygaenoprocis chalconchlora</i> <i>att.</i>	(<i>R</i>)-sec-butyl Z7-12:Ate or + (<i>R</i>)-sec-butyl Z9-14:Ate	Hofmann in Subchev, 2014	D
<i>Zygaenoprocis eberti</i> <i>att.</i>	(<i>R</i>)-sec-butyl Z7-12:Ate or + (<i>R</i>)-sec-butyl Z9-14:Ate	Hofmann in Subchev, 2014	D
<i>Zygaenoprocis taftana</i> <i>att.</i>	(<i>R</i>)-sec-butyl Z7-12:Ate	Efetov in Subchev, 2014	D

(12) [Sesioidea] スカシバガ上科
(Sesiidae; Sesiinae) スカシバガ科 ; スカシバガ亜科

<i>Aegeria apiformis</i> hornet clearwing moth <i>phe.</i>	*Z3,Z13-18:OH	Kovalev, 1988	C
<i>Albuna fraxini</i> Henry Edwards <i>att.</i>	Z3,Z13-18:OH + Z3,Z13-18:OAc (3:1)	Greenfield, 1979 Nielsen, 1979	D
<i>Albuna pyramidalis</i> Walker <i>att.</i>	E3,Z13-18:OH	Cambell in Arn, 1986(a)	D
<i>Alcathoe carolinensis</i> Engelhardt <i>att.</i>	E3,Z13-18:OAc + Z3,Z13-18:OAc (3:1) (1:1)	Sharp, 1978 Snow, 1985	D
	E3,Z13-18:OAc	Brown, 1985(b)	
<i>Bembecia chalciformis</i> Esp. <i>att.</i>	Z3,Z13-18:OH + Z3,Z13-18:OAc	Bûda, 1993	C

	or + E3,Z13-18:OAc		
<i>Bembecia ichneumoniformis</i> Denis & Schiffermüller att.	Z3,Z13-18:OH + E3,Z13-18:OAc (9:1)	Bûda, 1993	C
<i>Bembecia parthica</i> Led. att.	Z3,Z13-18:OAc + Z3,Z13-18:OH (9:1)	Bûda, 1993	C
<i>Bembecia puella</i> Lastuvka att.	Z3,Z13-18:OAc + Z3,Z13-18:OH (9:1)	Bûda, 1993	C
<i>Bembecia romanovi</i> Bartell att.	Z3,Z13-18:OAc + E3,Z13-18:OAc (9:1)	Bûda, 1993	C
<i>Bembecia scopigera</i> Scopoli att.	Z3,Z13-18:OH Z3,Z13-18:OAc or + E2,Z13-18:OH (9:1)	Szöcs, 1989 Bûda, 1993	C
<i>Bembecia</i> (= <i>Synansphecica</i>) <i>triannuliformis</i> Freyer att.	Z3,Z13-18:OH + E3,Z13-18:OH (9:1)	Szöcs, 1989 Bûda, 1993	C
<i>Bembecia zuwandica</i> Gorbunov att.	Z3,Z13-18:OAc + E3,Z13-18:OAc (9:1)	Bûda, 1993	C
<i>Carmenta anthracipennis</i> Boisduval att.	Z3,Z13-18:OAc + E3,Z13-18:OAc (1:1)	Leeuw, 1983 Snow, 1985	D
<i>Carmenta bassiformis</i> Walker att.	Z3,Z13-18:OA + Z3,Z13-18:OH + E3,Z13-18:OAc (20:3:1)	Sharp, 1978 Neal, 1983	D
	Z3,Z13-18:OAc	Greenfield, 1979	
<i>Carmenta ithacae</i> Bentenmüller att.	E3,Z13-18:OAc	Greenfield, 1979	D
<i>Carmenta laurelae</i> att.	Z3,Z13-18:OAc	Brown, 1985(c)	D

<i>Carmenta mimosa</i> Eichlin & Passoa <i>phe.</i>	Z3,Z13-18:OAc *Z3,Z13-18:OAc	Eichlin, 1983 Vang, 2012	D
<i>Carmenta mimuli</i> <i>att.</i>	Z3,Z13-18:OAc	Meyer, 1988	D
<i>Carmenta odda</i> Duckworth & Eichlin <i>att.</i>	Z3,Z13-18:OAc	Duckworth, 1977(b) Brown, 1986(a)	D
<i>Carmenta pyralidiformis</i> Walker <i>att.</i>	E3,Z13-18:OH	Solomon, 1982	D
<i>Carmenta suffusata</i> Engelhardt <i>att.</i>	E3,Z13-18:OH	Sharp, 1978	D
<i>Carmenta teta</i> <i>att.</i>	Z3,Z13-18:OAc	Nielsen in Arn, 1986(a)	D
<i>Carmenta texana</i> Hy. Edwards <i>att.</i>	Z3,Z13-18:OAc	Sharp, 1978	D
<i>Carmenta welchellorum</i> Duckworth & Eichlin <i>att.</i>	Z3,Z13-18:OAc	Duckworth, 1977(a)	D
<i>Chamaesphecia</i> (= <i>Synansphecia</i>) <i>affinis</i> Staud. <i>att.</i>	E3,Z13-18:OAc + Z13-18:OH (1:1)	Bûda, 1993	D
<i>Chamaesphecia bibioniformis</i> Esper <i>att.</i>	Z3,Z13-18:OAc + E3,Z13-18:OAc (9:1)	Karalius, 2001	D
<i>Chamaesphecia chalciformis</i> Esper <i>att.</i>	Z3,Z13-18:OH + E2,Z13-18:OAc (1:1)	Mozûraitis, 1999(a)	D
<i>Chamaesphecia empiformis</i> Esper <i>att.</i>	Z3,Z13-18:OH	Szöcs, 1989	D
<i>Chamaesphecia mezentzevi</i> Gorbunov <i>att.</i>	Z3,Z13-18:OAc + Z3,Z13-18:OH (9:1)	Mozûraitis, 1999(a)	D
<i>Chamaesphecia schmidtiformis</i> Frr. <i>att.</i>	Z3,Z13-18:OAc + Z3,Z13-18:OH (9:1)	Mozûraitis, 1999(a)	D
<i>Chamaesphecia speia nova</i> Gorbunov	Z3,Z13-18:OH	Mozûraitis, 1999(a)	D

att.	+ E3,Z13-18:OAc (1:1)		
<i>Chamaesphecia tenthrediniformis</i> Denis & Schiffermüller (and/or <i>empiformis</i> Esper) att.	E3,Z13-18:OAc	Voerman, 1983	D
<i>Chamaesphecia zimmermanni</i> Lederer att.	E3,Z13-18:OH + Z3,Z13-18:OAc (9:1)	Mozūraitis, 1999(a)	D
<i>Chamaesphecia</i> sp. att.	E3,Z13-18:OAc + E2,Z13-18:OAc (1:1)	Bûda, 1993	D
<i>Glossosphecia</i> (= <i>Toleria</i>) <i>romanovi</i> Leech <kubiaka-sukashiba> phe. in Korea	*Z3,Z13-18:OH + *Z3,Z13-18:OAc (8:1) + other components (9:1)	Arakawa, 2009 Naka, 2010 Yang, 2011(b)	A
<i>Macroscylesia japona</i> Hampson <momobuto-sukashiba> phe.	*E2,Z13-18:Ald + *E2,Z13-18:OH (10:1)	Naka, 2007 Islam, 2007	A
<i>Macroscylesia longipes</i> Moore <ashinagamomobuto-sukashiba> phe.	*E2,Z13-18:OH + *E2,Z13-18:Ald (20:1)	Naka, 2007	A
<i>Melittia cucurbitae</i> Harris squash vine bore phe.	E2,Z13-18:OAc + Z3,Z13-18:OAc (99:1) *E2,Z13-18:OAc + *Z3,Z13-18:OAc (68.5:0.1) + other componets	Alm, 1989 Snow, 1991 Klun, 1990	C
<i>Melittia satyriniformis</i> Hübner squash vine borer phe.	*E2,Z13-18:OAc	Schwarz, 1983(b)	C
<i>Nokona feralis</i> Leech <kikubi-sukashiba> phe.	*E3,Z13-18:OAc + *E3,Z13-18:OH (7:3)	Naka, 2018	A
<i>Nokona pernix</i> Leech <himeato-sukashiba> phe.	*E3,Z13-18:OH + *Z3,Z13-18:OH (9:1)	Naka, 2006	A

<i>Nokona</i> (= <i>Paranthrene</i>) <i>regalis</i> Butler vine tree borer <budou-sukashiba> phe.	*E3,Z13-18:OH E3,Z13-18:OH	Guo, 1990(b) Zhou, 1995 Shoji, 2009	A
<i>Osminia ruficornis</i> Henry Edwards att.	E2,Z13-18:OH or + E2,Z13-18:OAc (1:1)	Snow, 1989	D
<i>Paranthrene asilipennis</i> Boisdural att.	Z3,Z13-18:OAc E2,Z13-18:OAc + Z13-18:OAc (24:1)	Sharp, 1978 Snow, 1989	C
<i>Paranthrene dollii</i> Neumoegen att.	E3,Z13-18:OH + Z3,Z13-18:OH (3:1) (1:1)	Nielsen, 1979 Greenfield, 1979	C
<i>Paranthrene pellucida</i> Greenfield & Karandinos att.	E3,Z13-18:OAc + Z3,Z13-18:OAc (4:1)	Greenfield, 1979	C
<i>Paranthrene robiniae</i> Hy. Edwards western poplar clearwing phe.	*E3,Z13-18:OH + *Z3,Z13-18:OH (4:1)	Cowles, 1996	C
<i>Paranthrene simulans</i> Grote oak borer att.	Z3,Z13-18:OAc + E2,Z13-18:OAc (1:1)	Nielsen, 1975 Snow, 1989	C
<i>Paranthrene tabaniformis</i> Rottemburg poplar twing clearwing moth phe.	E3,Z13-18:OH + Z3,Z13-18:OAc (9:1) + Z3,Z13-18:OH (9:1) *E3,Z13-18:OH + *Z3,Z13-18:OH + *E2,Z13-18:OH N + other components	Greenfield, 1979 Brown, 1986(b) Du in Arn, 1997 Nielsen, 1979 Karalius, 2001 Zhang, 1986 Mozūraitis, 2007	C
<i>Podosesia aureocincta</i> Purrington & Nielsen	Z3,Z13-18:OAc + E3,Z13-18:OAc	Nielsen, 1978(b)	D

banded ash clearwing moth att.	+ Z3,Z13-18:OH (20:1:3)		
	Z3,Z13-18:OAc + Z3,Z13-18:OH (1:1) or + E3,Z13-18:OH (1:1)	Snow, 1985	
<i>Podosesia syringae</i> Harris lilac borer att.	Z3,Z13-18:OAc	Nielsen, 1975 Adler, 1983	D
<i>Pyropteron</i> sp. att.	Z3,Z13-18:OH + Z3,Z13-18:OAc (9:1)	Bûda, 1993	D
<i>Sannina uroceriformis</i> Walker persimmon borer att.	E3,Z13-18:OH + Z3,Z13-18:OH (4:1) + Z3,Z13-18:OAc (9:1)	Nielsen, 1979 Solomon, 1982	D
	E3,Z13-18:OH	Snow, 1985	
<i>Sesia apiformis</i> Cl. hornet moth phe.	*E2,Z13-18:Ald + *Z3,Z13-18:OH (3:2) + other components	Francke, 2004	C
<i>Sesia</i> (= <i>Aegeria</i>) <i>rhynchioides</i> Butler <kashiwa-sukashiba> att.	E3,Z13-18:OAc + Z3,Z13-18:OAc (1:1)	Tamaki, 1977(c)	A
<i>Sesia tibialis</i> Harris cottonwood crown borer att.	Z3,Z13-18:OAc + Z3,Z13-18:OH (4:1)	Underhill, 1978	C
<i>Sesia yezoensis</i> Hampson <kita-sukashiba> att.	Z3,Z13-18:OAc + Z3,Z13-18:OH (9:1)	Bûda, 1993	A
<i>Sphecia</i> (= <i>Sesia</i>) <i>siningenis</i> Hsu poplar pole clearwing moth phe.	*Z3,Z13-18:OH	Guo, 1990(a)	C
<i>Synanthedon acerni</i> Clemens maple callus borer att.	Z3,Z13-18:OAc + E3,Z13-18:OH (9:1) + Z3,Z13-18:OH (1:1)	Nielsen, 1979 Snow, 1985	C

<i>Synanthedon acerrubi</i> Engelhardt <i>att.</i>	E2,Z13-18:OAc + Z3,Z13-18:OAc (100:1)	Schwarz, 1983(b) Alm, 1989 Snow, 1991	C
<i>Synanthedon alleri</i> Engelhardt <i>att.</i>	E3,Z13-18:OAc + E3,Z13-18:OH (1:1)	Sharp, 1978 Snow, 1985	C
<i>Synanthedon andrenaeformis</i> Lasp. <i>att.</i>	E3,Z13-18:OAc + E2,Z13-18:OAc (10:1)	Priesner, 1986(a)	C
<i>Synanthedon arkansasensis</i> Duckworth & Eichlin <i>att.</i>	E3,Z13-18:OAc E3,Z13-18:OH	Sharp, 1978 Solomon, 1982	C
<i>Synanthedon bibionipennis</i> Boisduval strawberry crown moth <i>att.</i>	E3,Z13-18:OAc + E3,Z13-18:OH (2:1)	Nielsen, 1978(a)	C
<i>Synanthedon bicingulata</i> Staudinger <i>phe.</i>	*Z3,Z13-18:OAc + *E3,Z13-18:OAc (3:2)	Yang, 2011(a)	C
<i>Synanthedon bolteri</i> Hy. Edwards <i>att.</i>	E2,Z13-18:OAc + Z3,Z13-18:OAc (99:1)	Taft, 2005	C
<i>Synanthedon castaneae</i> Busck clearwing chestnut moth <i>att.</i>	E3,Z13-18:OH	Brown, 1986(b) Anagnostakis, 1994	C
<i>Synanthedon castanerora</i> <i>att.</i>	E3,Z13-18:OH	Lin, 1993	C
<i>Synanthedon caucasicum</i> Gorbunov <i>att.</i>	E3,Z13-18:OAc + Z3,Z13-18:OAc (9:1)	Mäeorg in Arn, 1992 Bûda, 1993	C
<i>Synanthedon conopiformis</i> Esp. <i>att.</i>	E3,Z13-18:OH	Bûda, 1993	C
<i>Synanthedon culiciformis</i> L. <i>att.</i>	Z3,Z13-18:OAc	Fassotte in Arn, 1986(a)	C
<i>Synanthedon decipiens</i> Henry Edwards <i>att.</i>	E3,Z13-18:OAc + Z3,Z13-18:OAc (7:3)	Sharp, 1978 Greenfield, 1979	C

	Z3,Z13-18:OAc	Snow, 1985	
	+ Z2,Z13-18:OAc (1:1)	Snow, 1989	
<i>Synanthedon dominicki</i> Duckworth <i>att.</i>	E2,Z13-18:OAc	Brown, 1985(d)	C
<i>Synanthedon exitiosa</i> Say peachtree borer <i>phe.</i>	*Z3,Z13-18:OAc + E3,Z13-18:OAc (24:1)	Tumlinson, 1974 Barry, 1978	C
<i>Synanthedon fatifera</i> Hodges viburnum borer <i>att.</i>	Z3,Z13-18:OAc + E3,Z13-18:OAc (9:1)	Nielsen, 1975 Adler, 1983 Greenfield, 1979	C
<i>Synanthedon flaviventris</i> Staudinger <i>att.</i>	E2,Z13-18:OAc + Z3,Z13-18:OAc (49:1)	Karalius, 2006	C
<i>Synanthedon formicaeformis</i> Esp. <i>att.</i>	E2,Z13-18:OAc + E3,Z13-18:OAc (1:1)	Priesner, 1986(a)	C
<i>Synanthedon fulvipes</i> Harris <i>att.</i>	Z3,Z13-18:OAc + other isomers	Nielsen, 1979	C
<i>Synanthedon haitangvora</i> Yang <i>phe.</i>	*Z3,Z13-18:OAc + *E2,Z13-18:OAc (1:1) + other components	Yang, 2009(b)	B
<i>Synanthedon hector</i> Butler cherry tree borer <ko-sukashiba> <i>phe.</i>	E3,Z13-18:OAc + Z3,Z13-18:OAc (1:1) *E3,Z13-18:OAc + *Z3,Z13-18:OAc (1:1) + another component	Yaginuma, 1976 Naka, 2008	A
<i>Synanthedon kathyae</i> Duckworth & Eichlin <i>att.</i>	Z3,Z13-18:OAc or E3,Z13-18:OAc	Duckworth, 1977(b)	C
<i>Synanthedon mesiaeformis</i> <i>att.</i> Herrich-Schäffer	E2,Z13-18:OAc + Z3,Z13-18:OAc (1:1)	Karalius, 2006	C
<i>Synanthedon myopaeformis</i> Borkhausen	Z3,Z13-18:OAc + Z3,E13-18:OAc	Voerman, 1978(b)	C

apple clearwing moth <i>phe.</i>	+ E3,Z13-18:OAc + E3,E13-18:OAc (95:2:2:1)		
	*Z3,Z13-18:OAc + other components	Judd, 2011	
<i>Synanthedon novaroensis</i> Henry Edwards Douglas-fir pitch moth <i>att.</i>	Z3,Z13-18:OAc	Rocchini, 2003	C
<i>Synanthedon pictipes</i> Grote & Robinson lesser peachtree borer <i>phe.</i>	*E3,Z13-18:OAc + Z3,E13-18:OAc (1:1) Z3,Z13-18:OAc	Tumlinson, 1974 Karandinos, 1977 Adler, 1983	C
<i>Synanthedon proxima</i> Henry Edwards <i>att.</i>	Z3,Z13-18:OAc + E3,Z13-18:OAc (3:7) E3,Z13-18:OAc	Nielsen in Arn, 1986(a) Greenfield, 1979 Brown, 1986(b)	C
<i>Synanthedon pyri</i> Harris <i>att.</i>	E2,Z13-18:OAc + Z3,Z13-18:OAc (99:1)	Alm, 1989 Snow, 1991	C
<i>Synanthedon quercus</i> Matsumura <kashiko-sukashiba> <i>att.</i>	Z3,E13-18:OAc + E3,E13-18:OAc (1:1)	Tamaki, 1977(c)	A
<i>Synanthedon refulgens</i> Henry Edwards <i>att.</i>	E2,Z13-18:OAc + Z3,Z13-18:OAc (100:1)	Snow, 1991	C
<i>Synanthedon rhododendri</i> Beutenmüller rhododendron borer <i>att.</i>	Z3,Z13-18:OAc + E3,Z13-18:OAc (49:1) Z3,Z13-18:OAc	Nielsen, 1979 Neal, 1981 Adler, 1983	C
<i>Synanthedon rileyana</i> Henry Edwards horse nettle borer <i>att.</i>	E3,Z13-18:OH + E3,Z13-18:OAc (3:1) + Z3,Z13-18:OAc (1:1) E2,Z13-18:OAc	Nielsen, 1979 Williams, 1999 Snow, 1985 Snow, 1989	C

<i>Synanthedon rubrofascia</i> Henry Edwards <i>att.</i>	Z3,Z13-18:OAc + E3,Z13-18:OAc (3:1) (1:3)	Brown, 1986(a) Nielsen, 1975 Brown in Arn, 1992	C
<i>Synanthedon sapygaeformis</i> Walker <i>att.</i>	Z3,Z13-18:OAc	Sharp, 1978 Brown, 1986(a)	C
<i>Synanthedon scitula</i> Harris dogwood borer <i>phe.</i>	Z3,Z13-18:OAc + E2,Z13-18:OAc (1:100) *Z3,Z13-18:OAc + *Z3,E13-18:OAc + *E2,Z13-18:OAc (44:3:3)	Nielsen, 1975 Adler, 1983 Alm, 1989 Snow, 1991 Zhang, 2005 Leskey, 2006	C
<i>Synanthedon scoliaeformis</i> Borkh Welsh clearwing <i>phe.</i>	E2,Z13-18:OAc *E2,Z13-18:OAc + other components	Bûda, 1993 Mozûraitis, 2013	C
<i>Synanthedon sequoiae</i> Henry Edwards sequoia pitch moth <i>att.</i>	Z3,Z13-18:OH	Nielsen, 1978(a)	C
<i>Synanthedon serica</i> Alpheraky <i>att.</i>	E2,Z13-18:OAc + E3,Z13-18:OAc (1:1)	Karalius, 2001	C
<i>Synanthedon soffneri</i> Spatenka <i>att.</i>	E2,Z13-18:OAc + Z3,Z13-18:OAc (10:1)	Priesner, 1993	C
<i>Synanthedon spuleri</i> Fuchs <i>att.</i>	E3,Z13-18:OAc + E2,Z13-18:OAc (10:1)	Priesner, 1986(a)	C
<i>Synanthedon tenuis</i> Butler <hime-sukashiba> <i>phe.</i> Korean strain	Z3,Z13-18:OAc *Z3,Z13-18:OAc *Z3,Z13-18:OH	Tamaki, 1977(c) Naka, 2013 Yang, 2012	A
<i>Synanthedon tipuliformis</i> Clerck currant borer	E2,Z13-18:OAc	Voerman, 1984	C

phe.	+ E3,Z13-18:OAc (100:3–100:10)	Priesner, 1986(a)	
	+ Z3,Z13-18:OAc (99:1)	Meyer, 1994	
	*E2,Z13-18:OAc + *Z13-18:OAc (93:7)	Szöcs, 1985	
	+ *E3,Z13-18:OAc (97:3)	James, 2001	
	+ *E3,Z13-18:OAc (100:0.7) + other components	Mozūraitis, 2006	
In Tasmania, Hungary	E2,Z13-18:OAc	Szöcs, 1990	
In New Zealand	+ E3,Z13-18:OAc (100:3)	Szöcs, 1990	
	(100:0)	Suckling, 2005(a)	
In Europe	+ E3,Z13-18:OAc (100:3)	Szöcs, 1991	
In Finland, Norway, Sweden	+ E3,Z13-18:OAc (97:3)	Svensson, 2025	
<i>Synanthedon typhiaeformis</i> att.	Z3,Z13-18:OAc + Z3,E13-18:OAc + E3,Z13-18:OAc + E3,E13-18:OAc (95:2:2:1)	Maini in Arn, 1986(a)	C
<i>Synanthedon vespiformis</i> L. yellow-legged clearwing phe.	E3,Z13-18:OAc + Z3,Z13-18:OAc (9:1)	Voerman, 1983	C
	*E3,Z13-18:OAc + *Z3,Z13-18:OAc (4:1)	Levi-Zada, 2011(b)	
<i>Synanthedon viburni</i> Engelhardt att.	E3,Z13-18:OAc + Z3,Z13-18:OAc (9:1)	Greenfield, 1979	C
<i>Vitacea polistiformis</i> Harris grape root borer phe.	*E2,Z13-18:OAc + Z3,Z13-18:OAc (99:1)	Schwarz, 1983(b)	D
		Snow, 1987	
<i>Vitacea scepiformis</i> Henry Edwards att.	E3,Z13-18:OAc + Z3,Z13-18:OAc (3:1–9:1)	Sharp, 1978	D

(Sesiidae; Tinthiinae) スカシバガ科 ; ヒメスカシバ亜科

<i>Microsphecia</i> (= <i>Tinthia</i>) <i>brosiformis</i> Hübner att.	E3,Z13-18:OAc	Bûda, 1993	D
<i>Paradoxecia pieli</i> L. (= <i>Paradoxes prelle</i> L.) mulberry clearwing moth phe.	*E3,Z13-18:OAc + another component	Tan, 1992 Lin, 1993	D
<i>Pennisetia bohémica</i> Kralicek & Povolny att.	E3,Z13-18:OH + E3,Z13-18:OAc (100:1)	Priesner, 1990	C
<i>Pennisetia hylaeiformis</i> Laspeyres raspberry clearwing moth <karafuto-sukashiba> att.	E3,Z13-18:OAc + E3,Z13-18:OH (1:1)	Priesner, 1986(b)	A
<i>Pennisetia marginata</i> Harris blackberry clearwing borer phe.	E3,Z13-18:OH *E3,Z13-18:Ald	Solomon, 1982 Brown, 1985(a) Judd, 2012 Teasdale, 2013	C
<i>Similipepsis takizawai</i> Arita et Spatenka att.	E3,Z13-18:OH + E2,Z13-18:OAc (1:1)	Bûda, 1993	D
<i>Zenodoxus</i> (= <i>Tinthia</i>) <i>hoplisiformis</i> Mann. att.	E3,Z13-18:OAc + E2,Z13-18:OAc (1:1)	Bûda, 1993	C
<i>Zenodoxus tineiformis</i> Esper att.	E3,Z13-18:OAc	Nielsen, 1979	C

(*Brachodidae*) ヒロハマキモドキガ科

<i>Brachodes appendiculata</i> Esper att.	E3,Z13-18:OAc	Karalius, 2005	D
--	---------------	----------------	---

(13) [*Cossoidea*] ボクトウガ上科
(*Cossidae*) ボクトウガ科

<i>Acossus centerensis</i> Litner	E3,E5-14:OAc	Doolittle, 1976(a)	D
-----------------------------------	--------------	--------------------	---

aspen carpenterworm
att.

<i>Chilecomadia valdiviana</i> Philippi phe.	*Z7,Z10-16:Ald + other components	Herrera, 2016 Lapointe, 2017	D
<i>Coryphodema tristis</i> Drury quince borer phe.	*Z9-14:OAc + *Z9-14:OH (47:3) + another component + 14:OAc (38:1:1)	Bouwer, 2015 Bouwer, 2017	D
<i>Cossus cossus</i> L. European goat moth <oobokutou> phe.	Z5-12:OAc + Z3-10:OAc (4:1) + Z5-14:OAc (4:1:1) *Z5-12:OAc + Z3-12:OAc (4:1) + other components	Pasqualini in Arn, 1992 Sziráki in Arn, 1997 Capizzi, 1983	B
<i>Cossus insularis</i> Staudinger carpenterworm moth <hime-bokutou> phe.	*E3-14:OAc + other components	Chen, 2006	A
<i>Cossus mongolicus</i> att.	Z5-12:OAc	Qi in Arn, 1992	C
<i>Holcocerus arenicola</i> Staudinger sand <i>Salix</i> carpenterworm phe.	*Z7-14:OAc + *Z5-14:OAc + *Z7-14:OH (20:8:5) + another component	Jing, 2010	D
<i>Holcocerus artemisiae</i> Chou & Hua sand sagebrush carpenterworm phe.	*Z5-12:OAc + *Z5-14:OAc (5:3) + other components	Zhang, 2009	D
<i>Holcocerus hippophaecolus</i> Hua sandthorn carpenterworm phe.	*E3-14:OAc + *Z7-14:OAc (1:1) + other components + *E7-14:OAc (10:10:1)	Fang, 2005 Cheng, 2007	D
<i>Holcocerus insularis</i> Staudinger	*Z3-14:OAc	Zhang, 2001	D

carpenterworm moth phe.	+ other components		
<i>Holcocerus vicarius</i> Walker carpenterworm moth phe.	*Z7-14:OAc + *E3-14:OAc + *Z3,E5-14:OAc + *Z7-14:OH (50:22:17:10)	Yang, 2015	D
<i>Isoceras sibirica</i> Alpheraky phe.	*Z9-14:OAc + *Z7-14:OAc + *Z9-16:OAc (10:5:1) + other components	Zhang, 2011	D
<i>Parahypopta caestrum</i> Hübner asparagus moth phe.	*Z9-14:OAc + *Z7-14:OAc + *Z5-14:OAc (85:5:10) + another component	Pistillo, 2024	D
<i>Prionoxystus piger</i> att.	Z3,E5-14:OAc	Landolt, 1985	D
<i>Prionoxystus robiniae</i> Peck carpenterworm att.	Z3,E5-14:OAc + E3,E5-14:OAc (9:1–3:7) + E3-14:OAc (9:1)	Doolittle, 1976 (a,b) Solomon, 1978 Doolittle, 1986 Doolittle, 1986	D
<i>Zeuzera pyrina</i> L. leopard moth phe.	*E2,Z13-18:OAc + *Z13-18:OAc + *18:OAc N + *Z2,Z13-18:OAc (97:1:2) N + *E3,Z13-18:OAc (39:9:2) N E2,Z13-18:OAc + E2-18:OAc (19:1) + E3,Z13-18:OAc (19:1) + Z2,Z13-18:OAc (19:1:1)	Tonini, 1986 Frérot, 1986 Malosse, 1993 Castellari in Arn, 1992 Pasqualini in Arn, 1992,1997 Pasqualini in Arn, 1997	C

- (14) [Tortricoidea] ハマキガ上科
 (Tortricidae; Tortricinae) ハマキガ科 ; ハマキガ亜科
 a: Archipini (カクモンハマキガ族) b: Cnephasiini (ハイイロハマキガ族),
 c: Tortricini (ハマキガ族), d: Epitymbiini,* e: Phricanthini,* f: Schoenotenini*
 g: Cochylini (ホソハマキガ族), h: Sparganothini (テングハマキガ族)
 * Species in this tribe is not distributed in Japan.

<i>Acleris</i> ^c <i>affinitana</i> Snellen <puraiya-hamaki> att.	E11,Δ13-14:Ald	Ando, 1987	A
<i>Acleris chalybeana</i> Fernald att.	E11-14:Ald + Z11-14:Ald (19:1)	Sanders, 1993	C
<i>Acleris comariana</i> Lienig & Zeller strawberry tortrix <baremone-hamaki> phe.	*E11,Δ13-14:Ald	Svensson, 2019	A
<i>Acleris emargana</i> F. <eguri-hamaki> att.	E11-14:Ald	Weatherston, 1974(a)	A
<i>Acleris enitescens</i> Meyrick <seusuiro-hamaki> att.	E11-14:OAc + E11-14:Ald (1:1)	Ando, 1981	A
<i>Acleris ferrugana</i> Denis & Schiffermüller att.	E11-14:Ald + Z11-14:Ald (9:1) (20:1)	Frerot, 1985 Ostrauskas, 2010(a)	B
<i>Acleris filipjevi</i> Obraztsov <kousuao-hamaki> att.	E11-14:Ald + E11-14:OAc (9:1)	Ando, 1981	A
<i>Acleris fimbriana</i> Thunberg & Becklin yellow tortrix phe.	*E11,Δ13-14:Ald + *E11,Δ13-14:OAc + *E11-14:OAc (6:4:1) + another component	Liu, 2002(a); 2002(b); 2003	C
<i>Acleris fusca</i> Barnes & Busck att.	E11-14:Ald + Z11-14:Ald (19:1)	Sanders, 1993	C
<i>Acleris gloverana</i> Walsingham	*E11,Δ13-14:Ald	Gray, 1996	C

western blackheaded budworm <i>phe.</i>	+ *Z11,Δ13-14:Ald (20:1) + other components		
<i>Acleris hispidana</i> Christoph <haimidaremon-hamaki> <i>att.</i>	E11,Δ13-14:Ald + E11-14:Ald (1:1)	Ando, 1987	A
<i>Acleris japonica</i> Walsingham <nakajiro-hamaki> <i>att.</i>	E11,Δ13-14:Ald + E11-14:Ald (9:1)	Ando, 1987	A
<i>Acleris maccana</i> Tr. <i>att.</i>	E11-14:Ald + Z11-14:Ald (19:1)	Sanders, 1993	C
<i>Acleris maximana</i> Barnes & Busck <i>att.</i>	E11-14:Ald + Z11-14:Ald (19:1)	Sanders, 1993	C
<i>Acleris minuta</i> Robinson yellowheaded fireworm <i>phe.</i>	*E11,Δ13-14:Ald + other components	Schwarz, 1983(a)	C
<i>Acleris nigrilineana</i> Kawabe <sujiguro-hamaki> <i>att.</i>	E11,Δ13-14:Ald + E11-14:Ald (1:1)	Ando, 1987	A
<i>Acleris paradiseana</i> Walsingham <tsumamon-eguri-hamaki> <i>att.</i>	E11-14:OAc	Ando, 1978	A
<i>Acleris perfundana</i> Kuznetsov <narako-hamaki> <i>att.</i>	Z11-14:Ald + E11-14:Ald (1:1)	Ando, 1981	A
<i>Acleris rhombana</i> Denis & Shiffermüller <i>att.</i>	E11-14:OAc + Z11-14:OAc (4:1)	Frerot, 1979(b)	C
<i>Acleris scabrana</i> Denis & Shiffermüller <i>att.</i>	E11-14:Ald	Tagestad, 1975	C
<i>Acleris sparsana</i> Denis & Shiffermüller <i>att.</i>	E11-14:Ald + Z11-14:Ald (24:1) (9:1)	Knauf in Arn, 1986(a) Booij, 1985 Frerot, 1985	C

<i>Acleris tripunctata</i> Hübner att.	E11-14:Ald + Z11-14:Ald (1:1)	Booij, 1985	C
<i>Acleris variana</i> Fern. eastern blackheaded budworm phe.	*E11,Δ13-14:Ald	Gries, 1994(a)	C
<i>Acropolitis</i> ^a <i>ergophora</i> Meyrick phe.	*Z11-14:OAc E	Horak, 1988	D
<i>Acropolitis hedista</i> Turner phe.	*E11-14:OAc + *14:OAc (7:13) N	Horak, 1988	D
<i>Acropolitis rudisana</i> Walker phe.	*Z11-14:OAc + *E11-14:OAc (97:3) E	Horak, 1988	D
<i>Acropolitis xuthobapta</i> Turner phe.	*Z11-14:OAc + *E11-14:OAc (89:11)	Horak, 1988	D
<i>Adoxophyes</i> ^a <i>honmai</i> Yasuda smaller tea tortrix <chanokokakumon-hamaki> phe.	*Z9-14:OAc + *Z11-14:OAc (7:4) + *E11-14:OAc + *Me10-12:OAc (63:31:4:2) R:S = 19:1 + other components	Tamaki, 1971(b) Tamaki, 1979; 1980 Tamaki, 1983 Noguchi, 1985	A
Chinese strain	(47:50:1:2)	Hsiao, 1990	
Taiwanese strain	*Z9-14:OAc + *Z11-14:OAc (9:16)	Kou, 1990; 1992(c)	
Korean strain	(1:2) + other components Z9,E12-14:OAc + Me11,Z9,Δ12-13:OAc + Z11-14:OAc (7:3:3)	Yang, 2009(a) Negishi, 1979	
<i>Adoxophyes orana</i> Fisher von Röslerstamm summerfruit tortrix	*Z9-14:OAc + *Z11-14:OAc (3:1)	Meijer, 1972	B

phe.	(9:1)	Minks, 1973(a)	
In Romania	(4:1)	Ghizdavu in Arn, 1997	
	+ *Z9-14:OH + *Z11-14:OH (155:27:4:0.4) + other components	Guerin, 1986(a)	
Korea strain	(4:1) + other components	Yang, 2009(a)	
<i>Adoxophyes orana fasciata</i> Walsingham <ringonokokakumon-hamaki> phe.	*Z9-14:OAc + *Z11-14:OAc (13:4) + other components	Tamaki, 1971(a) Sugie, 1984(b) Noguchi, 1985	A
<i>Adoxophyes privatana</i> Walker phe.	Z9-14:OAc + Z11-14:OAc + E11-14:OAc + Me10-12:OAc (63:31:4:2) Z11-14:OAc + Z9-14:OAc (9:1) *Z11-14:OAc + *Z9-14:OAc (9:1)	Shry, 1985 Hai, 2002 Vang, 2013	C
<i>Adoxophyes privatarata</i> att.	Z9-14:OAc + Z11-14:OAc + E11-14:OAc + Me10-12:OAc (63:31:4:2)	Shi in Arn, 1992	C
<i>Adoxophyes reticulana</i> Hübner att.	Z9-14:OAc + Z11-14:OAc (1:1)	Chambon, 1974	C
<i>Adoxophyes</i> sp. Korean strain phe.	*Z9-14:OAc + *Z11-14:OAc (1:40) + other components	Yang, 2009(a)	C
<i>Aethes</i> ^g att. <i>margarotana</i> Dup.	Z11-14:OAc + E11-14:OAc (3:2)	Frerot, 1982(a)	C
<i>Aethes rubigana</i> Treitschke	Z11-14:OAc	Frerot, 1979(b)	A

<edaobi-hosohamaki> att.	+ Z11-14:OH (9:1)		
	Z11-14:OAc + E11-14:OAc (1:1)	Ando, 1981	
<i>Agapeta</i> ^g <i>hamana</i> L. att.	Z11-14:OAc + Z11-14:OH (50:1) or + 12:OAc (50:1)	Tóth, 1985	D
<i>Agapeta zoegana</i> phe.	Z11-14:OAc *Z11-14:OAc + other components	Maini in Arn, 1986(a) Tóth, 1985	D
<i>Aleimma</i> ^c <i>loeflingiana</i> L. att.	E11-14:OAc + Z11-14:OAc E11-14:OAc + E11-14:Ald (1:1)	Frerot, 1979(b) Booij, 1985	D
<i>Amorbia</i> ^h <i>cuneana</i> Walsingham western avocado leafroller phe.	*E10,Z12-14:OAc + *E10,E12-14:OAc (17:8) + other components (53:47) (63:37–11:89)	McDonough, 1982(a) Hoffmann, 1983 Bailey, 1986	D
<i>Aphelia</i> ^a <i>paleana</i> Hübner att.	Z11-14:OAc + E11-14:OAc (9:1) + Z11-14:OH + Z11-14:Ald (100:2:0.75:1)	Hrdý, 1979 Booij, 1984(a) Peltotalo, 1986 Ostrauskas, 2010(b)	C
<i>Aphelia viburnana</i> Denis & Shiffermüller att.	Z11-14:Ald	Booij, 1985 Guerin, 1986(c)	C
<i>Archips</i> ^a <i>argyrospilus</i> Walker fruittree leafroller phe.	*Z11-14:OAc + *E11-14:OAc (7:3) + other components	Roelofs, 1974(d)	C

	+ *Z9-14:OAc + *12:OAc (15:10:1:50) (100:64:2:1)	Cardé, 1977(a) Deland, 1993	
<i>Archips asiaticus</i> Walsingham (= <i>audax</i> Razowski) <atoki-hamaki> <i>att.</i>	E11-14:OAc + Z11-14:OAc (9:1) (7:3) Z9-14:OAc + Z11-14:OAc (9:1)	Ando, 1978 Mizukoshi, 2006 Mizukoshi, 2006	A
<i>Archips atrolucens</i> Diakonoff <i>phe.</i>	Z11-14:OAc + E11-14:OAc (1:1) *Z11-14:OAc + *E11-14:OAc + *14:OAc (2:1:1)	Hai, 2002 Vang, 2013	C
<i>Archips breviplicanus</i> Walsingham Asiatic leafroller <hosoatoki-hamaki> <ringomon-hamaki> <i>phe.</i>	*E11-14:OAc + *Z11-14:OAc (7:3)	Sugie, 1977	A
<i>Archips capsigeranus</i> Kennel <katakake-hamaki> <i>att.</i>	Z11-14:OAc + E11-14:OAc (1:1) (1:4)	Ando, 1981 Kozaki, 1984	A
<i>Archips cerasivoranus</i> Fitch uglynest caterpillar <i>phe.</i>	*E11-14:OAc + *Z11-14:OAc (83:17)	Roelofs, 1980	C
<i>Archips crataegana</i> Hübner <i>att.</i>	Z11-14:OAc + Z9-14:OAc (3:1) + E11-14:OAc + Z9-14:OH (82:9:9) + Z9-14:OAc + Z11-14:OH (36:15:2)	Ghizdavu, 1987 Ryabchinskaya in Arn, 1992 Kovalev in Arn, 1992	C
<i>Archips fuscocupreanus</i> Walsingham <midarekakumon-hamaki>	Z11-14:OAc + E11-14:OAc (4:1)	Ando, 1981	A

att.				
<i>Archips griseus</i> Robinson black-shield leafroller att.	Z11-14:Ald + E11-14:Ald (3:1)	Grant, 1983	C	
<i>Archips ingentanus</i> Christoph <ooatoki-hamaki> att.	Z11-14:OAc + Z11-14:OH (9:1)	Ando, 1978	A	
<i>Archips micaceanus</i> Walker att.	Z11-14:OAc + E11-14:OAc + 12:OAc (7:3:40)	Zeleny, 1982 Spitzer, 1983	C	
<i>Archips mortuanus</i> Kearfoot duskyback leafroller att.	Z11-14:OAc + E11-14:OAc + Z9-14:OAc (90:10:1)	Cardé, 1977(a)	C	
<i>Archips oporana</i> L. att.	Z11-14:OAc + E11-14:OAc (9:1)	Booij, 1984(a)	B	
<i>Archips oporanus</i> (= <i>piceanus</i>) <i>similis</i> Butler <matsuatoki-hamaki> att.	Z11-14:OAc + E11-14:OAc (4:1) (1:1)	Ando, 1978 Kozaki, 1984	A	
<i>Archips peratrata</i> Yasuda <kuroshio-hamaki> att.	Z11-14:OAc + E11-14:OAc (9:1)	Ando, 1981	A	
<i>Archips podana</i> Scopoli fruittree tortrix phe.	*Z11-14:OAc + *E11-14:OAc (1:1) + *Z11-14:OH	Persoons, 1974 Safonkin, 2003	C	
<i>Archips poraivora</i> Meyrick att.	Z11-14:OAc + E11-14:OAc + Z11-14:OH (97:3:5)	Bhardwaj, 1987	C	
<i>Archips rosana</i> L. European leafroller filbert leafroller phe.	*Z11-14:OAc + *Z11-14:OH (9:1) (87:13) + *E11-14:OAc (10:1:0.01)	Roelofs, 1976(a) AliNiazee, 1976 Guerin in Arn, 1986(a)	C	

	+ Z11-14:Ald (100:0.75:2:1)	Ostrauskas, 2010(b)	
<i>Archips semiferranus</i> Walker oak leafroller phe.	*Z10-14:OAc + other components	Hendry, 1974 Hendry, 1975	C
	*E11-14:OAc + *Z11-14:OAc (2:1)	Miller, 1976	
<i>Archips seminubilis</i> Meyrick att.	Z11-14:OAc	Zeleny, 1982 Spitzer, 1983	C
<i>Archips semistructus</i> Meyrick <usuatoki-hamaki> att.	Z11-14:OAc	Ando, 1977	A
<i>Archips strobilator</i> Razowski tea tortrix phe.	*Z11-14:OAc + another component	Fu, 2022	C
<i>Archips subrupanus</i> att.	Z11-14:OAc	Song in Arn, 1992	C
<i>Archips tsuganus</i> Powell att.	E11-14:OAc	Dateman, 1977	C
<i>Archips viola</i> Falkovitsh <murasakikakumon- hamaki> att.	E11-14:OAc + Z11-14:OAc (7:3)	Ando, 1981	A
<i>Archips xylosteanus</i> L. <kakumon-hamaki> phe.	Z11-14:OAc + E11-14:OAc (4:1)	Ando, 1978	A
	*Z11-14:OAc + *E11-14:OAc (23:2)	Frerot, 1983	
<i>Argyrotaenia</i> ^a (= <i>Neocalyptis</i>) <i>angustilineata</i> Walsingham <kohososuji-hamaki> att.	Z11-14:OAc + Z9,E12-14:OAc (1:1)	Ando, 1978	A
	Z11-14:OAc + Z9-12:OAc (1:1)	Ando, 1981 Kim, 2014(b)	
	Z9-14:OAc + Z11-14:OAc (9:1)	Mizukoshi, 2006	
<i>Argyrotaenia citrana</i> Fernald	*Z11-14:OAc	Hill, 1975(b)	C

orange tortrix phe.	+ *Z11-14:Ald (15:1)		
<i>Argyrotaenia dorsalana</i> Dyar att.	Z11-14:OAc	Steck, 1977(a) Daterman, 1977	C
	+ Z11-14:OH (1:1)	Steck, 1977(a)	
<i>Argyrotaenia liratana</i> Christoph (= <i>tricensa</i> Meyrick) <futamonko-hamaki> att.	Z9-12:OAc	Nagano, 1979	A
<i>Argyrotaenia pomililiana</i> L. phe.	*Z11-14:OAc + *Z11-14:Ald (20:1) + other components	Cichón, 2004	C
<i>Argyrotaenia pulchellana</i> Haworth phe.	Z11-14:OAc	Maini, 1973	C
	+ E11-14:OAc (9:1)	Frerot, 1979(b)	
	*Z11-14:OAc + *E11-14:OAc (76:19) + other components	Frerot, 1984	
<i>Argyrotaenia quadrifasciana</i> att.	Z10-12:OAc	Roelofs in Arn, 1986(a)	C
<i>Argyrotaenia sphaleropa</i> Meyrick phe.	*Z11,Δ13-14:Ald + *Z11-14:Ald (9:1) + *Z11,Δ13-14:OAc + *Z11-14:OAc	Nunez, 2002	C
	*Z11,Δ13-14:Ald + *Z11,Δ13-14:OAc (10:1)	Legrand, 2004	
	Z11,Δ13-14:Ald + Z11,Δ13-14:OAc (9:1-1:9)	Bavaresco, 2005	
<i>Argyrotaenia velutinana</i> Walker redbanded leafroller phe.	*Z11-14:OAc	Roelofs, 1968(a); 1968(b)	C
	+ 12:OAc (2:3)	Hamstead, 1972	
	+ *E11-14:OAc + *12:OAc (88:12:125)	Roelofs, 1975(a)	

	+ other components	Bjostad in Arn, 1986(a)	
<i>Arotrophora</i> ^b <i>arcuatalis</i> Walker phe.	*Z11-14:OAc + *E11-14:OAc (97:3) N	Horak, 1988	D
<i>Asthenoptycha</i> ^d sp. phe.	*Z8-14:OAc + *Z10-14:OAc (9:1) E	Horak, 1988	D
<i>Cacoecimorpha</i> ^a <i>pronubana</i> Hübner European carnation tortrix phe.	Z11-14:OAc + Z9-14:OAc Z11-14:OAc + Z11-14:OH + 14:OAc (18:1:1:20) Z11-14:OAc + E11-14:OAc + Z11-14:OH *Z11-14:OAc + *E11-14:OAc + *Z11-14:OH (87:3:10) + other components + *Z9-14:OAc [82:5:7:1] N (100:3:30:3)	Frerot, 1979(b) Soldán, 1983 Arsura in Arn, 1986(a) Frerot, 1982(b) Descoins, 1985 Kovalev, 1985 Witzgall, 1989(a); 1990	D
<i>Capnoptycha</i> ^d <i>ipnitis</i> Meyrick phe.	*Z8-14:OAc + *Z10-14:OAc (83:17) N	Horak, 1988	D
<i>Catamacta</i> ^a <i>gavisana</i> phe.	*Z11-14:OAc + *E11-14:OAc (49:51–61:39) N	Foster, 1988	D
<i>Cenopsis</i> ^h <i>acerivorana</i> MacKay maple leafroller phe.	Z11-14:Ald + E11-14:Ald (4:1) *Z11-14:Ald + *E11-14:Ald + *Z11-14:OAc (13:7:2)	Weatherston, 1978 Grant, 1983	C

	+ other components		
<i>Choristoneura</i> ^a <i>biennis</i> Freeman two-year-cycle spruce budworm <i>att.</i>	E11-14:Ald	Sanders, 1974; 1993	C
<i>Choristoneura carnana</i> Barnes & Busck <i>att.</i>	E11-14:Ald + Z11-14:Ald (23:2)	Liebhold, 1985	C
<i>Choristoneura conflictana</i> Walker large aspen tortrix <i>phe.</i>	Z11-14:Ald <i>*Z11-14:Ald</i> + other components	Weatherston, 1976 Evenden, 2006	C
<i>Choristoneura fractivittana</i> Clemens <i>att.</i>	Z11-14:OH + Z11-14:Ald (19:1)	Roelofs, 1970(a) Comeau, 1973 Weatherston, 1978	C
<i>Choristoneura fumiferana</i> Clemens eastern spruce budworm <i>phe.</i>	<i>*E11-14:Ald</i> + another component E11-14:Ald + Z11-14:Ald (19:1) <i>*E11-14:OAc</i> N <i>*E11-14:Ald</i> + <i>*Z11-14:Ald</i> (20:1) + other components + 14:Ald (19:1:1) + Z11-16:Ald (95:5:3.3) <i>1,E11-15:H</i> + <i>1,Z11-15:H</i> (19:1)	Weatherston, 1971 Weatherston, 1974(b) Sanders, 1976; 1984; 1993, Jennings, 1983 Wiesner, 1979 Silk, 1980 Alford, 1983 Silk, 1988(b) Silk, 1985(a)	C
<i>Choristoneura hebenstreitella</i> Müller <i>att.</i>	Z11-14:OH + Z11-14:Ald (1:1)	Booij, 1985	C
<i>Choristoneura lafauryana</i> Rag. oblique-banded leafroller <i>att.</i>	Z11-14:OH	Castellari, 1985	C

<i>Choristoneura lambertiana</i> Busck <i>att.</i>	E11-14:OAc or E11-14:Ald	Daterman, 1977	C
<i>Choristoneura lambertiana</i> <i>subretiniana</i> <i>att.</i>	E11-14:OAc + Z11-14:OAc + E11-14:OH + Z11-14:OH (30:20:3:2)	Silk, 1988(b)	C
<i>Choristoneura murinana</i> Hübner European fir budworm silver-fir shoot tortricid <i>phe.</i>	*Z9-12:OAc + Z11-14:OAc (10:1) *Z9-12:OAc + Z11-13:OAc (10:1) + *Δ11-12:OAc + *Z11-14:OAc + *E9-12:OAc (100:10:3:3) Z11-14:OAc	Priesner, 1980(a) Priesner, 1982(a) Priesner, 1988(a) Burghardt, 1980	C
<i>Choristoneura occidentalis</i> Freeman western spruce budworm <i>phe.</i>	E11-14:Ald *E11-14:Ald + *Z11-14:Ald (10:1) + other components	Weatherston, 1971 Cory, 1982 Silk, 1982; 1988(b) Alford, 1984 Sweeney, 1990	C
<i>Choristoneura orae</i> Freeman <i>phe.</i>	*E11-14:OAc + *Z11-14:OAc + *E11-14:OH (82:9:9) + other components	Gray, 1984(a)	C
<i>Choristoneura parallela</i> Robinson spotted fireworm <i>phe.</i>	* E11-14:OH + *Z11-14:OH + *E11-14:OAc + *14:OH (84:0.7:8:9) (100:5:4) + another component	Neal, 1982 Polavarapu, 1998	C
<i>Choristoneura pinus</i> <i>maritima</i> Freeman <i>att.</i>	E11-14:OAc + Z11-14:OAc + E11-14:OH + Z11-14:OH	Silk, 1988(b)	C

	(153:27:17:3)	Liebhold, 1991	
<i>Choristoneura pinus pinus</i> Freeman jack pine budworm phe.	*E11-14:OAc + *Z11-14:OAc + *E11-14:OH + *Z11-14:OH (77:13:9:1) + other components	Silk, 1985(b)	C
<i>Choristoneura retiniana</i> Walsingham modoc budworm phe.	*E11-14:OAc + *Z11-14:OAc + *E11-14:OH + *Z11-14:OH (92:8:9:1)	Daterman, 1984	C
<i>Choristoneura rosaceana</i> Harris obliquebanded leafroller phe. New York strain	*Z11-14:OAc *Z11-14:OAc + *E11-14:OAc + *Z11-14:OH (95:5:0.5–95:5:10)	Roelofs, 1970(b) Hill, 1979(a)	C
Michigan strain	+ E11-14:OAc + *Z11-14:OH (74:5:21)	Huang, 2022	
In Eastern Canada	(96.5:2:1.5)	Delisle, 1992	
Okanagan Valley strains	+ *Z11-14:Ald (96.5:2:1.5:4)	Vakenti, 1988	
British Columbia strains	(100:2:0.75:1)	Thomson, 1991	
In Eastern Canada	(97:2:1.5:1) + other components	El-Sayed, 2001; 2003	
<i>Choristoneura sorbiana</i> Hübner (= <i>C. hebenstreitella</i> ?) att.	Z11-14:OH + E11-14:OH (97:3)	Frerot, 1979(b)	C
<i>Choristoneura viridis</i> Freeman (= <i>C. retiniana</i> ?) green budworm att.	E11-14:OAc	Sanders, 1974	C
<i>Choristoneura n. sp.</i> CPG=Prince George phe.	*E11-14:OAc + *Z11-14:OAc (13:7) + other components	Gray, 1993	C

<i>Clepsis</i> ^a <i>att.</i> <i>dumicolana</i> Zeller	Z11-14:OAc + E11-14:OAc (1:1)	Frerot, 1979(b)	C
<i>Clepsis furcana</i> Walsingham <i>att.</i>	E11-14:OAc	Daterman, 1977	C
<i>Clepsis melaleucana</i> Walker <i>att.</i>	Z11-14:OH + Z11-14:OAc (1:1)	Roelofs, 1971(a)	C
<i>Clepsis rurinana</i> L. <usumon-hamaki> <i>att.</i>	Z11-14:Ald	Capizzi in Arn, 1986(a) Frerot, 1985	A
<i>Clepsis semialbana</i> Cuc. <i>att.</i>	Z11-14:OAc + Z11-14:OH + Z9-14:OAc (17:2:1)	Frerot, 1982(a)	B
<i>Clepsis spectrana</i> Treitschke <i>phe.</i>	*Z11-14:OAc + *Z9-14:OAc (3:1)	Minks, 1973(b)	C
<i>Clepsis strigana</i> Hübner <i>att.</i>	Z11-14:OAc	Maini, 1973	B
<i>Cnephasia</i> ^b <i>att.</i> <i>alticolana</i> Herrich-Schäffer	Z11-14:OAc + E11-14:OAc (1:1)	Olenici, 2007	C
<i>Cnephasia asseclana</i> Denis & Schiffermüller (= <i>interjectana</i> Haworth ?) <i>att.</i>	E9-12:OAc	Hrdý, 1989	C
<i>Cnephasia alternella</i> Stephens <i>att.</i>	Z8-12:OAc + E8-12:OAc (18:7)	Chambon, 1974 Sziráki, 1978(a); (b) Beauvais, 1977	C
<i>Cnephasia communana</i> Herrich & Schäffer <i>att.</i>	Z8-12:OAc + E8-12:OAc	Alford, 1978 Frilli, 1974	C
<i>Cnephasia cupressivorana</i> <i>att.</i>	E9-12:OAc	Tóth in Arn, 1997	C
<i>Cnephasia ecullyana</i> Real.	Z9-12:OAc	Nässig, 1991	C

att.	+ Z9-12:OH	Tóth, 1992(d)	
<i>Cnephasia genitalana</i> Pierce & Metcalfe	Z9-12:OAc	Sziráki, 1980	C
att.			
<i>Cnephasia</i> (= <i>Decodes</i>) <i>horianus</i> Walsingham	Z7-10:OAc	Steck, 1977(a)	C
att.			
<i>Cnephasia incertana</i> Treitschke	Z10-14:OAc	Frerot, 1985	C
att.			
	F ₂ 11,11-Z9-12:OAc	Bengtsson, 1990	
	Z10-12:OAc	Witzgall, 1996	
<i>Cnephasia interjectana</i>	E10-12:OAc	Booij, 1984(a)	C
att.			
	E9-12:OAc + E9,Δ11-12:OAc (19:1)	Brewer, 1985	
	E9-12:OAc	Priesner in Arn, 1986(a)	
<i>Cnephasia jactatana</i> Walker	Z11-14:OAc + Z9-14:OAc (19:1)	Benn in Roelofs 1982(a)	C
phe.			
	*Z11-14:OAc	Foster, 1993	
<i>Cnephasia longana</i> Haworth	Z9-12:OAc	Bathon, 1983	C
phe.			
	+ Z9-12:OH (1:1)	Booij, 1984(a)	
	*Z9-12:OAc	Bestmann, 1985	
<i>Cnephasia pascuana</i> Hübner	Z8-12:OAc + E8-12:OAc (24:1)	Gigon, 1980	C
att.			
<i>Cnephasia pasiuana</i> Hübner	Z5-10:OAc + Z7-12:OAc (1:1)	Tóth, 1992(c)	C
att.			
	Z9-12:OAc + E9-12:OAc (1:1)	Toshova, 2017	
<i>Cnephasia pumicana</i> Zeller	*Z9-12:OAc	Biwer, 1978(a)	C

cereal tortrix phe.	+ *E9-12:OAc + *12:OAc (3:5:2)		
<i>Cnephasia stephensiana</i> Doubleday att.	Z8-12:OAc + E8-12:OAc (1:1) + E8-12:OAc (93:7) + 12:OH E11-14:Ald Z11-14:OAc	Alford, 1978 Peltotalo, 1986 Witzgall, 1996 Hrdý, 1979 Brewer, 1985 Olenici, 2007	C
<i>Cnephasia stephensiana</i> <i>stolidana</i> Walker <hosobahaiiro-hamaki> att.	Z8-12:OAc + E8-12:OAc + Z8-12:OH (85.5:5.5:9)	Mizukoshi, 2006	A
<i>Cnephasia</i> sp. att.	E11-14:OAc	Klun, 1972	
<i>Cochylis</i> ^g <i>arthuri</i> Dang phe.	*Z11-14:OAc + *E11-14:OAc (4:1)	Foster, 2003	C
<i>Cochylis dubitana</i> Hübner att.	E11-14:OAc + E11-14:OH (10:1)	Frerot, 1985 Mozūraitis, 1998	C
<i>Cochylis hospes</i> Walsingham banded sunflower moth phe.	*E11-14:OAc + *Z11-14:OAc (9:1–4:1)	Underhill, 1986	C
<i>Cochylis hybridella</i> Hübner <togari-hosohamaki> att.	Z11-14:Ald + E11-14:OAc (1:1)	Frerot, 1985	A
<i>Cochylis molliculana</i> att.	E11-14:OAc	Maini in Arn, 1986(a)	C
<i>Cochylis posterana</i> Zeller att.	Z8-12:OAc + E8-12:OAc + Z11-14:OAc (25:1:5) Z11-14:OAc	Tóth in Arn, 1986(a) Tóth, 1992(d)	C

	+ Z9-12:OAc (10:1)		
<i>Commophila</i> ^g <i>umbrabsana</i> Kearfott att.	E11-14:OAc	Daterman, 1977	D
<i>Croesia</i> ^c <i>askoldana</i> Christoph <ginsujikaba-hamaki> att.	Z11-14:Ald + Z11-14:OAc (9:1)	Ando, 1978	A
<i>Croesia bergmaniana</i> L. att.	E11-14:OAc + 14:OAc (9:1)	Voerman in Arn, 1986(a) Frerot, 1979(b)	B
<i>Croesia conchyloides</i> Walsingham <neusu-hamaki> att.	Z11-14:Ald	Ando, 1978	A
<i>Croesia curvalana</i> Kearfott blueberry leaftier moth phe.	*E11-14:Ald + *Z11-14:Ald + *E11-14:OAc + *Z11-14:OAc (810:90:85:15)	Lonergan, 1989; Ponder, 1991	C
<i>Croesia dealbata</i> Yasuda <shiroobigin-hamaki> att.	E11-14:Ald	Ando, 1981	A
<i>Croesia forskaleana</i> att.	E11-14:Ald + Z11-14:Ald (1:1–1:9)	Frerot, 1985	C
<i>Croesia holmiana</i> L. att.	E11-14:OAc + 14:OAc (9:1) + Z11-14:Ald (1:1) Z6-14:OAc + E6-14:OAc (9:1)	Arn, 1974 Frerot, 1979(b) Frerot, 1985 Minks in Arn, 1986(a)	C
<i>Croesia semipurpurana</i> Kearfott oak leaf shredder phe.	E11-14:Ald + Z11-14:Ald (9:1–8:2) *E11-14:Ald + *Z11-14:Ald (17:3) + other components	Weatherston, 1978 Silk, 1997	C

<i>Croesia tigricolor</i> Walsingham <torafu-hamaki> att.	E11-14:Ald + Z11-14:Ald (9:1)	Ando, 1981	A
<i>Cryptoptila</i> ^a <i>australana</i> Lewin phe.	*Z11-14:OAc + *E11-14:OAc (19:1) E	Horak, 1988	D
<i>Cryptoptila immersana</i> Walker phe.	*Z11-14:OAc + *Z9-14:OAc (91:9) E	Horak, 1988	D
<i>Cryptoptila</i> sp. 1 phe.	*Z9-14:OAc + *Z11-14:OAc + *Z11-16:OAc (50:39:11) N	Horak, 1988	D
<i>Cryptoptila</i> sp.2 phe.	*Z9-14:OAc + *Z11-14:OAc + *E11-14:OAc + *Z11-16:OAc (38:49:7:6) N	Horak, 1988	D
<i>Ctenopseustis</i> ^a <i>herana</i> Felder & Rogenhofer att.	Z5-14:OAc	McLaren, 1993	D
<i>Ctenopseustis obliquana</i> Walker brownheaded leafroller phe.			D
Auckland strains Type I	*Z8-14:OAc + *Z5-14:OAc (4:1)	Young, 1985 Clearwater, 1991	
Christchurch strains Type II (= <i>C. herana</i>)	*Z5-14:OAc + another component	Foster, 1987(a); 1991 Clearwater, 1991	
Type III	*Z8-14:OAc + *Z5-14:OAc (9:1)	Foster, 1986	
Type IV (= <i>C. filicis</i> ?)	*Z10-16:OAc	Foster, 1986	
<i>Ctenopseustis servana</i> phe.	*Z7-14:OAc + *Z5-14:OAc (4:1–5:3) N	Foster, 1988; 1990	D

<i>Decodes</i> ^b att. <i>stevensi</i> Powell	Z9-12:OAc	Stevens, 1985	D
<i>Ditula</i> ^a att. <i>angustiorana</i> Haworth	Z10-14:OAc	Frerot, 1985	C
<i>Dyceratura</i> ^g att. <i>ostrinana</i> Guenée	Z11-14:OAc + E11-14:OAc (3:2)	Frerot, 1982(a)	D
<i>Eana</i> ^b att. <i>argentana</i> Clerck <ginmuji-hamaki>	Z7-12:OAc	Priesner in Arn, 1986(a)	A
<i>Eana derivana</i> La Harpe att.	E9-12:OAc + Z9-12:OAc (11:9)	Hrdý, 1989	C
<i>Ecclitica</i> ^a phe. <i>torogramma</i>	*E11-14:OAc + *Z11-14:OAc (25:0–23:2) N	Foster, 1988	D
<i>Epagoge</i> ^a att. <i>grotiana</i> F.	Z10-14:OAc + Z11-14:OAc (3:1–1:3) (10:1)	Booij, 1984(a) Frerot, 1985 Mozūraitis, 1998	D
<i>Epichoristodes</i> ^a phe. <i>acerbella</i> Walker	*Z11-14:OAc + *Z11-14:OH + *Z9-14:OAc (32:13:4) + other components *Z11-14:OAc + Z9-14:OH (8:1:2:1)	L.-Cassou, 1980 Rossi, 1982 Dalla in Arn, 1992	D
<i>Epiphyas</i> ^a phe. <i>postvittana</i> Walker lightbrown apple moth	*E11-14:OAc + *E9,E11-14:OAc (20:1) phe. (9:1) att. (19:1) + *E11-14:OH	Bellas, 1983 Muggleston, 1989 Yazdani, 2024 El-Sayed, 2011	D

	+ *E11-16:OAc (200:10:2:1) + other components		
<i>Epiphyas pulla</i> Turner att.	E9,E11-14:OAc + E11-14:OAc + 14:OAc + 12:OAc (16:10:10:1)	Yazdani, 2024	
<i>Epiphyas xyloides</i> Meyrick phe.	*Z11-14:OAc + *E11-14:OAc (3:2)	Horak, 1988	D
<i>Epitymbia</i> ^d <i>alaudana</i> Meyrick phe.	*Z5-14:OAc + *Z7-14:OAc (2:1) E	Horak, 1988	D
<i>Epitymbia cosmota</i> Meyrick phe.	*Z7-14:OAc + *Z5-14:OAc (4:1) E	Horak, 1988	D
<i>Epitymbia eudrosa</i> Turner phe.	*Z7-14:OAc E	Horak, 1988	D
<i>Eulia</i> ^b <i>ministrana</i> L. <bokashi-hamaki> att.	Z11-14:OAc + Z9-14:OAc (9:1) (10:1)	Booij, 1984(a) Priesner, 1984(c)	A
	Z11-14:OAc + Z11-14:Ald (1:1)	Booij, 1985	
<i>Eupoecilia</i> ^g <i>ambiguella</i> Hübner European grape moth <budou-hosohamaki> phe.	*Z9-12:OAc Z9-12:OAc + 12:OAc (1:1–1:5) or + Z10-13:OAc (5:1–2:1)	Arn, 1976(b) Saglio, 1977(b) Rauscher, 1984	A
	*Z9-12:OAc + *12:OAc + *18:OAc (1:1:2) + other components	Arn, 1986(b),1988	
<i>Eupoecilia angustana</i> Hübner <tsumaobiki-hosohamaki> att.	Z11-14:OAc + E11-14:OAc + 12:OAc (7:3:40)	Hrdý, 1979	A
<i>Eupoecilia kobeana</i> Razowski	Z11-14:OH	Ando, 1977	A

<akaobi-hosohamaki>

att.

<i>Exapate</i> ^g <i>congelatella</i> Clerck att.	Z11-14:OAc + E11-14:OAc (4:1)	Velcheva, 1990	D
<i>Homona</i> ^a <i>coffearia</i> Neitner tea tortrix phe.	*E9-12:OAc + *12:OAc + *12:OH (1:1:3)	Kochansky, 1978	C
<i>Homona magnanima</i> Diakonoff oriental tea tortrix <cha-hamaki> phe.	*Z11-14:OAc + *Z9-12:OAc + *Δ11-12:OAc (30:3:1)	Noguchi, 1979; 1981	A
	Z11-14:OAc + Z9-12:OAc (9:1)	Ando, 1981 Kim, 2014(b)	
<i>Homona spargotis</i> Meyrick phe.	*E9-12:OAc + *Z9-12:OAc + *E9-12:OH + *Z9-12:OH + *Z11-14:OAc (10:8:7:5:1) + other components	Whittle, 1987	C
<i>Homona tabescens</i> Meyrick phe.	*Z11-14:OAc + *Z9-12:OAc (9:1)	Vang, 2013	C
<i>Homonopsis</i> ^a <i>foederatana</i> Kennel <tsudurimon-hamaki> att.	Z11-14:OAc + E11-14:OAc (1:1)	Ando, 1978	A
	(3:7)	Mizukoshi, 2006	
<i>Homonopsis illotana</i> Kennel <tsuyasuji-hamaki> att.	Z11-14:OAc + Z11-14:OH (9:1)	Ando, 1978	A
<i>Hoshinoa</i> ^a <i>adumbratana</i> Walsingham <oofutasuji-hamaki> att.	Z11-14:Ald	Ando, 1978	A
<i>Hoshinoa longicellana</i> Walsingham common apple leafroller <atoboshi-hamaki> phe.	Z11-14:OAc *Z11-14:OAc + *E11-14:OAc (5:1)	Ando, 1975 Kozaki, 1984	A

<i>Hysterosia</i> ^g <i>att.</i> <i>cartwrightana</i> Kearfott	E11-14:OAc	Struble, 1977(a)	C
<i>Hysterosia</i> <i>att.</i> <i>inopinana</i>	E11-14:OAc + E11-14:Ald (1:1)	Priesner in Arn, 1986(a)	C
<i>Isochorista</i> ^d <i>att.</i> <i>helota</i> Meyrick	Z5-14:OAc + Z7-14:OAc	Horak, 1988	D
<i>Kawabeia</i> ^b <i>att.</i> <i>ignavana</i> Christoph <usuobihairofuyu-hamaki>	Z7-12:OAc	Ando, 1981	A
<i>Kawabeia</i> <i>att.</i> <i>razowskii</i> Kawabe <hairofuyu-hamaki>	Z5-12:OAc	Ando, 1977	A
<i>Meridemis</i> ^a <i>att.</i> <i>furtiva</i> Diakonoff	Z11-14:OAc	Hai, 2002	D
<i>Meritastis</i> ^d <i>phe.</i> <i>laganodes</i> Meyrick	*Z9-14:OAc N	Horak, 1988	D
<i>Meritastis</i> <i>phe.</i> <i>lythrodana</i> Meyrick	*Z9-14:OAc E	Horak, 1988	D
<i>Meritastis</i> <i>phe.</i> <i>pyrosemana</i> Meyrick	*Z9-14:OAc N	Horak, 1988	D
<i>Meritastis</i> sp. <i>phe.</i>	*Z9-14:OAc E	Horak, 1988	D
<i>Merophyas</i> ^a <i>phe.</i> <i>divulsana</i> Walker lucerne leafroller moth		Whittle, 1991	D
E-type	*E11-14:OAc + *16:OAc + *14:OAc (10:20:7)		
Z-type	*Z11-14:OAc + *E11-14:OAc + *14:OAc (25:5:2)		

<i>Merophyas leucaniana</i> Walker p _{he} .	*Z11-14:OAc + *E11-14:OAc + *Z11-14:OH + *14:OAc (100:5:17:33) + another component	Foster, 1988; 1993	D
<i>Merophyas</i> sp. p _{he} .	*Z11-14:OAc + *E11-14:OAc (83:17) E	Horak, 1988	D
<i>Neosphaleroptera</i> ^b <i>nubilana</i> Stephens att.	Z5-10:OAc	Subchev, 1990 Tóth, 1992(d)	D
<i>Pandemis</i> ^a <i>borealis</i> att.	Z11-14:OAc	Daterman in Arn, 1992	C
<i>Pandemis canadana</i> Kearfott att.	Z11-14:OAc + Z9-14:OAc (9:1)	Steck, 1977(a)	C
<i>Pandemis cerasana</i> Hübner p _{he} .	Z11-14:OAc + E11-14:OAc (1:1) *E11-14:OAc + *Z11-14:OAc (3:1) + other components	Konyukhov in Arn, 1986(a) Tonini, 1982	C
<i>Pandemis chlorograpt</i> Meyrick <usutobi-hamaki> att.	Z11-14:OAc + E11-14:OAc (4:1)	Ando, 1981	A
<i>Pandemis cinnamomeana</i> Treitschke <akatobi-hamaki> att.	Z11-14:OAc + E11-14:OAc (4:1)	Ando, 1978	A
<i>Pandemis heparana</i> Denis & Shiffermüller <tobi-hamaki> p _{he} .	Z11-14:OAc + Z11-14:OH + Z9-14:OAc (17:2:1) (2:1:1) *Z11-14:OAc + *Z11-14:OH + *Z9-14:OAc (18:1:1)	Frerot, 1979(b) Voerman in Arn, 1986(a) Frerot, 1982(b)	A

	+ other components		
<i>Pandemis limitata</i> Robinson threelined leafroller phe.	*Z11-14:OAc + *Z9-14:OAc (91:9)	Roelofs, 1976(b)	C
<i>Pandemis monticolana</i> Yasuda <yamatobi-hamaki> att.	E11-14:OAc + Z11-14:OAc (7:3)	Mizukoshi, 2006	A
<i>Pandemis pyrusana</i> Kearfott phe.	*Z11-14:OAc + *Z9-14:OAc (47:3)	Roelofs, 1977(a)	C
<i>Parapandemis</i> ^a <i>borealis</i> Freeman att.	Z11-14:OAc	Dateman, 1977	D
<i>Parasyndemis</i> ^a (= <i>Dichelia</i>) <i>histrionana</i> Frölich att.	Z11-14:OAc + E11-14:OAc Z11-14:OAc E11-14:Ald + Z11-14:Ald (20:1)	Frerot, 1979(b) Priesner, 1980(a) Olenici, 2007 Ostrauskas, 2010(a)	D
<i>Phalonia</i> ^g sp. att.	E11-14:OAc	Roelofs, 1970(a)	
<i>Phalonidia</i> ^g <i>manniana</i> att.	Z11-14:OAc + Z9,E11-14:OAc (10:1)	Priesner in Arn, 1986(a)	C
<i>Phalonidia minimana</i> Caradja <mini-hosohamaki> att.	Z11-14:OAc	Ando, 1977	A
<i>Phricanthes</i> ^e <i>asperana</i> Meyrick phe.	*Z9-12:OAc N	Horak, 1988	D
<i>Phtheochroa</i> ^g (= <i>Bonagota</i>) <i>cranaodes</i> Meyrick Brazilian apple leafroller phe.	*E3,Z5-12:OAc + *Z9-16:OAc (1:1) + other components (9:1)	Unelius, 1996 Eiras, 1999 Kovaleski, 2003	D

	+ *Z5-12:OAc + *E3,Z5-14:OAc (20:20:1:1)	Coracini, 2001	
	(20:1:1:1)	Coracini, 2003	
<i>Phtheochroides</i> ^g <i>clandestina</i> Razowski <yomogioo-hosohamaki> att.	Z11-14:OAc + Z9-14:OAc (1:1)	Ando, 1981	A
<i>Planotortrix</i> ^a <i>clarkei</i> Philpott phe.	*Z11-14:OAc + *E11-14:OAc (23:2) N	Foster, 1988	D
<i>Planotortrix excessana</i> Walker greenheaded leafroller phe. A-race (= <i>P. octo</i> ?)	*Z8-14:OAc + *14:OAc (10:3)	Galbreath, 1985	D
B-race	*Z5-14:OAc + *Z7-14:OAc (3:2)		
	(3:97 – 71:29) N	Foster, 1989	
	+ *Z9-14:OAc N	Foster, 1988	
<i>Planotortrix flammea</i> Salmon phe.	*Z5-14:OAc + *Z7-14:OAc (3:2–1:1) N	Foster, 1990	D
<i>Planotortrix notophaea</i> Turner phe.	*Z7-14:OAc N	Foster, 1990	D
<i>Planotortrix octo</i> Dugdale att.	Z8-14:OAc + 14:OAc	Park, 1998	D
<i>Planotortrix orthrocopa</i> Meyrick phe.	*Z11-14:OAc N	Foster, 1988	D
<i>Planotortrix orthropis</i> Meyrick phe. type 1	*Z11-14:OAc + *E11-14:OAc (87:13) N	Foster, 1988	D
type 2	*Z11-14:OAc + *Z9-14:OAc (95:5–82:18) N		

<i>Planotortrix spatiosa</i> Philpott phe.	*Z11-14:OAc + *E11-14:OAc (3:1–3:2) N	Foster, 1988	D
<i>Planotortrix</i> "MBS" phe.	*Z7-14:OAc + *Z5-14:OAc (50:1–12:1) N	Foster, 1990	D
<i>Planotortrix</i> sp. ("M") phe.	*Z5-14:OAc + *14:OAc (1:1) + *Z7-14:OAc (20:20:1)	Foster, 1987(b) Foster, 1990	D
<i>Platynota</i> ^h <i>flavedana</i> Clemens variegated leafroller phe.	*E11-14:OH + *Z11-14:OH (9:1) + other components	Hill, 1977	D
<i>Platynota idaeusalis</i> Walker tufted apple bud moth phe.	E11-14:OH + E11-14:OAc (1:1) *E11-14:OH + *E11-14:OAc (2:1)	Bode, 1973 Hill, 1974	D
<i>Platynota stultana</i> Walsingham omnivorous leafroller phe.	*E11-14:OAc + *Z11-14:OAc (22:3) + E & Z11-14:OH (1–0.2%)	Hill, 1975(a) Baker, 1975	D
<i>Proeulia</i> ^a <i>auraria</i> Clarke phe.	*E11-14:OH	Bjostad in Roelofs, 1982(a)	D
<i>Proeulia triquetra</i> Obraztsov phe.	*Z11-14:OAc + *E9-12:OAc (10:1) + another component	Bergmann, 2016	D
<i>Proselena</i> ^f <i>tenella</i> Meyrick phe.	*Z11-14:OAc N	Horak, 1988	D
<i>Pseudargyrotoza</i> ^a <i>conwagana</i> F. <miyamamadaraginsuji-hamaki> att.	Z11-14:OAc + Z11-14:OH (9:1)	Novotný, 1990	A

<i>Ptycholoma</i> ^a <i>lecheana</i> L. phe.	Z11-14:OH + Z11-14:OAc (3:1) *Z11-14:OH	Frerot, 1979(b) Minks in Arn, 1986(a) Descoins in Arn, 1986(a)	B
<i>Ptycholoma lecheana</i> <i>circumclusana</i> Christoph <ooginsujiaka-hamaki> att.	Z11-14:OH + Z11-14:OAc (9:1)	Ando, 1977 Ando, 1978	A
<i>Pyrgotis</i> ^a <i>chrysomela</i> phe.	*Z9-14:OAc + *Z11-14:OAc (100:0–99:1) N	Foster, 1988	D
<i>Pyrgotis plagiatana</i> phe.	*E11-14:OAc + *Z11-14:OAc (4:1) N	Foster, 1988	D
<i>Sparganothis</i> ^h <i>albicaudana</i> Busck att.	E11-14:OAc	Roelofs, 1971(a)	C
<i>Sparganothis directana</i> Walker chokecherry leafroller phe.	*E9,Δ11-12:OAc + *Z11-14:OAc + *E11-14:OAc (5:4:3) + other components	Bjostad, 1980(a)	C
<i>Sparganothis niveana</i> Walsingham (= <i>groteana</i> Fernald) att.	Z11-14:OH	Roelofs, 1970(a); 1982(a)	C
<i>Sparganothis pilleriana</i> Denis & Schiffermüller <tengu-hamaki> phe.	E9-12:OAc + E9-12:OH (8:2–9:1) E Z11-14:Ald *E9-12:OAc + *E9-12:OH + *E11-14:OAc + *Z11-14:OAc (4:1:4:20) + other components *E9-12:OAc + *E9-12:OH + *E11-14:OAc + *14:OAc (4:1:4:4) + other components	Saglio, 1977(a) Ando, 1978 Guerin, 1986(c) Arn, 1988	A

<i>Sparganothis sulfureana</i> Clemens Sparganothis fruitworm phe.	E11-14:OAc *E11-14:OAc + *Z11-14:OAc + *Z9-14:OAc (100:1:1) + other components	Roelofs, 1970(a) Zhu, 2009	C
<i>Sparganothis tunicana</i> Walsingham att.	E11-14:OAc	Daterman, 1977	C
<i>Sparganothis</i> sp. woodbine leafroller phe.	*E11-14:OH + *Z11-14:OH + *E11-14:OAc (15:11:2) + other components	Bjostad, 1980(c)	
<i>Spatalistis</i> ^c <i>bifasciana</i> Hübner <ginsujikuro-hamaki> att.	Z11-14:OAc + Z9-14:OAc (1:1) or + Z9,E12-14:OAc (1:1) Z11-14:OAc + Z9-14:OAc + Z11-14:OH (18:1:1)	Ando, 1978 Hrdý, 1989	A
<i>Sperchia</i> ^a <i>intractana</i> Walker phe.	E11-14:OAc + Z11-14:OAc (2:1) *E11-14:OAc + *Z11-14:OAc (69:31) E	Benn, 1981 Horak, 1988	D
<i>Stenodes</i> ^g <i>alternana</i> att.	Z9-14:OAc + Z11-14:OAc + E11-14:OAc (10:9:1)	Safonkin, 1988	C
<i>Syllomatia</i> ^b <i>pertinax</i> Meyrick phe.	*Z9-14:OAc E	Horak, 1988	D
<i>Syndemis</i> ^a <i>musculana</i> Hübner phe.	E11-14:OAc + Z11-14:OAc *E11-14:OAc + *Z11-14:OAc (9:1)	Frerot, 1979(b) Persoons, 1984	B

<i>Taeniarchis</i> ^b <i>catenata</i> Meyrick phe.	*Z11-14:OAc + *E11-14:OAc (14:11) N	Horak, 1988	D
<i>Terricola</i> ^a <i>violetana</i> Kawabe <kushihigemurasaki-hamaki> att.	Z11-14:OAc + Z9,E12-14:OAc (1:1) or + Z9-14:OAc (1:1)	Ando, 1978	A
<i>Tortrix</i> ^c <i>sinapina</i> Butler <usuamime-hamaki> att.	Z11-14:OAc	Ando, 1978	A
<i>Tortrix</i> <i>viridana</i> L. phe.	Z11-14:OAc	Hrdý, 1979 Knauf, 1979	C
	Z11-13:OAc or E11-13:OAc	Arn, 1979	
	*Z11-14:OAc	Arn, 1979	
	+ Z11-14:OH (9:1)	Novotný, 1990	
" <i>Tortrix</i> " <i>constrictana</i> Walker phe.	*Z11-14:OAc + *Z9-14:OAc (22:3) E	Horak, 1988	C

(*Tortricidae*; *Olethreutinae*) ハマキガ科 ; ノコメハマキガ亜科
a: Eucosmini (モグリヒメハマキ族), b: Grapholitini (シンクイヒメハマキ族)
c: Microcorsini (ハラブトヒメハマキ族), d: Olethreutini (ヒメハマキガ族)

<i>Acanthoclita</i> ^b (= <i>Cydia</i>) <i>phaulomorpha</i> Meyrick att.	Z8-12:OAc + E8-12:OAc (1:1)	Bourdouxhe, 1982	C
<i>Ancylis</i> ^a <i>achatana</i> F. att.	Z9-12:OAc + E9-12:OAc (7:3)	Biwer, 1978(a)	C
<i>Ancylis</i> <i>albafasciana</i> Heinrich att.	Z9-12:OAc	Stevens, 1985	C
<i>Ancylis</i> <i>apicella</i> Denis & Schiffermüller	Z8-12:OAc + Z9-12:OAc (1:1)	Booij, 1984(a)	C

<i>Ancylis burgessiana</i> Zeller <i>att.</i>	E9-12:OAc	Reed, 1985(b)	C
<i>Ancylis columbiana</i> McDunnough <i>att.</i>	Z9-12:OAc	Stevens, 1985	C
<i>Ancylis geminana</i> Donovan <shiroobi-himehamaki> <i>att.</i>	Z9-12:OH	Booij, 1984(a)	A
<i>Ancylis mediofasciana</i> Clemens <i>att.</i>	E9-12:OAc	Stevens, 1985	C
<i>Ancylis nubeculana</i> Clemens <i>att.</i>	Z9-12:OAc	Reed, 1985(b)	C
<i>Ancylis pacificana</i> Walsingham <i>att.</i>	Z9-12:OAc	Stevens, 1985	C
<i>Ancylis sativa</i> Liu jujube leafroller <i>phe.</i>	*E9-12:OAc + *Z9-12:OAc (4:1) + other components	Lin, 1984 Han, 1999	C
<i>Ancylis selenana</i> Guenée <futaboshi-himehamaki> <i>att.</i>	Z9,E11-14:OAc	Nagano, 1979	A
<i>Ancylis simuloides</i> McDunnough <i>att.</i>	Z9-12:OAc	Stevens, 1985	C
<i>Ancylis uncella</i> Denis & Schiffermüller <usubenikagiba-himehamaki> <i>att.</i>	Z9-12:OH	Booij, 1984(a)	A
<i>Ancylis</i> sp. <i>att.</i>	Z9,Δ11-12:OAc + Z9,Δ11-12:OH (10:1)	Chisholm, 1985(b)	C
<i>Aphania</i> ^a <i>infida</i> Heinrich <i>att.</i>	Z8-12:OAc	Roelofs, 1971(a)	C
<i>Apotomis</i> ^d <i>betuletana</i> Haworth <tumajiro-himehamaki> <i>att.</i>	Z10-14:OAc	Booij, 1984(a)	A

<i>Apotomis capreana</i> Hübner <yanagitsumajiro-himehamaki> <i>att.</i>	Z11-14:OAc + E11-14:OAc	Bûda, 1987	A
<i>Apotomis corticana</i> Hübner <i>att.</i>	Z10-14:OAc + E8,E10-12:OH ?	Arn, 1974	C
<i>Apotomis lineata</i> Schiffermüller <i>att.</i>	Z8-12:OAc	Sziráki, 1978(a)	C
<i>Apotomis moestana</i> Wocke <i>att.</i>	Z8-12:OAc	Linna luoto, 1983	C
<i>Apotomis turbidana</i> Hübner <i>att.</i>	Z10-14:OAc Z8-14:OAc	Roelofs, 1982(a) Fassotte in Arn, 1986(a)	C
<i>Apotomis</i> sp. <i>att.</i>	Z8-12:OH or Z8-12:OAc	Ando, 1977	A
<i>Argyroploce</i> ^d <i>aurofasciana</i> Haworth <kokekiobi-himehamaki> <i>att.</i>	E10-12:OAc	Arn, 1974	A
<i>Argyroploce lacunana</i> Denis & Schiffermüller <miyamaunmon-himehamaki> <i>att.</i>	Z8-12:OAc	Sziráki, 1978(a)	A
<i>Argyroploce schistaceana</i> Snellen <i>phe.</i>	*9-12:OAc	China, 1978	C
<i>Aterpia</i> ^d <i>issikii</i> Kawabe <isshiki-himehamaki> <i>att.</i>	Z8,Z10-12:OH	Ando, 1987	A
<i>Bactra</i> ^d <i>lanceolana</i> Hübner <togariba-himehamaki> <i>att.</i>	E10-14:OAc	Booij, 1984(a)	A
<i>Bactra verutana</i> Zeller <i>phe.</i>	*Z10-14:OAc N	Roelofs, 1984	C

<i>Barbara</i> ^a <i>colfaxiana</i> Kearfott Douglas fir cone moth <i>att.</i>	Z9-12:OH + Z9-12:OAc (3:1) Z9-12:OAc	Weatherston, 1977 Hedlin, 1983 Stevens, 1985	D
<i>Barbara mappana</i> Freeman <i>att.</i>	E9-12:OAc	Reed, 1985(b)	D
<i>Blastesthia</i> ^a <i>posticana</i> Zetterstedt <i>att.</i>	E9-12:OAc + E9-12:OH (9:1)	Booij, 1984(a) Booij, 1986	D
<i>Blastesthia turionella</i> L. <i>att.</i>	E9-12:OAc	Booij, 1984(a)	D
<i>Celypha</i> ^d <i>purpurana</i> Haw. <i>att.</i>	Z8-12:OH	Tóth, 1992(d)	C
<i>Celypha rosaceana</i> Schläger <i>att.</i>	Z8-12:OAc	Alford, 1978	C
<i>Celypha rurestrana</i> Dup. <i>att.</i>	Z8-12:OAc Z8-12:OH	Sziráki, 1978(a) Tóth, 1992(d)	C
<i>Celypha striana</i> Denis & Schiffermüller <i>att.</i>	Z8-12:OH	Arn, 1974	C
<i>Centroxena</i> ^b sp. <mayapushiki-himeshinkui> <i>phe.</i>	*E8,E10-12:OAc + other components	Vang, 2005	A
<i>Cryptaspasma</i> ^c sp. <i>phe.</i>	*Z9-14:OAc N	Horak, 1988	C
<i>Cryptophlebia</i> ^b <i>amamiana</i> Komai & Nasu <mehirugiashibuto-himehamaki> <i>phe.</i>	*Z8-12:OAc + other components	Vang, 2005	A
<i>Cryptophlebia horii</i> Kawabe <ohirugiashibuto-himehamaki>	*Z8-12:OH + other components	Vang, 2005	A

<i>Cryptophlebia imicella</i> Zeller <i>att.</i>	Z8-12:OAc	Dix, 1984	C
<i>Cryptophlebia illepidia</i> Butler koa seedworm <i>att.</i>	Z8-12:OAc + E8-12:OAc + Z8-12:OH + Z7-12:OAc (93:4:1:2)	Chang, 1995	C
<i>Cryptophlebia ombrodelta</i> Lower macadamia nut borer litchi fruit moth <ashibuto-himehamaki> <i>att.</i>	Z8-12:OAc + E8-12:OAc + Z8-12:OH + Z7-12:OAc (93:4:1:2)	Ando, 1975 Sinclair, 1980 Chang, 1995	A
<i>Cryptophlebia palustris</i> Komai & Nasu <yaeyamahirugiashibuto- himehamaki> <i>phe.</i>	*Z8-12:OAc + other components	Vang, 2005	A
<i>Cryptophlebia peltastica</i> Meyrick litchi moth <i>att.</i>	Z8-12:OAc	Newton, 1993	C
<i>Cydia</i> ^{<i>b</i>} <i>americana</i> Walsingham <i>att.</i>	E8,E10-12:OAc	Stevens, 1985	C
<i>Cydia blackmoreana</i> Walsingham <i>att.</i>	E8,E10-12:OAc	Witzgall, 1996	C
<i>Cydia bracteata</i> Fernald <i>att.</i>	Z9-12:OAc	Dix, 1984	C
<i>Cydia caryana</i> Fitch hickory shuckworm <i>phe.</i>	E8,E10-12:OAc or Z9-12:OAc *E8,E10-12:OAc	Smith, 1987 McDonough, 1990(a)	C
<i>Cydia colorana</i> Kearfott <i>att.</i>	E8,E10-12:OAc	Stevens, 1985	C
<i>Cydia coniferana</i> Ratzeburg <i>att.</i>	E8-12:OAc + E10-12:OAc (1:1)	Booij, 1984(a)	C

	or + E8-12:OH (9:1)	Voerman in Arn, 1992	
<i>Cydia coronilana</i> <i>att.</i>	Z8-12:OAc + E8-12:OAc	Hrudová, 2003	C
<i>Cydia cosmophorana</i> Treitschke <i>att.</i>	E8-12:OAc + E10-12:OAc (1:1)	Booij, 1984(a)	C
	E9-12:OAc	Tóth in Arn, 1997	
<i>Cydia cupressana</i> Kearfott <i>att.</i>	Z9-12:OAc	Stevens, 1985	C
<i>Cydia duplicana</i> Zett. <i>att.</i>	E8,E10-12:OAc	Witzgall, 1996	C
<i>Cydia exquisitana</i> <i>att.</i>	E8,E10-12:OH	Chambon, 1978	C
<i>Cydia fagiglandana</i> Zeller <i>phe.</i>	E8,E10-12:OAc + E8,E10-12:OH (3:1) *E8,E10-12:OAc + other components	Rotundo, 1984 Rotundo, 1988 Witzgall, 1996	A
<i>Cydia fletcherana</i> Kearfott <i>att.</i>	E8-12:OAc	Reed, 1985(b)	C
<i>Cydia flexiloqua</i> Heinrich <i>att.</i>	Z5,E7-12:Ald + Z5,Z7-12:Ald + Z7-12:Ald (10:1:1)	Chisholm, 1985(a)	C
<i>Cydia illutana</i> H.-S. <i>att.</i>	E8,E10-12:OAc	Priesner in Arn, 1986(a) Witzgall, 1996	C
<i>Cydia indivisa</i> Danilevski <i>att.</i>	Z8-12:OH + E8-12:OH (1:1) Z8-12:OAc + E8-12:OAc (1:1)	Booij, 1984(d) Witzgall, 1996	C
<i>Cydia ingrata</i> Heinrich <i>att.</i>	E8,E10-12:OAc + E8,Z10-12:OAc (10:1)	Chisholm, 1985(a)	C

	(1:1)	Reed, 1985(b)	
<i>Cydia intexta</i> Kuznetsov <i>att.</i>	E8,E10-12:OAc	Witzgall, 1996	C
<i>Cydia latiferreana</i> Walsingham (= <i>Melissopus latiferreanus</i>) filbertworm <i>phe.</i>	E8,E10-12:OAc *E8,Z10-12:OAc + *E8,E10-12:OAc (43:10)	Davis, 1981 Davis, 1984	C
<i>Cydia lautiuscula</i> Heinrich <i>att.</i>	E8,E10-12:OAc	Chisholm, 1985(a)	C
<i>Cydia leucostoma</i> Meyrick <minamitumajiro-himehamaki> <i>att.</i>	Z8,E10-12:OAc	Witzgall, 1996	A
<i>Cydia medicaginis</i> Kuznetsov <i>att.</i>	E8,E10-12:OAc	Frerot, 1979(a) Wall, 1987	C
<i>Cydia millenniana</i> Adamoz. <i>att.</i>	E8,E10-12:OAc + Z8,Z10-12:OAc (1:1)	Witzgall, 1996	C
<i>Cydia nigricana</i> F. pea moth <endou-shinkui> <i>phe.</i>	E8,E10-12:OAc or Z8-12:OAc or E10-12:OAc *E8,E10-12:OAc E10-12:OAc *E8,E10-12:OAc + other components	Lewis, 1975 Wall, 1976 Greenway, 1984 Horák, 1988 Witzgall, 1993; 1996	A
<i>Cydia orobana</i> Treitschke <i>att.</i>	E8,E10-12:OH	Rotundo, 1988	C
<i>Cydia oxytropidis</i> Martini <i>att.</i>	E8,E10-12:OAc	Witzgall, 1996	C
<i>Cydia pactolana</i> Zeller <todomatsumiki-moguriga> <i>att.</i>	Z8-12:OH	Booij, 1984(a)	B

<i>Cydia piperana</i> Kearfott seed worm <i>att.</i>	E9-12:OAc + Z9-12:OAc (7:3) (1:1)	Sartwell, 1985 Stevens, 1985	C
<i>Cydia pomonella</i> L. codling moth <i>phe.</i>	E8,E10-12:OH *E8,E10-12:OH + *12:OH (3:1) + other components + *14:OH (10:5:1) E8,E10-12:OH	Roelofs, 1971(e) Beroza, 1974 McDonough, 1974 Buser, 1975 Einhorn, 1984(b); 1986 Arn, 1985 Bartell, 1988 McDonough, 1993; 1995	C
<i>Cydia populana</i> Busck <i>att.</i>	E8,E10-12:Ald E8,E10-12:OAc	Chisholm, 1985(a) Stevens, 1985	C
<i>Cydia pyrivora</i> Danil. <i>phe.</i>	E8,E10-12:OAc *E8,E10-12:OAc + other components	Priesner in Arn, 1986(a) Witzgall, 1996	C
<i>Cydia servillana</i> Dup. <i>att.</i>	E8,E10-12:OAc	Priesner in Arn, 1986(a) Witzgall, 1996	C
<i>Cydia splendana</i> Hübner chestnut codling moth <i>phe.</i>	E8,E10-12:OAc *E8,E10-12:OAc + E8,E10-12:Ald (9:1) + *E8,Z10-12:OAc (1:1) + other components	Rotundo, 1988 Frérot, 1995 Witzgall, 1996	C
<i>Cydia strobilella</i> L. spruce seed moth <ezomatsukasaga> <i>phe.</i>	Z8-12:OH E8-12:OAc	Booij, 1984(a) Grant, 1989	A

	*E8-12:OAc	Bédard, 2002	
	E8,E10-12:OAc + E8,Z10-12:OAc (1:1)	Witzgall, 1996	
	*E8,E10-12:OAc + *E8,Z10-12:OAc (3:2)	Wang, 2010	
<i>Cydia</i> (= <i>Grapholita</i>) <i>succedana</i> Denis & Shiffermüller <i>att.</i>	E8,E10-12:OAc + E8,Z10-12:OAc (1:1)	Hrdý, 1989 Witzgall, 1996	C
<i>Cydia toreuta</i> Grote eastern pine seed worm <i>phe.</i>	E8,Z10-12:OAc *E8,Z10-12:OAc	Chisholm, 1985(a) Katovich, 1989	C
<i>Cydia trasias</i> Meyrick <i>phe.</i>	*E8,E10-12:OAc + *E8,E10-12:OH + *E8,E10-12:Ald (10:9:1)	Fu, 2002	C
<i>Cydia turciana</i> e Chambon <i>att.</i>	E8,E10-12:OAc + E8,Z10-12:OAc (1:1)	Witzgall, 1996 Chambon in Arn, 1997	C
<i>Cydia youngana</i> Kearfott spruce coneworm <i>att.</i>	E7-12:OH	Weatherston, 1977	C
<i>Cydia zebeana</i> Ratzeburg <i>att.</i>	E8-12:OAc + E10-12:OAc (1:1) (9:1)	Booij, 1984(a) Booij, 1986	C
<i>Cydia</i> (= <i>Laspeyresia</i>) sp. <i>att.</i>	Z8-12:OAc	Roelofs, 1971(a)	
<i>Cymolomia</i> ^d <i>hartigiana</i> Saxesen <touhi-himehamaki> <i>att.</i>	Z10-12:OAc	Witzgall, 1996	A
<i>Dichrorampha</i> ^b <i>acuminatana</i> Lienig & Zeller <i>att.</i>	Z9,Δ11-12:OAc E9,Δ11-12:OAc + Z9,Δ11-12:OAc (4:1)	Chisholm, 1985(b) Rotundo, 1985(b) Ulenberg in Arn, 1997	C

<i>Dichrorampha gueneana</i> Obraztsov <kokiobiherihoshi-himehamaki> <i>att.</i>	Z9,Δ11-12:OAc + E9,Δ11-12:OAc (1:4)	Chisholm, 1985(b) Ulenberg in Arn, 1997	A
<i>Dichrorampha incursana</i> H.-S. <i>att.</i>	E9-12:OAc + Z9-12:OAc (11:9)	Hrdý, 1989	C
<i>Dichrorampha petiverella</i> L. <hosokiobiherihoshi-himehamaki> <i>att.</i>	E9-12:OAc + E11-14:OAc (10:1) Z11-14:Ald + E11-14:Ald (9:1) E11-14:OAc + E11-14:OH (10:1)	Priesner in Arn, 1986(a) Frerot, 1985 Mozūraitis, 1998	A
<i>Dichrorampha plumbana</i> Scopoli <i>att.</i>	E9-12:OAc + Z9-12:OAc (9:1)	Booij, 1984(a)	C
<i>Dichrorampha sedatana</i> (= <i>sedetana</i> ?) Busck <i>att.</i>	E8,E10-12:OAc	Stevens, 1985	C
<i>Dichrorampha simpliciana</i> Haworth <i>att.</i>	E9-12:OAc + E9,Δ11-12:OAc (19:1)	Brewer, 1985	C
<i>Dichrorampha simulana</i> Clemens <i>att.</i>	E9,Δ11-12:OAc + E9,Δ11-12:OH (10:1)	Chisholm, 1985(b)	C
<i>Dichrorampha</i> sp. <i>att.</i>	E9-12:OAc + E9-12:OH	Roelofs, 1971(a)	
<i>Ecdytolopha</i> ^b <i>aurantiana</i> citrus borer moth <i>phe.</i>	*E8-12:OAc + *E8-12:OH (100:1 - 10:1)	Leal, 2001 Ono, 2001	D
<i>Ecdytolopha insiticiana</i> Zeller <i>att.</i>	E8-12:OAc	Roelofs, 1971(a)	D
<i>Ecdytolopha torticornis</i> Meyrick macadamia nut borer <i>phe.</i>	*E8-12:OAc + other components	Chamberlain, 2003	D
<i>Enarmonia</i> ^a <i>formosana</i> Scopoli	Z9-12:OAc	Minks, 1976	C

cherry bark tortrix <i>phe.</i>	+ E9-12:OAc (1:1)	Toshova, 2017	
	Z8-12:OAc	Hrdý, 1979	
	*Z9-12:OAc + *E9-12:OAc (6:4–5:5) + other components	McNair, 1999	
	Z9-12:OAc + Z11-14:OAc + E11-14:OAc + 12:OAc + 14:OAc (5:3:2:3:1)	Olenici, 2007	
<i>Endopiza</i> ^d <i>att.</i> <i>caraduana</i> Busck	Z9-12:OAc	Dix, 1984	D
<i>Endothenia</i> ^d <i>att.</i> <i>benausopsis</i> Meyrick	Z10-14:OAc	Ando, 1977	A
<i>Endothenia ericetana</i> Humpr. & Westw. <i>att.</i>	Z10-14:OAc + E10-14:OAc (1:1)	Priesner in Arn, 1986(a)	C
	E10-14:OAc	Mozūraitis, 1998	
<i>Endothenia gentianaeana</i> Hübner <i>att.</i>	Z10-14:OAc	Frerot, 1985	A
<i>Endothenia nigricostana</i> Haworth <kuromadara-shinmushiga> <i>att.</i>	Z11-14:OAc + E11-14:OAc	Frerot, 1979(b)	A
<i>Endothenia quadrimaculana</i> Haworth <i>att.</i>	E10-14:OAc + Z10-14:OAc (3:1)	Booij, 1984(a)	C
	(9:1)	Capizzi in Arn, 1992	
<i>Endothenia ustulana</i> (= <i>carbonana</i>) Haworth <i>att.</i>	Z10-14:OAc	Arn, 1974	C
<i>Epiblema</i> ^a <i>att.</i> <i>confusana</i> H.-S.	E8,Z10-12:OAc + Z8,Z10-12:OAc (1:1)	Witzgall, 1996	C
<i>Epiblema desertana</i> Zeller	Z8-12:OAc	Roelofs, 1971(a)	C

<i>Epiblema foenella</i> L. <yomogi-nemushiga> <i>phe.</i>	Z8-12:OAc + E8-12:OAc (18:7) *Z8,Z10-12:OAc + E8,Z10-12:OAc (1:1) or + *E8,E10-12:OAc (1:1) + other components	Ando, 1977 Beauvais, 1977 Witzgall, 1996	A
<i>Epiblema fuchsiana</i> Rössl. <i>att.</i>	Z8,Z10-12:OAc	Witzgall, 1996	C
<i>Epiblema resumptana</i> Walker <i>att.</i>	Z9-12:OAc + E9-12:OAc (1:1)	Stevens, 1985	C
<i>Epiblema scudderiana</i> Clemens <i>att.</i>	Z8-12:OH	Roelofs, 1971(a)	C
<i>Epiblema scutulana</i> Denis & Schiffermüller <i>att.</i>	Z8-12:OAc Z8-12:OAc + E8-12:OAc + 12:OH (97:3:300)	Chambon, 1974 Sziráki, 1978(a) Hrdý, 1979 Tóth, 1992(d) Olenici, 2007	C
<i>Epiblema</i> sp. <i>att.</i>	E11-14:OAc	Daterman, 1977	
<i>Epinotia</i> ^a <i>aporema</i> Walsingham <i>phe.</i>	*Z7,Z9-12:OH + *Z7,Z9-12:OAc (15:1)	Altesor, 2009	C
<i>Epinotia</i> ^a <i>atistriga</i> (= <i>atistriga</i> ?) Clarke <i>att.</i>	Z7-12:OAc	Roelofs, 1971(a)	C
<i>Epinotia columbia</i> Kearfott <i>att.</i>	Z9-12:OAc + E9-12:OAc (1:1)	Stevens, 1985	C
<i>Epinotia criddleana</i> <i>att.</i>	E9-12:OAc	Reed, 1985(a)	C

<i>Epinotia leucantha</i> Meyrick <hanaudo-moguriga> <i>att.</i>	Z9-12:OH	Ando, 1981	A
<i>Epinotia miscana</i> Kearfott <i>att.</i>	E9-12:OAc	Stevens, 1985	C
<i>Epinotia nanana</i> Treitschke <i>att.</i>	E8-12:OAc + E10-12:OAc (1:1)	Booij, 1984(a)	C
<i>Epinotia rubiginosana</i> Herr. & Schaffer <matsunokuromadara- himehaamaki> <i>att.</i>	Z9-12:OAc + Z7-12:OAc (1:1) Z8-12:OAc + Z10-12:OAc (1:1)	Booij, 1984(a) Witzgall, 1996	A
<i>Epinotia silvertoniensis</i> Kearfott <i>att.</i>	Z7,Z9-12:OAc	Reed, 1985(a)	C
<i>Epinotia solicitana</i> <i>att.</i>	E8-12:OAc	Miller in Arn, 1992	C
<i>Epinotia tedella</i> Clerck European spruce budmoth <i>phe.</i>	E9-12:OAc + Z9-12:OAc (9:1) *Z7,Z9-12:OAc + another component	Booij, 1984(a) Priesner, 1989(b)	C
<i>Epinotia tenerana</i> Denis & Shiffermüller <hanno-memushiga> <i>att.</i>	E10,E12-14:OAc + Z10,Z12-14:OAc (1:1)	Witzgall, 1996	A
<i>Epinotia zandana</i> Kearfott <i>att.</i>	Z7-12:OAc	Roelofs, 1971(a)	C
<i>Epinotia</i> sp. 1 (<i>zandana</i> ?) <i>att.</i>	Z7,Z9-12:OAc	Reed, 1985(a)	
<i>Epinotia</i> sp. 2 (<i>removana</i> ?) <i>att.</i>	Z7,Z9-12:OAc or Z7,Z9-12:OH	Reed, 1985(a)	
<i>Epinotia</i> sp. 3 <i>att.</i>	E8,E10-12:OAc	Stevens, 1985	
<i>Episimus</i> ^d <i>argutanus</i> Clemens	Z9-12:OAc	Roelofs, 1971(a)	D

<i>att.</i>		Jurb, 1973	
	+ Z11-14:OAc (11:2)	Jordan, 2013	
<i>Eucosma</i> ^a <i>aemulana</i> Schläger <shirozusosomon-himehamaki> <i>att.</i>	E8,E10-12:OAc + Z8,Z10-12:OAc (1:1)	Rotundo, 1985(b) Witzgall, 1996	A
<i>Eucosma bobana</i> Kearfott <i>att.</i>	Z9-12:OAc	Stevens, 1985 Rotundo in Arn, 1992	C
<i>Eucosma campoliliana</i> Denis & Shiffermüller <nisemonshirosusomon- himehamaki> <i>att.</i>	E8,E10-12:OH Z8,E10-12:OAc	Fassotte in Arn, 1986(a) Olenici, 2007 Priesner in Arn, 1986(a)	A
<i>Eucosma cana</i> Haworth <azamisusomon- himehamaki> <i>att.</i>	Z8,E10-12:OAc E8,E10-12:OAc + Z8-12:OAc + E8-12:OAc + 12:OAc (44:30:10:18)	Priesner in Arn, 1986(a) Witzgall, 1996 Fassotte in Arn, 1992	A
<i>Eucosma conioграмма</i> Clarke <ohirugi-himeshinkui> <i>phe.</i>	*E9-12:OAc	Vang, 2005	A
<i>Eucosma delericta</i> Heinrich <i>att.</i>	E7,E9-12:OAc + Z7,E9-12:OAc (1:1)	Chisholm, 1985(a)	C
<i>Eucosma giganteana</i> Riley <i>att.</i>	E8-12:OAc	Ruiz, 2022	C
<i>Eucosma gloriola</i> Heinrich <i>att.</i>	Z9-12:OAc + E9-12:OAc (9:1) (10:3)	Grant, 1985 Grant, 2002	C
<i>Eucosma hohenwartiana</i> Denis & Shiffermüller <hosobaunmon-himehamaki>	E8,E10-12:OAc E8,Z10-12:OAc	Rotundo, 1985(b) Witzgall, 1996	A

att.	+ Z8,Z10-12:OAc (1:1)		
<i>Eucosma monitorana</i> Heinrich att.	Z9-12:OAc + E9-12:OAc + Z9-12:OH (20:1:3)	Grant, 2002	C
<i>Eucosma nigromaculana</i> (= <i>campoliliana</i> ?) att.	E8,E10-12:OH	Chambon, 1974	C
<i>Eucosma notanthes</i> Meyrick carambola fruit borer phe.	Z8-12:OAc *Z8-12:OAc + *Z8-12:OH (1:1)	Hwang, 1996(a) Hung, 2001	C
<i>Eucosma ponderosa</i> Powell att.	Z9-12:OAc	Stevens, 1985	C
<i>Eucosma recissoriana</i> (complex) att.	Z9-12:OAc	Stevens, 1985	C
<i>Eucosma sonomana</i> Kearfott Western pine shoot borer att.	Z9-12:OAc + E9-12:OAc (2:1)	Sower, 1979	C
<i>Eucosma tocullionana</i> Heinrich att.	Z9-12:OAc + E9-12:OAc (2:1)	Grant, 2002	C
<i>Eucosma womonana</i> Kearfott phe.	*Z7-12:OAc + *Z7,Z9-12:OAc + *Z7,E9-12:OAc + *Z5-12:OAc + *12:OAc (10:4:1:1:4) + other components	Underhill, 1987(b)	C
<i>Eucosmomorpha</i> ^a <i>albersana</i> Hübner att.	E9-12:OAc + Z9-12:OAc (9:1)	Booij, 1984(a)	C
<i>Eudemis</i> ^d <i>porphyra</i> Hübner att.	Z10-14:OAc + E10-14:OAc (10:1)	Mozūraitis, 1998	C
<i>Exartema</i> ^d (= <i>Olethreutes</i>) <i>appendiceum</i> Zeller att.	E9-14:OAc	Steck, 1977(a)	C

<i>Exartema fusticanum</i> McDunnough att.	Z7-12:OH	Weatherston, 1974(a)	C
<i>Grapholita</i> ^b <i>caeruleana</i> Walsingham att.	E8,E10-12:OAc	Stevens, 1985	C
<i>Grapholita compositella</i> F. att.	E8,E10-12:OAc	Witzgall, 1996	C
<i>Grapholita conversana</i> Walsingham att.	E8,E10-12:OAc	Stevens, 1985	C
<i>Grapholita dimorpha</i> Komai <sumomohime-shinkui> <bokehime-shinkui> phe.	Z8-12:OAc + E8-12:OAc (4:1–2:3) *Z8-12:OAc + *E8-12:OAc (17:3) + other components	Mochizuki, 2003 Murakami, 2005	A
<i>Grapholita endrosias</i> Meyrick <seshimofuri-himehamaki> att.	E7-12:OAc	Ando, 1981	A
<i>Grapholita funebrana</i> Treitschke plum fruit moth phe.	Z8-12:OAc Z10-12:OAc + codling moth Z8-12:OAc + E8-12:OAc (25:1) + E10-12:OAc (1:1) *Z8-12:OAc + *E8-12:OAc (10:1) + other components	Granges, 1971 Arn, 1974 Arn, 1976(a) Biwer, 1978(b) Witzgall, 1996 Guerin, 1986(b)	B
<i>Grapholita</i> (= <i>Cydia</i>) <i>gemmiferana</i> Treischke att.	E8,E10-12:OAc	Hrdý, 1989 Tóth, 1992(d) Witzgall, 1996	C
<i>Grapholita inopinata</i> Heinrich <ringoko-shinkui> phe.	Z8-12:OAc *Z8-12:OAc + other components	Ando, 1977 Tanaka, 2007	A

<i>Grapholita janthinana</i> Duponchel att.		Z8-12:OAc + E8-12:OAc (7:3–8:2) (1:1)	Beauvais, 1977 Biwer, 1978(b) Witzgall, 1996	C
<i>Grapholita</i> (= <i>Cydia</i>) <i>jungiella</i> Clerck att.		E8,Z10-12:OAc + Z8,E10-12:OAc (1:1)	Priesner in Arn, 1986(a) Wang, 2010 Witzgall, 1996	C
<i>Grapholita libertina</i> Heinrich att.		E8-12:OAc + Z8-12:OAc + Z8-12:OH (17:2:1)	Hillier, 2002	C
<i>Grapholita lobarzewskii</i> phe.		E8-12:OAc + Z8-12:OAc (9:1) *E8-12:OAc + *Z8-12:OAc (9:1) + other components	Biwer, 1978(b) Witzgall, 1989(b)	C
<i>Grapholita lunatana</i> Walsingham att.		E8,E10-12:OAc	Chisholm, 1985(a)	C
<i>Grapholita molesta</i> Busck Oriental fruit moth <nashihime-shinkui> phe.	U.S.A. Australia U.S.A. U.S.A. U.S.A. France France U.S.A. Korea U.S.A.	*Z8-12:OAc + *E8-12:OAc [25:1] + 12:OH (98:2:1000) + 12:OH (93:7:100) + Z8-12:OH (311:22:1) (9:1) + *Z8-12:OH [46:4:1] (50:3:50) (95:5:1) + *12:OH [100:7:30:6] F ₂ -7,7-Z8-12:OAc	Roelofs, 1969(a) Lacey, 1992 Beroza, 1973(c) Cardé, 1975(b) Cardé, 1975(c) Biwer, 1978(b) Biwer, 1979 Linn, 1983 Han, 2001 Cardé, 1979 Masnyk, 1989	A

<i>Grapholita packardii</i> Zeller cherry fruitworm <i>att.</i>	E8-12:OAc	Roelofs, 1970(a)	C
<i>Grapholita prunivora</i> Walsingham lesser appleworm <i>att.</i>	Z8-12:OAc + E8-12:OAc (49:1) (40:1)	Roelofs, 1970(a) Roelofs, 1974(a) Chisholm, 1985(a)	C
<i>Grapholita tenebrosana</i> Duponchel <ibara-himeshinkui> <i>att.</i>	Z8-12:OAc E8,E10-12:OAc + E8-12:OAc + Z8-12:OH (85.5:5.5:9) Z8-12:OAc + E8-12:OAc + 12:OH (97:3:300)	Chambon, 1974 Alford, 1978 Hrdý, 1979 Peltotalo, 1986 Mizukoshi, 2006 Olenici, 2007	A
<i>Grapholita</i> sp. 1 <i>att.</i>	Z8-12:OAc	Ando, 1981	A
<i>Grapholita</i> sp. 2 <i>att.</i>	E8,E10-12:Ald + E8,E10-12:OAc (10:1)	Chisholm, 1985(a)	
<i>Grapholita</i> sp. 3 <i>att.</i>	E8-12:OAc	Chisholm, 1985(a)	
<i>Gravitarmata</i> ^a <i>margarotana</i> Heinemann <matsutobi-himehamaki> <i>phe.</i>	*Z9-12:OAc + *E9-12:OAc + *12:OAc (5:1:3) + other components	Löfstedt in Arn, 1992	A
<i>Gretchena</i> ^a <i>bolliana</i> Slingerland pecan bud moth <i>att.</i>	Z8-12:OAc + E8-12:OAc + 12:OH (100:7:1000)	Gentry, 1975	D
<i>Gretchena semialba</i> McD. <i>att.</i>	E11-14:Ald + Z11-14:Ald (19:1)	Sanders, 1993	D

<i>Griselda</i> ^a <i>myrtillana</i> Hump. & Westw. <i>att.</i>	Z11-14:OH	Booij, 1984(a)	C
<i>Gymnandrosoma</i> ^b <i>aurantianum</i> Lima macadamia nut borer <i>phe.</i>	*E8-12:OAc + other components	Aranda-Arguello, 2022	C
<i>Gypsonoma</i> ^a <i>aceriana</i> Duponchel poplar shoot-borer <i>att.</i>	E10-12:OAc + E10-12:OH (3:1) (7:3)	Booij, 1984(a) Booij, 1984(d)	C
<i>Gypsonoma dealbana</i> Frölich <i>att.</i>	Z11-14:OAc + E11-14:OAc (3:2) (1:10) E11-14:OAc E10-12:OAc + E8-12:OAc (1:1)	Frerot, 1982(a) Mozūraitis, 1998 Möttus in Arn, 1992 Booij, 1984(a) Witzgall, 1996	C
<i>Gypsonoma minutana</i> Hübner <popura-himehamaki> <i>att.</i>	Z11-14:OAc + E11-14:OAc + 12:OAc (9:1:10) E10-14:OAc + Z11-14:OAc (10:1)	Safonkin, 1988 Mozūraitis, 1998	A
<i>Gypsonoma sociana</i> Haworth <i>att.</i>	E10-12:OAc E9-12:OAc + Z9-12:OAc (9:1)	Booij, 1984(a) Safonkin, 1988	C
<i>Hedya</i> ^d (= <i>Aphania</i>) <i>auricristana</i> Walsingham <gumioosutsuma-himehamaki> <i>att.</i>	Z9-14:OAc + Z11-14:OAc (9:1–7:3)	Ando, 1975 Nagano, 1979	A
<i>Hedya chionosema</i> Zeller <i>att.</i>	E8-12:OAc + E8-12:OH	Roelofs, 1971(a)	C

	E8,E10-12:OAc + Z8-12:OAc + E8-12:OAc (100:35:3)	Roelofs, 1982(a)	
<i>Hedya dimidiana</i> Clerck <shiromon-himehamaki> <i>att.</i>	E8,E10-12:OAc + E8-12:OAc (10:1) + Z8,Z10-12:OAc (1:1) Z8-12:OAc + E8-12:OAc + 12:OH (97:3:300)	Ando, 1987 Priesner in Arn, 1992 Witzgall, 1996 Olenici, 2007	A
<i>Hedya dimidioalba</i> Retz. <i>att.</i>	E8,E10-12:OAc + Z8,E10-12:OAc (1:1)	Witzgall, 1996	C
<i>Hedya nubiferana</i> Haworth green budworm moth <i>phe.</i>	E8,E10-12:OH *E8,E10-12:OAc + *Z8-12:OAc + *12:OAc (48:32:100) + *E8-12:OAc (55:32:9:5) + Z8-12:OAc (2:1)	Arn, 1974 Chambon, 1974 Frerot, 1979(a) Roelofs, 1982(a) Rotundo, 1988	C
<i>Hedya ochroleucana</i> Frölich <shibechatsumajiro- himehamaki> <i>att.</i>	Z8,E10-12:OAc + Z8,Z10-12:OAc (10:1)	Frerot, 1979(a) Chisholm, 1985(a)	A
<i>Hedya pruniana</i> Hübner <i>att.</i>	Z8,E10-12:OAc	Witzgall, 1996	C
<i>Hedya salicella</i> L. <i>att.</i>	E8,E10-12:OH	Olenici, 2007	A
<i>Hedya separatana</i> Kearfott <i>att.</i>	Z10-12:OAc	Reed, 1985(b)	C
<i>Latronympha</i> ^b <i>strigana</i> F. <i>att.</i>	Z8,Z10-12:OAc	Witzgall, 1996	C

<i>Leguminivora</i> ^b <i>glycinivorella</i> Matsumura soybean pod borer <mame-shinkuiga> phe. in China	*E8,E10-12:OAc + other components	Vang, 2006	A
	E8,E10-12:OAc + E10-12:OAc (10:1) or + E10-12:Ald (1:1)	Hu, 2012	
<i>Lobesia</i> ^d <i>aeolopa</i> Meyrick <hosobachibi-himehamaki> att.	Z7-10:OAc	Ando, 1975	A
<i>Lobesia bicinctana</i> (= <i>bicincta</i> ?) Dup. phe.	*Z9-12:OAc + another component	Frérot, 1990(b)	C
<i>Lobesia botrana</i> Denis & Shiffermüller European grapevine moth phe.	*E7,Z9-12:OAc + Z9-12:OAc + E9-12:OAc + 12:OAc + *E7,Z9-12:OH + *Z9-12:OAc (100:20:5–100:5:1) + other components ≡7,Z9-12:OAc + *E7-12:OAc + *E7,E9,Δ11-12:OAc + *Z7,E9,Δ11-12:OAc N	Roelofs, 1973 Buser, 1974; 1975 Guerin in Arn, 1992 Arn, 1988 El-Sayed, 1999 Brückner, 1988 Witzgall, 2005	C
<i>Lobesia</i> sp. att.	Z9-12:OH	Ando, 1977	A
<i>Matsumuraeses</i> ^b <i>falcana</i> Walsingham podborer <nisemamesaya- himehamaki> phe.	*E8,E10-12:OAc + *E8-12:OAc (15:17) + other components + *E7,Z9-12:OAc (1:1:1)	Wakamura, 1985 Wakamura, 1986(b)	A
<i>Matsumuraeses ussuriensis</i> Caradja <niseazukisaya- himehamaki>	E8-12:OAc	Ando, 1981	A

att.				
<i>Metendothenia</i> ^d <i>atropunctana</i> Zetterstedt <kurotentumaki- himehamaki> att.	Z10-12:OAc + E10-12:OAc (1:1)	Booij, 1984(a) Voerman in Arn, 1986(a) Rotundo, 1985(b)	A	
<i>Microcorses</i> ^c sp. att.	Z7-12:OAc + Z9-14:OAc (1:1)	Ando, 1981	A	
<i>Notocelia</i> ^a <i>incarnatana</i> Hübner att.	E10,E12-14:OAc + E10,Z12-14:OAc (1:1)	Witzgall, 1996	C	
<i>Notocelia purpurissatana</i> Heinrich att.	Z10,Z12-14:OAc or Z10,Z12-14:OH	Reed, 1985(b)	C	
<i>Notocelia roborana</i> Denis & Shiffermüller phe.	*Z10-14:OAc + *Z8,Z10-12:OAc [19:5] + other components N	Witzgall, 1996	C	
<i>Notocelia rosaecolana</i> Doubleday <barashiro-himehamaki> att.	E8,E10-12:OAc E8,Z10-12:OAc + Z8,E10-12:OAc (1:1) Z8-12:OAc + E8-12:OAc	Booij, 1984(a) Witzgall, 1996 Hrudová, 2003	A	
<i>Notocelia trimaculana</i> Haworth att.	Z10,Z12-14:OAc	Witzgall, 1996	C	
<i>Notocelia uddmanniana</i> L. phe.	Z10,E12-14:OAc *Z10,Z12-14:OAc + other components	Priesner in Arn, 1986(a) Witzgall, 1991(b)	C	
<i>Olethreutes</i> ^d <i>bifasciana</i> Haworth att.	E10-14:OAc + Z10-14:OAc (3:1)	Booij, 1986	C	
<i>Olethreutes bipunctana</i> F. <shiromadara-himehamaki> att.	Z8-14:OAc + Z10-14:OAc (1:1)	Booij, 1986	B	

<i>Olethreutes decrepitana</i> <i>att.</i>	E10-14:OAc + Z10-14:OAc (3:1)	Voerman in Arn, 1986(a)	C
<i>Olethreutes humeralis</i> Walsingham <kiobikimadara-himehamaki> <i>att.</i>	Z8-12:OAc + Z8-12:OH (1:1)	Ando, 1981	A
<i>Olethreutes siderana</i> Treitchke <ginboshimotoki-himehamaki> <i>att.</i>	Z8-12:OAc	Booij, 1984(a)	A
<i>Pammene</i> ^b <i>albuginana</i> Guenée <i>att.</i>	Z8-12:OAc	Chambon, 1974 Sziráki, 1978(a); (b) Witzgall, 1996	C
<i>Pammene amygdalana</i> Duponchel <i>att.</i>	E8-12:OAc + Z8-12:OAc (9:1)	Biwer, 1978(b)	C
<i>Pammene argyrana</i> Hübner <i>att.</i>	Z8-12:OAc	Chambon, 1974 Sziráki, 1978(b) Witzgall, 1996	C
	+ E8-12:OAc (18:7)	Beauvais, 1977	
<i>Pammene</i> (= <i>Cydia</i>) <i>aurana</i> F. <i>att.</i>	Z8-12:OAc	Alford, 1978 Hrdý, 1979	C
	Z9-12:OAc	Voerman in Arn, 1992	
	Z8-12:OAc + Z10-12:OAc (1:1)	Witzgall, 1996	
<i>Pammene aurita</i> (= <i>aurantiana</i>) Staudinger <i>att.</i>	Z8-12:OAc	Sziráki, 1978(a)	C
	+ E8,E10-12:OAc (100:3)	Priesner in Arn, 1986(a)	
	+ E8-12:OAc (1:1)	Witzgall, 1996	
<i>Pammene fasciana</i> L. <i>att.</i>	Z8-12:OAc	Chambon, 1974 Sziráki, 1978(b) Rotundo, 1984	C
	+ Z8-12:OH + 12:OAc (15:5:8)	Rotundo, 1991	

<i>Pammene</i> (= <i>Cydia</i>) <i>gallicana</i> Guenée <i>att.</i>	Z8-12:OAc + E8-12:OAc (1:1)	Sziráki, 1978(a) Witzgall, 1996	C
<i>Pammene gallicolana</i> Lienig & Zeller <i>att.</i>	Z8-12:OAc	Sziráki, 1978(a); (b)	C
<i>Pammene giganteana</i> (= <i>inquilina</i>) Fletcher <i>att.</i>	Z8-12:OAc	Chambon, 1974	C
<i>Pammene insulana</i> Guenée <i>att.</i>	Z8-12:OAc	Sziráki, 1978(a)	C
<i>Pammene juniperana</i> <i>att.</i>	Z8-12:OAc + E8-12:OAc + Z8-12:OH + 12:OH	Mariani in Arn, 1986(a)	C
<i>Pammene nemorosa</i> Kuznetzov <nemorousa-himehamaki> <i>att.</i>	Z8-12:OAc	Ando, 1975	A
<i>Pammene obscurana</i> Stephens <usuguro-himehamaki> <i>att.</i>	Z8-12:OAc + Z8-12:OH (1:1)	Booij, 1984(a)	A
<i>Pammene populana</i> F. <i>att.</i>	Z8-12:OH	Booij, 1984(a)	C
<i>Pammene querceti</i> Gozmany <i>att.</i>	Z8-12:OAc	Sziráki, 1978(a); (b)	C
<i>Pammene regiana</i> Z. <i>att.</i>	Z8-12:OAc	Witzgall, 1996	C
<i>Pammene rhediella</i> Clerck <i>att.</i>	E8,E10-12:OH Z8,E10-12:OH	Brakefield in Arn, 1986(a) Guerin, 1983	C
<i>Pammene spiniana</i> Duponchel <i>att.</i>	Z8-12:OAc + E10-12:OAc (1:1)	Sziráki, 1978(a) Witzgall, 1996	C

<i>Pammene splendidulana</i> Guenée att.	Z8-12:OAc	Sziráki, 1978(a)	C
<i>Pammene suspectana</i> Lienig & Zeller att.	Z8-12:OAc Z9-12:OAc + Z11-14:OAc + E11-14:OAc + 12:OAc + 14:OAc (5:3:2:3:1)	Sziráki, 1978(a) Olenici, 2007	C
<i>Pammene</i> sp. att.	Z8-12:OAc	Ando, 1977	A
<i>Paralobesia</i> ^d (= <i>Endopiza</i>) viteana Clemens grape berry moth phe.	*Z9-12:OAc + *Z11-14:OAc (20:1) + other components Z9-12:OAc + E9-12:OAc (24:1)	Roelofs, 1971(c) Witzgall, 2000 Taschenberg, 1974	D
<i>Pelochrista</i> ^a scintillana randana Kearfott att.	E8,E10-12:OAc + Z8-12:OAc + E8-12:OAc (2:40:1)	Chisholm, 1985(a)	C
<i>Petrova</i> ^a albicapitana Busck att.	Z7,E9-12:OAc	Wong, 1985(a)	C
<i>Petrova burkeana</i> Kearfott att.	E8,E10-12:OAc	Chisholm, 1985(a)	C
<i>Petrova luculentana</i> Heinrich att.	Z7-12:OH + Z7-12:OAc + E9-12:OAc	Dix in Arn, 1986(a)	C
<i>Petrova</i> (= <i>Retinia</i>) <i>metallica</i> Busck metallic pitch nodule moth phe.	Z7-12:OH + Z7-12:OAc E9-12:OAc Z7,E9-12:OAc *Z7,E9-12:OAc + other components	Dix in Arn, 1986(a) Stevens, 1985 Wong, 1985(a) Dix, 1988	C

<i>Petrova piciolana</i> Dyar <i>att.</i>	Z9-12:OAc + E9-12:OAc (1:1)	Stevens, 1985	C
<i>Petrova</i> (= <i>Retinia</i>) <i>resinella</i> L. <i>att.</i>	Z9-12:OAc + E9-12:OAc (1:1)	Booij, 1984(a) Toshova, 2017	C
	Z9-12:OAc + Z11-14:OAc + E11-14:OAc + 12:OAc + 14:OAc (5:3:2:3:1)	Olenici, 2007	
<i>Phaneta</i> ^a <i>alterana</i> Heinrich <i>att.</i>	E8,E10-12:OAc + E10-12:OAc (10:1)	Reed, 1985(b)	C
<i>Phaneta columbiana</i> Walsingham <i>att.</i>	E8,E10-12:OAc	Stevens, 1985	C
<i>Phaneta latens</i> Heinrich <i>att.</i>	E8,E10-12:OH	Hathaway, 1981	C
<i>Phaneta ochroterminana</i> Kearfott <i>att.</i>	Z8,Z10-12:OAc + E8,E10-12:OAc (10:1)	Chisholm, 1985(b)	C
<i>Phaneta roseoterminalana</i> Kearfott <i>att.</i>	Z8,Z10-12:OH	Chisholm, 1985(b)	C
<i>Proschistis</i> ^d <i>marmaropa</i> Meyrick <hirobakuro-himehamaki> <i>att.</i>	Z8,Z10-12:OH	Ando, 1987	A
<i>Proteoteras</i> ^a <i>crescentana</i> Kearfott <i>phe.</i>	*Z8-12:OAc + *Z8-12:OH (4:1)	Underhill in Roelofs, 1982(a)	D
<i>Proteoteras willingana</i> Kearfott <i>phe.</i>	*Z8-12:OH + *Z8-12:OAc (9:1)	Underhill in Roelofs, 1982(a)	D
<i>Pseudexentera</i> ^a <i>mali</i> Freeman pale apple budworm <i>phe.</i>	*Z8,Z10-16:OAc Z8,Z10-16:OAc	Hill in Roelofs, 1982(a) Grant, 1991	D

<i>Pseudexentera maracana</i> Kearfott att.	Z8-12:OAc	Roelofs, 1971(a)	D
<i>Pseudexentera oregonana</i> Walsingham aspen leafroller phe.	*Z8-14:OAc + other components	Grant, 1991	D
<i>Pseudexentera spoliata</i> Clemens oak olethreutid leafroller phe.	Z8-14:OAc *Z10-16:OAc + other components	Hill in Roelofs, 1982(a) Grant, 1991	D
<i>Pseudohermenias</i> ^d <i>clausthaliana</i> Saxesen <aminemon-himehamaki> att.	Z8-14:OAc + Z10-14:OAc (1:1)	Voerman in Arn, 1986(a) Booij, 1986	A
<i>Pseudosciaphila</i> ^d <i>brandneriana</i> L. <doro-himehamaki> att.	Z8,E10-12:OAc	Witzgall, 1996	A
<i>Pseudosciaphila duplex</i> Walsingham att.	Z8,E10-12:OAc + Z8,E10-12:Ald (1:1)	Chisholm, 1985(a)	C
<i>Retinia</i> ^a <i>perangustana</i> Snellen att.	Z8-12:OAc + E8-12:OAc + 12:OH (93:7:300)	Olenici, 2007	C
<i>Rhadinocolops</i> ^a <i>koenigianus</i> F. <sendan-himehamaki> att.	E8,E10-12:OAc	Vang, 2005	A
<i>Rhopobota</i> ^a <i>naevana</i> Hübner blackheaded fireworm <kuronehaiiro-himehamaki> phe.	Z9-12:OAc E8,E10-12:OH *Z11-14:OAc + *Z11-14:OH + Z9-12:OAc (9:3:1) (0:49:1)	Ando, 1977 Guerin in Arn, 1986(a) Slessor, 1987 McDonough, 1987	A

	(69:23:8)	Fitzpatrick, 1992	
<i>Rhopobota ustomaculana</i> Curtis <seshiro-himehamaki> <i>att.</i>	Z9-12:OH	Booij, 1984(a)	A
<i>Rhyacionia</i> ^a <i>adana</i> Heinrich <i>att.</i>	E9-12:OAc + E9-12:OH (9:1)	Grant, 1985	C
<i>Rhyacionia buoliana</i> Denis & Schiffmüller European pine shoot moth <i>phe.</i>	*E9-12:OAc + *E9-12:OH (10:1)	Smith, 1974 Gray, 1984(b)	C
<i>Rhyacionia busckana</i> Heinrich <i>att.</i>	E8,E10-12:OAc E9-12:OAc + E9-12:OH (9:1)	Stevens, 1980 Grant, 1985	C
<i>Rhyacionia bushnelli</i> Busck <i>att.</i>	Δ9-10:OAc or Z9-12:OAc	Dix, 1984	C
<i>Rhyacionia duplana</i> Hübner <i>att.</i>	E9-12:OAc	Tóth in Arn, 1986(a)	B
<i>Rhyacionia duplana</i> <i>simulata</i> Heinrich <matsutsumaaka-shinmushi> <i>att.</i>	Z8,E10-12:OAc	Ando, 1987	A
<i>Rhyacionia frustrana</i> Comstock nantucket pine tip moth <i>phe.</i>	*E9-12:OAc + *E9,Δ11-12:OAc (24:1) + other components [17:1 – 23:1]	Hill, 1981(a) Asaro, 2001	C
<i>Rhyacionia fumosana</i> Powell <i>att.</i>	E8,E10-12:OAc	Stevens, 1980	C
<i>Rhyacionia granti</i> Miller <i>att.</i>	E8,E10-12:OAc	Grant, 1985	C
<i>Rhyacionia jenningsi</i> <i>att.</i>	E9-12:OAc + Z9-12:OAc (1:1)	Stevens, 1980	C
<i>Rhyacionia monophylliana</i> Kearfott	E9-12:OAc	Stevens, 1980	C

<i>Rhyacionia multilineata</i> att.	E9-12:OAc	Stevens, 1980	C
<i>Rhyacionia neomexicana</i> Dyar southwestern pine tip moth phe.	E9-12:OAc + Z9-12:OAc (1:1) *E9-12:OAc + *Z9-12:OAc (4:1) + other components	Jacobson, 1978 Stevens, 1980 Niwa, 1992	C
<i>Rhyacionia rigidana</i> Fernald pitch pine tip moth phe.	*E8,E10-12:OAc	Hill, 1976	C
<i>Rhyacionia salmonicolor</i> Powell att.	Z9-12:OAc	Stevens, 1980	C
<i>Rhyacionia subtropica</i> Miller subtropical pine tip moth phe.	*E9-12:OAc	Roelofs, 1979	C
<i>Rhyacionia zozana</i> Kearfott phe.	E9-12:OAc + Z9-12:OAc (1:1) *E9-12:OAc + *E9-12:OH (19:1–14:6)	Sower, 1979 Stevens, 1980 Niwa, 1987	C
<i>Serda</i> ^b <i>tautana</i> Clemens att.	E8,E10-12:OAc	Stevens, 1985	C
<i>Spilonota</i> ^a <i>laricana</i> Hein. phe.	Z8-14:OAc E *Z8-14:OAc + *Z8-14:OH (10:1–1:1) + another component	Priesner in Arn, 1986(a) Witzgall, 1991(a)	B
<i>Spilonota ocellana</i> Denis & Shiffermüller eyespot bud moth <ringoshiro-himehamaki>	Z8-14:OAc *Z8-14:OAc	Arn, 1974 Arn, 1975	A

phe.	Z8-12:OAc + E8-12:OAc (9:1)	Minks in Arn, 1986(a)	
	*Z8-14:OAc + *Z8-14:OH (10:1–1:1) + another component	Witzgall, 1991(a)	
	(99:1–95:5)	McBrien, 1992; 1994	
<i>Statherotis</i> ^d <i>discana</i> Felder & Rogenhofer <reishi-himehamaki> phe.	*E8-14:OAc + *E8-12:OAc (4:1)	Wakamura, 1997	A
<i>Strepsicrates</i> ^a <i>semicanella</i> Walker <banjiroutsunoeguri- himehamaki> phe.	*Z7-12:OAc + *Z7-12:OH (9:1)	Wakamura, 2005(b)	A
<i>Strophedra</i> ^b <i>nitidana</i> F. <kashiwaginobi- himehamaki> att.	E8-12:OH or E8-12:OAc	Ando, 1977	A
<i>Strophedra quercivora</i> Meyrick (= <i>S. sp. 2</i>) att.	E8-12:OAc	Ando, 1977 Komai, 1999	A
<i>Strophedra weirana</i> F. att.	E8-12:OAc + E8-12:OH (1:1)	Booij, 1984(a)	C
	E8-12:OAc	Witzgall, 1996	
<i>Strophedra sp. 1</i> att.	E8-12:OH	Ando, 1977	A
<i>Tetramoera</i> ^a <i>schistaceana</i> Snellen sugarcane shoot borer <kanshanoshinkui-hamaki> phe.	*Z9-12:OAc + *E9,Δ11-12:OAc + E7,Δ9-10:OAc (100:10:1)	Kinjo, 1996	A
<i>Thaumatotibia</i> ^b (= <i>Cryptophlebia</i>) <i>batrachopa</i> Meyrick phe.	*Z8-12:OAc	Hall, 1984 La Croix, 1985	C

<i>Thaumatotibia</i> (= <i>Cryptophlebia</i>) <i>leucotreta</i> Meyrick false codling moth phe.	*E7-12:OAc	Read, 1974	C
	*Z8-12:OAc	Persoons, 1976(c); 1977	
	+ E8-12:OAc (1:1)	Bourdouxhe, 1982	
	+ *E8-12:OAc (3:7–7:3)	Hall, 1984 La Croix, 1985	
	(1:8)	Newton, 1993	
	+ *12:OAc	Zagatti, 1983(a)	
	+ other components	Attygalle, 1986 Bestmann, 1988(b)	
<i>Thiodia</i> ^a att. <i>alterana</i> Heinrich	E10-12:OAc	Roelofs, 1974(b)	C
<i>Thiodia</i> sp. att.	E8,E10-12:OH	Roelofs, 1974(b)	
<i>Zeiraphera</i> ^a <i>canadensis</i> Mutuura & Freeman spruce budmoth phe.	E9-14:OAc	Turgeon, 1988	C
	*E9-14:OAc + another component	Silk, 1989	
<i>Zeiraphera</i> <i>diniana</i> Guenée grey larch bud moth phe. (cembran pine-race) (larch-race) (cembran pine-race) (spruce-race) (= <i>griseana</i> Hübner ?) <haiiroamime-himehamaki> att.	E11-14:OAc	Roelofs, 1971(d)	B
	E9-12:OAc	Baltensweiler, 1978	
	*E11-14:OAc + other components	Guerin, 1984 Baltensweiler, 1988	
	*E9-12:OAc	Guerin, 1984 Baltensweiler, 1988	
	E9-12:OAc	Vrkoc in Arn, 1992	
	E11-14:OAc or E9-12:OAc	Liska, 1990	A

<i>Zeiraphera isertana</i> F. att.	Z9-14:OAc + Z11-14:OAc (9:1)	Hrdý, 1989	C
<i>Zeiraphera unfortunana</i> Powell purplestriped shootworm phe.	*E9-12:OAc	Silk, 1988(a)	C

(*Tortricidae*; *Chlidanotinae*) ハマキガ科 ; マダラハマキガ亜科

<i>Isotrias hybridana</i> Hübner att.	Z9-14:OAc + Z11-16:OAc (1:1)	Szöcs, 1981; 1983	D
<i>Isotrias rectifasciana</i> Haworth att.	Z9-14:OAc + Z11-16:OAc (1:1)	Priesner, 1984(c)	D
<i>Olindia schumacherana</i> L. att.	Z11-16:OAc	Priesner, 1984(c)	D

(15) [*Galacticoidea*] ネムスガ上科

no species

(16) [*Choreutoidea*] ハマキモドキガ上科
(*Choreutidae*) ハマキモドキガ科

<i>Homadaula anisocentra</i> Meyrick mimosa webworm <nemusuga> phe.	E11-14:OAc + E11-14:OH (1:1) *E11-14:OAc + other components	Song, 1978 Kuenen, 1990	A
<i>Prochoreutis myllerana</i> F. <shiroheri-hamakimodoki> att.	E2,Z13-18:OH	Karalius, 2005	A
<i>Prochoreutis sehestediana</i> F. <atoshirosuji-hamakimodoki> att.	E3,Z13-18:OAc + E2,Z13-18:OH (1:1) E2,Z13-18:OH + E2,Z13-18:Ald + Z3,Z13-18:OH (1:1:1)	Bûda, 1993 Karalius, 2005	A

<i>Prochoreutis ultimana</i> Krulikovsky <ginsuji-hamakimodoki> att.	E2,Z13-18:OH	Karalius, 2005	A
--	--------------	----------------	---

(17) [[Schreckenseinoidea](#)] ホソマイコガ上科
 ([Schreckensteiniidae](#)) ホソマイコガ科

<i>Schreckensteinia festaliella</i> Hübner <tatejima-hosomaikoga> att.	E10,E12-16:Ald	Priesner in Arn, 1986(a)	A
--	----------------	-----------------------------	---

(18) [[Epermeinoidea](#)] ササベリガ上科

no species

(19) [[Alucitoidea](#)] ニジュウトリバガ上科

no species

(20) [[Pterophoroidea](#)] トリバガ上科
 ([Pterophoridae](#)) トリバガ科

<i>Amblyptilia acantodactyla</i> Hübner (= <i>Amblyptilia acanthadactyla</i> ?) att.	Z11-16:OAc	Subchev, 1981	D
--	------------	---------------	---

<i>Buckleria</i> (= <i>Trichoptilus</i>) <i>wahlbergi</i> Zeller <kinbanechibi-toriba> att.	Z7-12:Ald + Z7-12:OH (9:1)	Ando, 1981	A
---	----------------------------------	------------	---

<i>Emmelina</i> (= <i>Pterophorus</i>) <i>jezonica</i> Matsumura <hirugao-toriba> att.	Z9-12:Ald	Ando, 1981	A
--	-----------	------------	---

<i>Emmelina monodactyla</i> att.	Z9-12:Ald + Z9-12:OH (20:1)	Tóth, 1992(d)	C
---	-----------------------------------	---------------	---

<i>Merrifieldia leucodactyla</i>	E11-14:Ald	Ostrauskas, 2010(a)	D
----------------------------------	------------	---------------------	---

att. Denis & Schiffermüller	+ Z11-14:Ald (20:1)		
<i>Nippoptilia issikii</i> Yano <isshikibudou-toriba> att.	Z7-12:OAc	Ando, 1975	A
<i>Nippoptilia vitis</i> Sasaki <budou-toriba> att.	Z7-12:OAc	Ando, 1977	A
<i>Ochyrotica concursa</i> Walsingham <satsumaimo-toriba> att.	Z9-12:OAc + E9,Δ11-12:OAc + E7,Δ9-10:OAc (100:10:1)	Kinjo, 1996	A
<i>Oidaematophorus guttatus</i> Walsingham att.	E11-14:Ald	Daterman, 1977	C
<i>Oidaematophorus homodactylus</i> Walker att.	E11-14:Ald	Daterman, 1977	C
<i>Oidaematophorus mathewianus</i> Zeller att.	E11-14:OAc	Daterman, 1977	C
<i>Oidaematophorus monodactylus</i> L. att.	Z9-12:Ald	Kamm, 1979(a)	C
<i>Oidaematophorus</i> sp. 1 att.	E11-14:Ald	Daterman, 1977	
<i>Oidaematophorus</i> sp. 2 (<i>O. cretidactylus</i> Fitch or <i>O. rileyi</i> Fern. ?) att.	E11-14:OAc	Daterman, 1977	
<i>Oxyptilus tristis</i> Zeller att.	Z7-12:OAc + Z7-12:OH (1:1)	Tóth, 1992(d)	D
<i>Platyptilia carduidactyla</i> Riley artichoke plume moth phe.	*Z11-16:Ald	Klun, 1981	C
<i>Platyptilia ignifera</i> Meyrick <budouuo-toriba>	*Z7-12:OAc + *Z9-12:OAc	Fujii, 2010(a)	A

phe.	+ another component		
<i>Platyptilia jezoensis</i> Matsumura <odamaki-toriba> att.	Z11-16:OAc + Z11-16:Ald (9:1)	Ando, 1981	A
<i>Platyptilia</i> (= <i>Cnaemidophorus</i>) <i>rhododactyla</i> Denis & Schiffermüller <chousen-toriba> att.	Z11-14:Ald	Frerot, 1985	A
<i>Platyptilia williamsii</i> Grinnell calendula plume moth att.	Z11-16:Ald	Haynes, 1987	C
<i>Pselnophorus vilis</i> Butler <fuki-toriba> att.	Z9,E11-14:Ald + Z9,E11-14:OAc (9:1)	Ando, 1987	A
<i>Pterophorus tenuidactylus</i> Fitch. att.	Z7-12:OAc	Roelofs, 1971(a)	C
<i>Stenuptilia paludicola</i> att.	Z9-14:OH + Z9-14:Ald (1:1)	Tóth, 1992(d)	C
<i>Trichoptilus lobidactylus</i> Fitch. att.	E11-14:OAc + Z11-14:OAc (19:1)	Sanders, 1993	C

(21) [Copromorphoidea] マルバシンクイガ上科
(Carposinidae) シンクイガ科

<i>Carposina coreana</i> <sanshuyu-shinkui> att.	Z7-20:11-one + Z7-23:H (1:4)	Fujii, 2013(a)	A
<i>Carposina maritima</i> Ponomarenko <kousuguro-shinkui> att.	Z7-20:11-one	Nasu, 2010	A
<i>Carposina niponensis</i> Walsingham <nipponshiro-shinkui> att.	Z7-20:11-one	Nasu, 2010	A
<i>Carposina sasakii</i> Matsumura	*Z7-20:11-one	Tamaki, 1977(a)	A

(= <i>niponensis</i>) peach fruit moth <momonohime-shinkui> phe.	(=Z13-20:10-one) + *Z7-19:11-one (=Z12-19:9-one) (20:1) + another component	Honma, 1978	
in Korea	*Z7-20:11-one + another component	Han, 2000	
<i>Coscinoptycha improbana</i> Meyrick Australian guava moth phe.	*Z7-18:11-one (=Z11-18:8-one) + *Z7-19:11-one + *Z7-23:11-one + *Z7-23:H (235:15:100:650)	Gibb, 2006(a)	D
<i>Heterocrossa rubophaga</i> Dugdale New Zealand raspberry bud moth Phe.	*Z7-19:11-one + *Z7-23:H (1:1)	Foster, 2000 Twidle, 2020	D
<i>Meridarchis excisa</i> Walsingham <kobushiro-shinkui> Att.	Z7-20:11-one	Mizukoshi, 2006	A

(22) [Hyblaeoidea] セセリモドキガ上科

no species

(23) [Thyridoidea] マドガ上科
(Thyrididae) マドガ科

<i>Thyris maculata</i> Harris att.	Z11-14:OAc Z3,Z13-18:OAc	Roelofs, 1971(a) Leeuw, 1983	C
<i>Thyris usitata</i> Butler <madoga> att.	Z11-14:OH	Ando, 1977	A

(24) [Pyraloidea] メイガ上科
(Pyralidae; Galleriinae) メイガ科 ; ツヅリガ亜科

<i>Aphomia sociella</i> L.	*6:OH	Kindl, 2012	C
----------------------------	-------	-------------	---

bumble bee wax moth phe.	+ *Me6,Me10,Me14-15:2-OH + *Me6,Me10,Me14-15:2-one (5:5:1) <ultrasonic signaling>		
	*Me6,Me10,Me14-15:2-OH (2R,6R,10R)-isomer	Wallin, 2020	
<i>Corcyra cephalonica</i> Stainton rice moth phe.	*Me6,Me10,Me14-15:2-OH <short-range attraction> (2R,6R,10R)-isomer	Hall, 1987 Mori, 1991	D

(Pyralidae; Pyralinae) メイガ科 ; シマメイガ亜科

<i>Endotricha flammealis</i> Denis & Schiffermüller att.	E5-14:OH	Voerman, 1988	C
<i>Orthopygia</i> (= <i>Herculia</i>) <i>glaucinalis</i> L. <futasuji-shimameiga> att.	Z7-12:OAc	Nagano, 1979	A
<i>Pyralis farinalis</i> L. meal moth <kashino-shimameiga> phe.	Z11,Z13-16:Ald + Z3,Z6,Z9,Z12,Z15-23:H + Z3,Z6,Z9,Z12,Z15-25:H + other components	Landolt, 1982 Leal, 2005	A
	*Z11,Z13-16:Ald + *Z3,Z6,Z9,Z12,Z15-23:H + other components	Kuenen, 2010	
<i>Tegulifera bicoloralis</i> Leech <maemon-shimameiga> att.	E11,Δ13-14:Ald + E11-14:Ald (9:1)	Ando, 1987	A

(Pyralidae; Epipaschiinae) メイガ科 ; フトメイガ亜科

<i>Orthaga achatina</i> Butler <nakatobi-futomeiga> phe.	*Z11-16:OAc + *Z3,Z6,Z9,Z12,Z15-23:H (2:1)	He, 2016 Yan, 2018(b)	B
--	---	------------------------------	---

+ another component

(Pyralidae; Phycitinae) メイガ科 ; マダラメイガ亜科

<i>Acrobasis nuxvorella</i> Neunzig pecan nut casebearer phe. Mexico strain	*E9,Z11-16:Ald + E9,Z11-16:OAc	Millar, 1996 Harris, 2008	C
<i>Acrobasis pyrivorella</i> Matsumura pear fruit moth <nashi-madaramaiga> phe.	*Z9-15:OAc + *15:OAc (100:7)	Tabata, 2009	A
<i>Acrobasis rufilimbis</i> Wileman <himetobine-madaramaiga> att.	Z9-15:OAc	Ando, 1977	A
<i>Acrobasis vaccinii</i> Riley cranberry fruitworm phe.	*E8,Z10-15:OAc + *E9-15:OAc (25:1) + other components	McDonough, 1994	C
<i>Amyelois transitella</i> Walker navel orangeworm phe.	*Z11,Z13-16:Ald + *Z3,Z6,Z9,Z12,Z15-23:H + *Z3,Z6,Z9,Z12,Z15-25:H + other components *Z11,Z13-16:Ald + *Z11,Z13-16:OH + *Z11,E13-16:OH + *Z3,Z6,Z9,Z12,Z15-23:H (20:20:3:1) + other components	Coffelt, 1979 Leal, 2005 Kuenen, 2010 Kanno, 2010	D
<i>Cactoblastis cactorum</i> Berg cactus moth phe.	*Z9,E12-14:OAc + *Z9,E12-14:OH + *Z9-14:OAc (27:21:2)	Heath, 2006	D
<i>Cadra calidella</i> Guenée att.	Z9,E12-14:OAc	Boughdad in Arn, 1997	C
<i>Cadra</i> (= <i>Ephestia</i>) <i>cautella</i> Walker almond moth	*Z9,E12-14:OAc	Kuwahara, 1971(a) Brady, 1971(a)	A

<suji-madaramaiga> phe.	att.	Zeleny, 1982	
	+ *Z9-14:OAc (minor) + another component	Brady, 1973 Kuwahara, 1973 Read, 1976,1979 Allison, 2006	
	[22:3]	Barrer, 1987	
	(2:1)	Quartey, 1993	
<i>Cadra figulilella</i> Gregson raisin moth <hoshibudou-madaramaiga> phe.	*Z9,E12-14:OAc N Z9,E12-14:OAc	Brady, 1972(b) Soldán, 1983 Kehat, 1992	A?
<i>Citripestis sagittiferella</i> Moore citrus fruit borer phe.	*E11-14:OAc (main) + *Z11-14:OAc + *Z9,E11-14:OAc N	Dung, 2021	A
<i>Cryptoblabes gnidiella</i> Miller honeydew moth phe.	*Z11-16:Ald + *Z13-18:Ald + E11-16:Ald + E13-18:Ald (10:10:1:1) (5:1:5:1)	Bjostad, 1981 Anshelevich, 1993 Gurevitz in Arn, 1986(a)	C
<i>Dioryctria abietella</i> Denis & Schiffermüller spruce coneworm <matsuno-madaramaiga> phe.	*Z9,E11-14:OAc + another component + *Z3,Z6,Z9,Z12,Z15-25:H (1:10–1:30)	Löfstedt, 1983 Löfstedt, 2012 Lee, 2022	A
<i>Dioryctria abietivorella</i> Grote fir coneworm phe.	*Z9,E11-14:OAc + *Z3,Z6,Z9,Z12,Z15-25:H (1:5–1:10)	Millar, 2005 Strong, 2008	C
<i>Dioryctria amatella</i> Hulst southern pine coneworm phe.	Z11-16:OAc *Z11-16:OAc + Z3,Z6,Z9,Z12,Z15-25:H (1:10)	Hanula, 1984 Meyer, 1986 Miller, 2010	C
<i>Dioryctria aurantiella</i> Grote	Z9-14:OAc	Pasek, 1989	C

ponderosa pine coneworm <i>att.</i>			
<i>Dioryctria clarioralis</i> Walker blister coneworm <i>phe.</i>	Z9-14:OAc *Z9-14:OAc + *E9-14:OAc + Z11-16:OAc (44:6:5)	Hanula, 1984 Meyer, 1984	C
<i>Dioryctria disclusa</i> Heinrich webbing coneworm <i>phe.</i>	*Z9-14:OAc Z9-14:OAc	Meyer, 1982 DeBarr, 1982 Hanula, 1984	C
<i>Dioryctria mendacella</i> Staudinger cone moth <i>phe.</i>	*Z9,E11-14:OAc + *Z3,Z6,Z9,Z12,Z15-25:H (1:10)	Hall, 2017	C
<i>Dioryctria merkei</i> Mutuura & Munroe <i>att.</i>	Z9-14:OAc + E9-14:OAc (20:3)	Hanula, 1984 Meyer, 1984	C
<i>Dioryctria reniculelloides</i> Mutuura & Munroe spruce coneworm <i>phe.</i>	*Z9-14:OAc + Z7-12:OAc (20:1)	Grant, 1987(a)	C
<i>Dioryctria resinosella</i> Mutuura red pine shoot moth <i>phe.</i>	*Z9-14:OAc + *Z9-14:OH + E9-14:OAc + Z9-12:OAc (60:10:3:20)	Grant, 1993	C
<i>Dioryctria rubella</i> Hampson pine tip moth <i>att.</i>	Z11-16:Ald + Z11-16:OAc + Z9,E11-14:OAc (7:1:2)	Wu, 1986(b)	C
<i>Ectomyelois ceratoniae</i> Zeller carob moth <i>phe.</i>	*Z9,E11,Δ13-14:Ald + *Z9,E11-14:Ald + *Z9-14:Ald (8:1:1)	Baker, 1989; 1991	C
<i>Elasmopalpus lignosellus</i> Zeller lesser cornstalk borer <i>phe.</i>	*Z11-16:OAc + *Z7-14:OAc + *Z9-14:OAc + *Z9-14:OH (8:8:4:1) + other components	Lynch, 1984	C

Brazil strain	*Z11-16:OAc + other components E	Jham, 2005; 2007	
<i>Ephestia elutella</i> Hübner tobacco moth (cacao moth, chocolate moth) <cha-madaramaiga> phe.	*Z9,E12-14:OAc + *Z9,E12-14:OH (19:5) (5:1–1:1) Z9,E12-14:OAc	Brady, 1971(b) Kuwahara, 1973 Krasnoff, 1984 Soldán, 1983	A
<i>Ephestia</i> (= <i>Anagasta</i>) <i>kuehniella</i> Zeller Mediterranean flour moth <sujikona-madaramaiga> phe.	*Z9,E12-14:OAc + *Z9,E12-14:OH (14:3)	Kuwahara, 1971(b) Kuwahara, 1973	A
<i>Ephestiodes infimella</i> Ragonot att.	Z9,E12-14:OAc	Adler, 1976	D
<i>Episcythrastris</i> (= <i>Myelopsis</i>) <i>tetricella</i> Denis & Schiffermüller att.	Z9,E11-14:OAc	Tóth, 1992(d)	D
<i>Etiella behrii</i> Zeller pod borer phe.	*Z11-14:OAc + *E9-12:OAc + *E11-14:OAc + *12:OAc (90:10:6.3:0.7) + another component	Wakamura, 1999 Hattori, 2001	C
<i>Etiella zinckenella</i> Treitschke lima-bean pod borer <shiroichimonji-madaramaiga> phe.	*Z11-14:OAc + *E11-14:OAc + *Z9-14:OAc (10:1:1) + other components (100:0:3)	Tóth, 1989(a) Hattori, 2001 Tóth, 1996	A
Japanese strain	*Z11-14:OAc + *Z9-14:OAc + *Z9-12:OAc (120:40:1) + other components	Tabata, 2008(a)	
<i>Eurhodope advenella</i> Zck. att.	Z7-14:OAc + Z10-16:OAc (1:1)	Kovalev, 1987	C
<i>Eurythmia hospitella</i> Zeller att.	Z9,E12-14:OAc	Steck, 1977(a)	D

<i>Euzophera batangensis</i> Caradja persimmon bark borer <kurofutamon-madaramaiga> phe.	*Z9,E12-14:OH (major) + *Z9-14:OH E *Z9,E12-14:OH + another component	Kalinová, 2006 Wen, 2009	A
<i>Euzophera bigella</i> att.	Z9-14:OH + Z9-14:OAc (3:1)	Maini in Arn, 1986(a)	C
<i>Euzophera punicaella</i> M. phe.	*Z9,E12-14:OH + *Z9,E12-14:OAc (4:1) E	Bestmann, 1993(b)	C
<i>Euzophera pyriella</i> Yang phe.	*Z9,E12-14:OH + another component	Ma, 2014	C
<i>Euzophera semifuneralis</i> Walker American plum borer phe.	*Z9,E12-14:Ald + *Z9,E12-14:OH + *Z9-14:Ald + *Z9-14:OH (2:2:1:1)	Biddinger, 1994	C
<i>Glyptoteles leucacrinella</i> Zeller att.	Z9-14:Ald + Z9-14:OH (20:1)	Tóth, 1992(d)	D
<i>Homoeosoma electellum</i> Hulst sunflower moth phe.	*Z9-14:OH + *Z9,E12-14:OH (10:1) Z9,E12-14:OH	Underhill, 1979 Underhill, 1982	C
<i>Homoeosoma nebulellum</i> Denis & Schiffermüller European sunflower moth phe.	*Z11-16:Ald + *Z13-18:Ald + *Z9-14:Ald + *Z9,E12-14:Ald (10:7:2:1)	Zagatti, 1991	C
<i>Hulstia undulatella</i> Clemens sugar beet crown borer phe.	*Z9-14:OAc + *Z11-16:OAc + *Z9-14:OH (100:21:8)	Davis, 1993	D
<i>Hypsipyla grandella</i> Walker phe.	*Z9,E12-14:OH E + other components	Borek, 1991 Pineda-Rios, 2016	D
<i>Hypsipyla robusta</i> Moore mahogany shoot borer phe.	*Z9,E12-14:OAc + *Z9-14:OAc + *Z11-16:OAc (5:3:2) N	Bosson, 1982	D

	+ *Z9-14:OH (2:3:3:2)	Ma, 2015	
<i>Maliarpha separatella separatella</i> African white rice stem borer phe.	*Z9,E12-14:OH + *E9,E12-14:OH (9:1) + other components	Cork, 1991	D
<i>Maliarpha separatella vectiferella</i> phe.	Z9,E12-14:Ald	Guerin in Arn, 1986(a)	D
	*Z9,E12-14:Ald + *Z9,E12-14:OH (5:1)	Arn, 1992	
<i>Myelois cribrella</i> Hübner <goma-madarama> phe.	Z11-16:OAc	Subchev, 1981	A
	*Z9,E12-14:OAc + *Z9-14:OAc + *Z11-16:OAc (2:1:1)	Attygalle, 1988(b)	
<i>Plodia interpunctella</i> Hübner Indian meal moth <noshime-madarama> phe.	*Z9,E12-14:OAc	Kuwahara, 1971(a) Brady, 1971(a) Dahm, 1971	A
	Z9,E12-14:OAc	Soldán, 1983	
	+ *Z9,E12-14:OH (8:3)	Kuwahara, 1973	
	+ *Z9,E12-14:Ald N	Teal, 1995	
	+ *Z9-14:OAc (100:18:11:12) + another component	Zhu, 1999	
	(8:2:1:0.8)	Hu, 2005	
<i>Vitula edmandsae serratilinaella</i> Ragonot driedfruit moth phe.	*Z9,E12-14:OH + *Z9,E12-14:Ald (100:1) + other components	Struble, 1983(b)	D
	+ *Z11-16:OH (20:1)	Scott, 1984	

(Crambidae; Schoenobiinae) ツトガ科 ; オオメイガ亜科

<i>Scirpophaga excerptalis</i> Walker sugarcane tip borer <shiro-oomeiga> phe.	*E11-16:Ald + *Z11-16:Ald (4:1)	Wu, 1990(b)	A
---	------------------------------------	-------------	---

India	(7:3)	Mukunthan, 2005	
<i>Scirpophaga incertulas</i> Walker yellow stem borer <itten-oomeiga> <sankameichuu> phe.	*Z11-16:Ald + *Z9-16:Ald (3:1) + *Z9-18:Ald (20:5:2) + other components + *16:Ald (6:3:2)	Cork, 1985(a) Tatsuki, 1985 Du, 1987(b)	A
<i>Scirpophaga nivella</i> F. <tsumaki-oomeiga> phe.	*E11-16:Ald + *Z11-16:Ald (39:11)	Wu in Arn, 1992	A

(Crambidae; Scopariinae) ツトガ科 ; ヤマメイガ亜科

<i>Eudonia</i> sp. att.	Z11-16:OAc	Clearwater, 1986	
<i>Scoparia biplagiata</i> att.	Z11-16:OAc	Davis in Arn, 1992	C
<i>Scoparia</i> sp. att.	Z11-16:OAc + Z9-16:OAc (4:1)	Ando, 1980(a)	A
<i>Witlesia crataegella</i> Hübner (= <i>Dipleurina lacustrata</i>) att.	Z11-16:OAc	Subchev, 1981	C

(Crambidae; Crambinae) ツトガ科 ; ツトガ亜科

<i>Agriphila aeneociliella</i> Eversmann eastern grass veneer <shirofutasuji-tutoga> phe.	*Z9,Z12,Z15-18:Ald + *Z9-16:OAc (16:1)	Zhan, 2023	A
<i>Agriphila straminella</i> Denis & Schiffermüller att.	Z11-16:Ald	Booij, 1984(c)	C
<i>Catoptria permutatella</i>	Z11-16:Ald	Booij, 1984(c)	C

Herrich-Schäfer

att.

<i>Chilo auricilius</i> Dudgeon sugarcane stalk borer phe.	*Z7-12:OAc + *Z8-13:OAc + *Z9-14:OAc + *Z10-15:OAc (4:8:4:1)	David, 1985	C
	*Z8-13:OAc + *Z9-14:OAc + *Z10-15:OAc (8:4:1) + another component	Nesbitt, 1986	C
<i>Chilo hyrax</i> Bleszynski reed stalk borer <nikameigamodoki> att.	Z9-16:Ald	Wu, 1993	A
<i>Chilo influscatellus</i> Snellen sugarcane stem borer phe.	*Z11-16:OH	Wu, 1984	C
<i>Chilo partellus</i> Swinhoe spotted stalk borer corn stemborer phe.	*Z11-16:Ald + another component + Z11-16:OH (1:1)	Nesbitt, 1979(a) Hansson, 1995 Guleria, 2023	C
<i>Chilo sacchariphagus</i> Bojer sugarcane internode borer <suji-tsutoga> phe.	*Z13-18:OAc + *Z13-18:OH (7:1)	Nesbitt, 1980(a)	A
<i>Chilo sacchariphagus indicus</i> Kapur phe.	*Z13-18:OAc + *Z13-18:OH (5:1)	David, 1985	B
<i>Chilo suppressalis</i> Walker rice stem borer <nika-meiga> <nikameichiu> phe.	*Z11-16:Ald + *Z13-18:Ald (5:1) (9:2) + *Z9-16:Ald (50:6:5) + other components	Nesbitt, 1975(b) Ohta, 1976 Beever, 1977 Tatsuki, 1983 Mochida, 1984	A
<i>Chilo</i> (= <i>Proceras</i>) <i>venosatus</i> Walker (= <i>C. sacchariphagus</i> ?) sugarcane striped borer	Z13-18:OAc + Z11-16:OAc + Z13-18:OH (2:2:1)	Wu, 1982	A

phe.	*Z13-18:OAc + *Z11-16:OAc + *Z13-18:OH (7:8:42)	Wu, 1990(a)	
<i>Chilo zacconius</i> Blesz. African rice borer phe.	*Z11-16:OH + *16:OH + Z13-18:OH (7:2:1)	Zagatti, 1983(b)	C
<i>Chrysoteuchia topiaria</i> Zeller cranberry girdler phe.	*Z11-16:Ald + Z9-16:Ald (40:1–100:1) Z11-16:CN + Z9-16:CN (100:3)	McDonough, 1979 Kamm, 1979(b) Kamm, 1980; 1989 Ujváry, 1993	C
<i>Chrysoteuchia</i> sp. att.	Me2,epo7-18:H	Nagano, 1979	A
<i>Coniesta</i> (= <i>Acigona</i>) <i>ignefusalis</i> Hampson millet stem borer phe.	Z7-12:OH + Z5-10:OH + Z7-12:Ald (500:25:17) *Z7-12:OH + *Z5-10:OH + *Z7-12:Ald (100:5:3.3) + other components	Youm, 1995 Beevor, 1999	D
<i>Crambus cypridalis</i> Hulst att.	Z11-16:OAc + Z11-16:Ald (10:1)	Landolt, 2012	C
<i>Crambus nemorella</i> Hübner att.	Z11-16:OAc	Booij, 1984(c)	C
<i>Deanolis sublimbalis</i> Snellen red banded mango caterpillar phe.	*Z11-16:Ald + *Z3,Z6,Z9-23:H (1:1) + other components	Gibb, 2007(a)	D
<i>Diatraea considerata</i> Heinrich phe.	*Z11-16:Ald + *Z7-16:Ald + *Z13-18:Ald (100:30:4) + other components	Gries, 1998	D
<i>Diatraea flavipennella</i> Box sugarcane borer	*Z11-16:Ald + *Z9-16:Ald (3:1)	Kalinová, 2012	D

phe.	+ other components		
<i>Diatraea grandiosella</i> Dyar southwestern corn borer phe.	*Z11-16:Ald + *Z9-16:Ald + *Z13-18:Ald (71:22:8) + other components + Z9-18:Ald (33:10:4:3)	Hedin, 1986 Davis, 1986	D
<i>Diatraea indigenella</i> Dyar & Heinrich phe.	*Z9,E11-16:Ald + another component	Palacio-Cortes, 2014	D
<i>Diatraea saccharalis</i> sugar cane borer phe.	* Z9,E11-16:Ald + other components + * Z11-16:Ald (10:1)	Carney, 1982 Svatos, 2001 Santangelo, 2002 Batista-Pereira, 2002 Kalinová, 2005	D
Brazilian and Columbian strains	+ *Z11-16:Ald (9:1–3:1) + *Z9-16:Ald + *16:Ald (10:1:1:1)	Cortés, 2010 Silva, 2021	N
<i>Eoreuma</i> (= <i>Chilo</i> or <i>Acigona</i>) <i>loftini</i> Dyar Mexican rice borer phe.	*Z13-18:OAc + *Z13-18:Ald + *Z11-16:OAc (8:1.3:1)	Shaver, 1988; 1990 Robacker, 1989	D
<i>Parapediasia teterella</i> Zincken bluegrass webworm <shiba-tsutoga> phe.	Z11-16:Ald + Z9-16:Ald (20:1) *Z11-16:Ald + *Z9-16:Ald + *Z11-16:OH (20:1:0.002) + another component	Clark, 1990 Sugie, 1994	A
<i>Pareromene exsectella</i> Christoph <shiroeguri-tsutoga> att.	Z11-16:OAc	Ando, 1977	A
<i>Tehama bonifatella</i> Hulst western lawn moth att.	Z11-16:Ald + Z13-18:Ald (1:1)	McDonough, 1982(c)	D

(Crambidae; Cybalomiinae) ツトガ科 ; モンメイガ亜科

<i>Trichophysetis cretacea</i> Butler jasmine bud borer <futaobi-nomeiga> phe.	*Z11-16:OAc + *Z11-16:Ald + *Z11-16:OH (10:10:1) (5:2:1)	Peng, 2012 Gu, 2013	A
---	---	----------------------------	---

(Crambidae; Acentropinae) ツトガ科 ; ミズメイガ亜科

<i>Nymphicula mesorphna</i> Meyrick <koatomon-mizunomeiga> att.	Z11-16:OAc + Z11-16:OH (8:1)	Peng, 2012	A
<i>Parapoynx</i> sp.	Z7-12:OAc	Zeleny, 1982	C

(Crambidae; Glaphyriinae) ツトガ科 ; ニセノメイガ亜科

<i>Crocidolomia binotalis</i> Zeller (= <i>pavonana</i> F.) cabbage-heart caterpillar <kebuka-nomeiga> phe. Indonesia strain	*Z11-16:OAc + *Z9-14:OAc (20:1) (10:1)	Usui, 1987 Adati, 2013	A
<i>Evergestis aenealis</i> att.	Z7-12:OAc + Z9-14:OAc (1:1)	Tóth, 1994(b)	C
<i>Evergestis extimalis</i> Scopoli <usubeni-nomeiga> att.	Z9-14:OAc + Z7-12:OAc (1:1)	Konstantin in Arn, 1986(a) Tóth, 1994(b)	A
<i>Evergestis forficalis</i> L. garden pebble moth <na-nomeiga> att.	E11-14:OAc	Lester in Hall, 1979 Priesner, 1980(a) Arn in Arn, 1986(a) Voerman in Arn, 1986(a)	A
<i>Evergestis frumentalis</i>	Z11-16:Ald	Tóth, 1994(b)	C

<i>att.</i>	+ Z9-14:Ald (20:1)		
<i>Hellula undalis</i> F. cabbage webworm <haimadara-nomeiga> <i>phe.</i>	*E11,E13-16:Ald + Z11-16:Ald (100:3) + *Z11-14:OAc + *E11-16:Ald + *Z3,Z6,Z9-23:H (7:3:3:1)	Arai, 1982 Sugie, 2003 Vang, 2020	A

(Crambidae; Spilomelinae) ツトガ科 ; ヒゲナガメノメイガ亜科

<i>Agathodes ostentalis</i> Geyer <benimon-nomeiga> <i>phe.</i>	*E10,E12-16:Ald + *E11-16:Ald (1:1)	Wakamura, 2004	A
<i>Bradina</i> sp. <i>att.</i>	E11-16:Ald	Ando, 1981	A
<i>Cnaphalocrocis medinalis</i> Guenée rice leaffolder moth <kobu-nomeiga> <i>phe.</i>	Z13-18:OAc	Kang, 1985	A
Indian	*Z11-16:OAc + *Z13-18:OAc (49:1) E	Ramachandran, 1990	
Philippine	(1:10) (1:10–20) + another component	Raina in Arn, 1997 Rao, 1993: 1995	
Japanese	*Z13-18:Ald + *Z13-18:OH + *Z11-18:Ald + *Z11-18:OH (100:36:11:24)	Kawazu, 2000; 2002	
Indonesia	(100:37:10:26)	Kawazu, 2009	
China	(100:12:12:12) (100:24:10:18)	Wu, 2013 Lu, 2024	
<i>Cnaphalocrocis pilosa</i> (= <i>Marasmia latimarginalis</i>) <hanenagakobu-nomeiga>	Z11-16:OAc + Z13-18:OAc (50:1)	Kawazu, 2001	A

att.

<i>Conogethes pluto</i> Butler Alpinia stem borer phe.	*E10-16:Ald + *E10,E12-16:Ald + *Z3,Z6,Z9-23:H (100:2:3) + othre components	El-Sayed, 2013	C
<i>Conogethes</i> (= <i>Dichocrocis</i>) <i>punctiferalis</i> Guenée yellow peach moth <momonogomadara-nomeiga> phe.	*E10-16:Ald + Z10-16:Ald (9:1) + *Z3,Z6,Z9-23:H + * Z9-27:H N (9:1:10:100)	Konno, 1982 Xiao, 2012 Nam, 2022	A
<i>Cydalima</i> (= <i>Glyphodes</i>) <i>perspectalis</i> Walker box tree pyralid <tsuge-nomeiga> phe. In Korea	*Z11-16:Ald + *E11-16:Ald (4:1) + another component (5:1, 7:1)	Kawazu, 2007 Kim, 2013	A
<i>Desmia funeralis</i> Hübner grape leaffolder phe.	*Z11,Z13-16:Ald + *≡1-16:Ald + *Z11-16:Ald (3:1:1) + another component	Millar, 2002	D
<i>Diaphania angustalis</i> Snellen phe.	*E10,E12-16:Ald + *E10,E12-16:OH (9:1)	Ma, 2017	C
<i>Diaphania glauculalis</i> att.	E11-16:Ald + E10,E12-16:Ald	Wen, 2014	C
<i>Diaphania hyalinata</i> L. melonworm phe.	*E11-16:Ald + *E10,E12-16:Ald (5:4) + other components	Raina, 1986(a)	C
<i>Diaphania</i> (= <i>Palpita</i>) <i>indica</i> Saunders cotton caterpillar moth <wataherikuro- nomeiga> <uri-nomeiga> phe. In Korea	*E11-16:Ald + *E10,E12-16:Ald (2:1) + another component (7:3)	Wakamura, 1998 Choi, 2009(a)	A
<i>Diaphania nitidalis</i> Stoll pickleworm	*E11-16:Ald + *Z11-16:Ald	Klun, 1986	C

phe.	+ *E10,Z12-16:Ald (75:3.3:0.2) + other components		
<i>Diasemia litterata</i> Scopoli <shiroayahime-nomeiga> att.	E11-16:OAc	Ando, 1977	A
<i>Duponchelia fovealis</i> Zeller European pepper moth phe.	*E13-18:Ald + *Z13-18:Ald + *Z11-16:Ald (100:10:1)	Molnár, 2018	D
<i>Glyphodes pyloalis</i> Walker mulberry pyralid <chibisukashi-nomeiga> <kuwa-nomeiga> phe.	*10,12,14-16:OAc *E10,E12,Z14-16:OAc + *E10,E12,E14-16:OAc (7:1)	Seol, 1987 Honda, 1990 Guo, 2022	A
<i>Haritalodes</i> (=Notarcha) <i>Basipunctalis</i> Brem. phe.	*E10,Z12-16:Ald + *E10,E12-16:Ald (4:1)	Honda, 1994	A
<i>Haritalodes</i> (=Notarcha) <i>derogata</i> F. cotton leaf-roller <wata-nomeiga> phe.	*E10,Z12-16:Ald + *E10,E12-16:Ald (3:1) + other components *E10,Z12-16:Ald	Himeno, 1992 Honda, 1994	A
<i>Herpetogramma licarsisalis</i> Walker grass webworm <kuroobikuro-nomeiga> phe.	*Z11,E13-16:OAc + other components	Gibb, 2007(b)	A
<i>Herpetogramma submarginale</i> Swinhoe <herigurokiiro-nomeiga> phe.	*Z13-16:OAc + other components	Yan, 2015(b)	A
<i>Leucinodes orbonalis</i> Guenée eggplant borer <nasu-nomeiga> phe.	*E11-16:OAc + another component + *E11-16:OH (100:1) + *Z3,Z6,Z9-23:H (10:1) + another component	Zhu, 1987(a) Kong, 1990 Attygalle, 1988(a) Cork, 2001 Vang, 2018	A

<i>Maruca vitrata</i> (= <i>testulalis</i>) F. legume pod borer <mame-nomeiga> phe.	*E10,E12-16:Ald + *E10,E12-16:OH + E10-16:Ald (20:1:1)	Adati, 1999 Downham, 2003 Schläger, 2015	A
China (Wuhan strain)	*E10,E12-16:Ald + *E10,E12-16:OH + *E10-16:Ald (10:1:8)	Lu, 2013	
(Huazhou strain)	(10:1:1)		
<i>Mnesictena flavidalis</i> att.	E11-16:OAc + Z11-16:OAc (10:1)	Clearwater, 1986	D
<i>Neoleucinodes elegantalis</i> tomato fruit borer phe.	*E11-16:OH + *Z3,Z6,Z9-23:H (20:1) + other components	Cabrera, 2001	D
<i>Omphisa anastomosalis</i> Guenée sweetpotato vine borer moth <satsumaimo-nomeiga> phe.	*E10,E14-16:Ald + other components + *Z3,Z6,Z9-23:H (1:2) + other components + *Z3,Z6,Z9-23:H (1:2 – 1:5)	Wakamura, 2010 Yan, 2014 McQuate, 2019	A
<i>Palpita nigropunctalis</i> Bremer <maeakasukashi-nomeiga> phe.	*E11-16:Ald + *E11-16:OAc + *E11-16:OH (100:20:1) N	Yan, 2018(c)	A
<i>Palpita unionalis</i> Hübner jasmine moth phe.	*E11-16:OAc + *E11-16:Ald (7:3)	Mazomenos, 1994	C
<i>Patania</i> (= <i>Pleuroptya</i> , <i>Dichocrocis</i>) <i>chlorophanta</i> Butler <hosomisuji-nomeiga> att.	E10-16:Ald	Konno, 1982 Honda, 2004	A
<i>Patania</i> (= <i>Pleuroptya</i>) <i>ruralis</i> Scopoli bean webworm <ukon-nomeiga> phe.	*E10-16:Ald + *Z10-16:Ald (21:4)	Mochizuki, 2009(a); (b)	A
<i>Rehimena surusalis</i> Walker hibiscus flower-bud borer	*E10,Z12-16:OAc + *E10,Z12-16:Ald	Honda, 2015	A

<kakumon-nomeiga> phe.	+ *Z3,Z6,Z9-23:H (5:1:14)		
<i>Sceliodes cordalis</i> Doubleday phe.	*E11-16:OAc + *E11-16:OH (1:1)	Clearwater, 1986	D
<i>Terastia subjectalis</i> Lederer <ooeguri-nomeiga> phe.	*E10,E12-16:Ald + *E11-16:Ald (19:1)	Wakamura, 2004	A
<i>Udea lutealis</i> att.	Z11-16:OAc	Myttus in Arn, 1986(a)	C

(Crambidae; Pyraustinae) ツトガ科 ; ノメイガ亜科

<i>Achyra rantalis</i> Guenée att.	Z7-12:OAc + Z9-14:OAc (3:1)	Keaster, 1996	D
<i>Anania verbascalis</i> Denis & Schiffermüller <himetogari-nomeiga> att.	Z9,E12-14:OAc + Z9,E12-14:OH (100:1)	Tóth, 1992(d)	B
<i>Fumibotys fumalis</i> Guenée mint root borer phe.	*E10,E12-14:OAc + *Z11-14:OAc + *Z9-14:OAc (50:9:2) + another component	Davis, 1991	D
<i>Loxostege</i> (= <i>Sitochroa</i>) <i>chortalis</i> Grote att.	E9-12:OAc + Z9-12:OAc (1000:1)	Roelofs, 1971(a) Steck, 1977(a) Steck, 1980(a)	C
<i>Loxostege neoblitalis</i> Capps att.	E9-14:OAc	Roelofs, 1970(a)	C
<i>Loxostege sticticalis</i> L. beet webworm att.	E11-14:OAc	Struble, 1977(a)	C
<i>Marasmia patnalis</i> rice leaffolder phe.	*Z13-18:OAc + *Z11-16:OAc (24:1)	Ramachandran, 1990	C E

<i>Mutuuraia mysippusalis</i> Walker att.	Z7-10:OAc + Z7-12:OAc (1:1)	Steck, 1977(a)	C
<i>Mutuuraia</i> (= <i>Phlyctaenia</i>) <i>terrealis</i> Treitschke <sujiimagari-nomeiga> att.	Z7-12:OAc	Roelofs, 1970(a)	A
<i>Ostrinia furnacalis</i> Guenée oriental (Asian) corn borer <ajiaawa-nomeiga> phe. Japan	*Z12-14:OAc + *E12-14:OAc + another component (3:2)	Ando, 1980(b) Huang, 1998(a)	A
Philippines	(1:1)	Klun, 1980(a)	
China	(1:1)	Cheng, 1981 Cheng, 1989	
Taiwan	(3:1)	Yeh, 1989	
	(1:1)	Kou, 1992(a)	
Korea	(2:1)	Boo, 1998(b)	
China	+ * 14:OAc (21:16:13) (13:7:10)	Du, 1986 Deng, 2023	
<i>Ostrinia latipennis</i> Warren <usujiroki-nomeiga> phe.	*E11-14:OH	Ishikawa, 1999(b) Takanashi, 2000	A
<i>Ostrinia nubilalis</i> Hübner European corn borer <awa-nomeiga> "Z"-race phe.	*Z11-14:OAc + *E11-14:OAc (97:3) + other components	Klun, 1970 Klun, 1973 Cheng, 1989 Klun, 1977 Attygalle, 1987 Struble, 1987(a) Kalinová, 1994	C
"E"-race	E11-14:OAc	Roelofs, 1972	

		Cardé, 1975(a) Klun, 1975	
	*E11-14:OAc + *Z11-14:OAc (24:1)	Kochansky, 1975(a)	
	+ other components	Peña, 1988	
hybrid	Z11-14:OAc + E11-14:OAc (1:1–7:13)	Klun, 1975 Anglade, 1984 Maini in Arn, 1986(a)	
	*E11-14:OAc + *Z11-14:OAc (13:7)	Klun, 1979(a) Buechi, 1982	
maize race	*Z11-14:OAc	Pelozuelo, 2004	
mugwort and hop races	*E11-14:OAc		
<i>Ostrinia obumbratalis</i> Lederer att.	Z11-14:OAc + E11-14:OAc (1:1)	Klun, 1972	C
<i>Ostrinia orientalis</i> Mutuura & Munroe <onamomi-nomeiga> phe.	*Z11-14:OAc + *E11-14:OAc (98:2) + another component	Ishikawa, 1999(b) Fu, 2004	A
<i>Ostrinia palustralis</i> Hübner <yuugumo-nomeiga> phe.	*E11-14:OAc + *Z11-14:OAc (99:1) + another component	Huang, 1998(b)	A
<i>Ostrinia scapularis</i> Walker adzuki bean borer <azuki-nomeiga> phe. Z-type			A
	*Z11-14:OAc + *E11-14:OAc (97:3) + another component	Huang, 1997	
E-type	(1:99)	Huang, 2002 Tabata, 2003	
I-type	(36:64)		
<i>Ostrinia zaguliaevi</i> Mutuura & Munroe butterbur borer <fuki-nomeiga> phe.	*Z11-14:OAc + *Z9-14:OAc + *E11-14:OAc (10:9:1) + another component	Huang, 1998(c) Tabata, 2006	A

<i>Ostrinia zealis</i> Guenée burdock borer <gobou-nomeiga> phe.	*Z9-14:OAc + *E11-14:OAc + *Z11-14:OAc (70:24:6) + another component	Ishikawa, 1999(a)	A
<i>Ostrinia</i> sp. phe.	*Z11-14:OAc + *Z9-14:OAc + *E11-14:OAc (76:18:6) + other components	Tabata, 2008(b)	A
<i>Pagyda arbiter</i> Butler <futamata-nomeiga> att.	Z11-14:Ald + Z11-14:OAc (9:1)	Ando, 1981	A
<i>Paliga minnehaha</i> Pryer <maebeni-nomeiga> att.	E11-14:OAc	Ando, 1981	A
<i>Phlyctaenia coronata tertialis</i> Guenée att.	Z9-12:OAc	Reed, 1985(b)	C
<i>Pyrausta aurata</i> Scopoli <hakka-nomeiga> att.	E11-14:OAc	Maini in Arn, 1986(a) Stockel, 1977 Mozūraitis, 1998	A
<i>Pyrausta cingulata</i> att.	E11-14:OAc + Z11-14:OAc (1:1)	Arn in Arn, 1986(a)	C
<i>Pyrausta fodinalis</i> Lederer att.	E10,E12-14:OAc	Reed, 1985(b)	C
<i>Pyrausta machaeralis</i> Walker phe.	*E11-14:OAc + *Z11-14:OAc (24:1)	Qian, 2024	C
<i>Pyrausta ochosalis</i> att.	E11-14:OAc	Roelofs, 1971(a)	C
<i>Pyrausta ostrinalis</i> Hübner att.	E11-14:OAc	Bûda, 1987	C
<i>Pyrausta panopealis</i> Walker perilla leaf pyralid moth <benifuki-nomeiga> phe.	*E11-14:OAc + *Z11-14:OAc N	Kang, 1995	A

<i>Pyrausta purpuralis</i> L. <i>att.</i>	E11-14:OAc + Z11-14:OAc (3:2)	Anglade in Arn, 1986(a) Frerot, 1982(a)	C
<i>Pyrausta</i> (= <i>Ecpyrrhorhoe</i>) <i>rubiginalis</i> Hübner <akamyaku-nomeiga> <i>att.</i>	Z11-14:OAc + E11-14:OAc + 12:OAc (7:3:40)	Hrdý, 1979	A
<i>Sitochroa verticalis</i> L. <kuromyaku-nomeiga> <i>att.</i>	E9-12:OAc + E9-12:OH	Tóth, 1994(b) Roehrich in Arn, 1986(a)	A
<i>Sufetula sunidesalis</i> Walker <shirosujeguri-nomeiga> <i>att.</i>	Z11-16:Ald + Z9-16:Ald (19:1)	Kohno, 2014	A
<i>Uresiphita polygonalis</i> <i>maorialis</i> Felder kōwhai moth <monusubenioo-nomeiga> <i>phe.</i>	*E11-14:OAc + *Z11-14:OAc + *Z11-16:OAc (36:21:18) + another component	El-Sayed, 2025	B

(25) [Calliduloidea] イカリモンガ上科

no species

(26) [Lasiocampoidea] カレハガ上科
(Lasiocampidae) カレハガ科

<i>Dendrolimus houi</i> Lajonquiere Yunnan pine caterpillar <i>phe.</i>	*E5,Z7-12:OH + *E5,Z7-12:OAc + *E5,Z7-12:Ald (20:1:1) + other components	Kong, 2007(a)	C
<i>Dendrolimus kikuchii</i> Matsumura <i>phe.</i>	*Z5,E7-12:OAc + *Z5,E7-12:OH + *Z5-12:OH (20:4:5)	Kong, 2005; 2011	C
<i>Dendrolimus pini</i> L. European pine moth <i>phe.</i>	*Z5,E7-12:Ald	Bestmann, 1982(b) Priesner, 1984(d)	C

	+ *Z5,E7-12:OH (3:2)	Kovalev, 1993	
	+ other components	Rudziński, 2022	
<i>Dendrolimus punctatus</i> Walker pine-caterpillar moth masson pine moth phe.	*Z5,E7-12:OH + *Z5,E7-12:OAc + Z5,E7-12:OPr (28:25:10) + *Z5,E7-12:OPr + *Z5-12:OH + *Z5-12:OAc (19:15:7:7:3)	China, 1979 Meng, 1983(a) Zhang, 2003(a) Zhao, 1993	C
<i>Dendrolimus spectabilis</i> Butler pine moth <matsu-kareha> phe.	*Z5,E7-12:OH	Vu, 1980 Ando, 1982	A
<i>Dendrolimus suffusus</i> <i>illustratus</i> De Lajonquière pine caterpillar moth phe.	*Z5,E7-12:OAc + *Z5,E7-12:Ald + *Z5-12:OH (4:1:1) + another component	Jing, 2025	B
<i>Dendrolimus superans</i> Butler larch caterpillar moth <tuga-kareha> phe.	*Z5,E7-12:Ald + other components	Kong, 2007(b)	A
<i>Dendrolimus superans</i> <i>sibiricus</i> Butler Siberian moth phe.	Z5,E7-12:Ald + Z5,E7-12:OH + other components *Z5,E7-12:Ald + *Z5,E7-12:OH (1:1) + other components	Klun, 2000 Pletnev, 2000	B
<i>Dendrolimus tabulaeformis</i> Tsai & Liu Chinese pine caterpillar phe.	Z5,E7-12:OH + Z5,E7-12:OAc + Z5,E7-12:OPr (1:1:1) *Z5,E7-12:OH + *Z5,E7-12:OAc + *Z5,E7-12:OPr (20:20:1)	Meng, 1983(b) Kong, 2012(a)	C

<i>Gastropacha quercifolia</i> L. lappet moth <birodo-kareha> phe.	*Z5-12:Ald + *Z5-12:OH + another component E	Bestmann, 1993(d)	B
<i>Malacosoma americanum</i> F. eastern tent caterpillar phe.	*E5,Z7-12:Ald + *Z5,E7-12:OH + *E5,Z7-12:OH (10:1–1:1)	Roelofs in Arn, 1986(a) Kochansky, 1996	C
<i>Malacosoma californicum</i> Packard western tent caterpillar phe.	*Z5,E7-12:Ald	Underhill, 1980	C
<i>Malacosoma disstria</i> Hübner forest tent caterpillar phe.	*Z5,E7-12:OH + *Z5,E7-12:Ald (10:1) Z5,E7-12:Ald + Z5,Z7-12:Ald + Z7-12:Ald (10:1:1) (100:1:10)	Chisholm, 1980(a) Chisholm, 1982 Schmidt, 2003	C
<i>Malacosoma neustria</i> L. lackey moth <obi-kareha> phe.	*E5,Z7-12:Ald + *E5,Z7-12:OH (8:5) + other components	Konyukhov, 1988 Rotundo, 2004	A

(27) [Drepanoidea] カギバガ上科
(Drepanidae) カギバガ科 + (Thyatiridae) トガリバガ科

<i>Cilix glaucata</i> Scopoli att.	E11-14:OAc + E11-14:Ald (9:1) (1:1) + E11-14:OH (1:1)	Booij, 1985 Frerot, 1985 Capizzi in Arn, 1986(a)	C
<i>Epipsestis perornata</i> Inoue <usumurasaki-togariba> att.	Z9-14:Ald	Ando, 1981	A
<i>Drepana bilineata</i> Packard att.	Z9,E11-14:Ald	Reed, 1985(b)	C

<i>Drepana lacertinaria</i> att.	Z9,E11-14:Ald	Priesner in Arn, 1986(a)	C
<i>Macrauzata maxima</i> Inoue <sukashi-kagiba> att.	Z9,E11-14:Ald	Ando, 1987	A
<i>Tethea</i> or Denis & Schiffermüller <akan-togariba> att.	Z9-14:Ald	Capizzi in Arn, 1986(a)	A

(28) [Geometroidea] シャクガ上科
(Geometridae) シャクガ科

a: Alsophilinae; フユシヤク亜科, b: Geometrinae; アオシヤク亜科,
c: Sterrhinae; ヒメシヤク亜科, d: Larentiinae; ナミシヤク亜科,
e: Ennominae; エダシヤク亜科, f: Orthostixinae; ホシシヤク亜科

<i>Abraxas</i> ^e <i>grossulariata</i> L. currant moth <sugurishiro-edashaku> phe.	*epo3,Z6,Z9-17:H (3S,4R)-isomer + *Z3,Z6,Z9-17:H (10:1)	Tóth, 1992(a); 1994(a)	B
<i>Abraxas nipponibia</i> Wehrli <himemadara-edashaku> att.	epo3,Z6,Z9-18:H	Ando, 1995(a)	A
<i>Abraxas sylvata</i> Scop. <kimadara-edashaku> att.	epo3,Z6,Z9-17:H (3R,4S)-isomer	Tóth, 1994(a)	A
<i>Agathia</i> ^b <i>carissima</i> Butler <chizumon-aoshaku> att.	Z3,Z6,Z9-20:H	Ando, 1993	A
<i>Agathia visenda visenda</i> Prout <ashibutochizumon-aoshaku> att.	Z6,Z9-20:H or Z6,Z9-21:H	Ando, 1993	A
<i>Agriopis</i> ^e <i>aurantiaria</i> Hübner phe.	*epo3,Z6,Z9-19:H (3S,4R)-isomer	Szöcs, 1993(b)	C
<i>Agriopis</i> (=Erannis) <i>bajaria</i> Schiff.	*Z3,Z6,Z9-18:H	Szöcs in Arn, 1997	C

phe.	+ *Z3,Z6,Z9-19:H	(1:1–1:5)	Lecheva, 1999	
<i>Agriopis leucophearia</i> Denis & Schiffermüller <shirofufuyu-edashaku> att.	epo3,Z6,Z9-19:H (3S,4R)-isomer		Szöcs, 1993(b)	B
<i>Agriopis marginaria</i> F. att.	Z3,epo6,Z9-19:H + Z3,Z6,Z9-19:H (10:3)		Hansson, 1990(b)	C
	Z3,epo6,Z9-19:H (6S,7R)-isomer + Z3,Z6,Z9-19:H (10:3)		Szöcs, 1993(b)	
<i>Alcis</i> ^e <i>angulifera</i> Butler <nakausu-edashaku> att.	epo3,Z6,Z9-19:H (3S,4R)-isomer		Ando, 1993 Ando, 1997	A
<i>Alcis</i> (= <i>Boarmia</i>) <i>repandata</i> L. att.	Z6,Z9-19:H + Z3,Z6,Z9-19:H (2:1–1:1) or + Δ1,Z3,Z6,Z9-19:H (2:1–1:1)		Bogenschütz, 1985 Subchev, 1986(a)	C
<i>Alsophila</i> ^a <i>japonensis</i> Warren <shiroobi-fuyushaku> att.	Z3,Z6,Z9-19:H		Ando, 1993	A
<i>Alsophila pometaria</i> Harris fall cankerworm moth phe.	*Z3,Z6,Z9-19:H + *Z3,Z6,Z9,E11-19:H (1:2) or + *Z3,Z6,Z9,Z11-19:H (1:6)		Wong, 1984(a); (b)	C
<i>Alsophila quadripunctata</i> Esper att.	Z3,Z6,Z9-19:H + Z6,Z9-19:H (1:1)		Szöcs, 1984	C
<i>Anacamptodes</i> ^e <i>humaria</i> Guenée phe.	*epo6,Z9-19:H (6R,7S)-isomer		Millar, 1991(a)	D
<i>Anavitrinella</i> ^e <i>pampinaria</i> Guenée att.	epo3,Z6,Z9-19:H + Z3,epo6,Z9-19:H (19:1) (6S,7R)-isomer		Millar, 1990(c)	D
<i>Anisodes</i> ^c sp.	E11-16:OAc		Mazomenos, 1994	C

	att.	+ E11-16:Ald (7:3)		
<i>Anticlea</i> ^d <i>vasiliata</i> Guenée	att.	Z3,Z6,Z9-21:H	Millar, 1991(c)	D
<i>Ascotis</i> ^e (= <i>Boarmia</i>) <i>selenaria</i> Denis & Schiffermüller		*Z3,Z6,Z9-19:H E	Becker, 1983	B
giant looper		epo3,Z6,Z9-19:H	Becker	
phe.		+ Z3,epo6,Z9-19:H	in Arn, 1986(a)	
		+ Z3,Z6,epo9-19:H (1:1:1)		
		*epo3,Z6,Z9-19:H	Becker, 1990	
		(3S,4R)-isomer		
		+ another component	Cossé, 1992	
Korean strain 1		(3R,4S):(3S,4R) = 9:1	Choi, 2012	
Korean strain 2		(3R,4S):(3S,4R) = 5:5		
<i>Ascotis selenaria cretacea</i> Butler		epo3,Z6,Z9-19:H	Ando, 1993	A
Japanese giant looper				
mugwort looper		*epo3,Z6,Z9-19:H	Ando, 1997	
<yomogi-edashaku>		(3R,4S)-isomer		
phe.		+ another component		
		+ *Z3,Z6,Z9-19:H (100:5–100:1)	Witjaksono, 1999	
<i>Biston</i> ^e <i>robustum</i> Butler		*epo6,Z9-19:H	Yamamoto, 2000	A
giant geometrid moth		(6S,7R)-isomer		
<tobimonoo-edashaku>		+ *Z3,epo6,Z9-19:H (9:1)		
phe.		+ other components		
<i>Bupalus</i> ^e <i>piniarius</i> L.		Z6,Z9-19:H	Bestmann, 1982(a)	C
phe.				
		*tepo4,Z6,Z9-19:H	Chittamuru	
		(4S,5S)-isomer	in Pherobase	
		+ other components		
<i>Cabera</i> ^e <i>erythemaria</i> Guenée		Z3,Z6,epo9-19:H	Wong, 1985(b)	C
att.		(9S,10R)-isomer		
		+ (9R,10S)-isomer (1:1)		
<i>Caripeta</i> ^e <i>angustiorata</i> Walker		Z3,Z6,Z9-19:H	Millar, 1990(a)	D

att.	+ Z3,epo6,Z9-19:H (1:1)		
<i>Caustoloma</i> ^e <i>flavicaria</i> att.	Z6,epo9-21:H	Kovalev, 1986	D
<i>Colotois</i> ^e <i>pennaria</i> L. phe.	*Z3,epo6,Z9-19:H + Z3,Z6,Z9-19:H (10:3)	Hansson, 1990(b)	B
	*Z3,epo6,Z9-19:H (6R,7S)-isomer + *Z3,Z6,Z9-19:H + Z3,Z6,Z9-21:H (10:3:10)	Szöcs, 1993(b)	
<i>Colotois pennaria</i> <i>ussuriensis</i> Bang-Haas <kaba-edashaku> att.	epo3,Z6,Z9-20:H or Z3,epo6,Z9-19:H Z3,epo6,Z9-20:H	Ando, 1993 Ando, 1995(a)	A
<i>Costaconvexa</i> ^d <i>polygrammata</i> Bkh. att.	Z3,Z6,Z9-20:H	Szöcs, 1987	C
<i>Culpinia</i> ^b <i>diffusa</i> Walker <akaashi-aoshaku> att.	Z6,Z9,E11-17:H	Yamamoto, 2008	A
<i>Cystidia</i> ^e <i>couaggaria</i> <i>couaggaria</i> Guenée <ume-edashaku> phe.	*Z3,Z6,Z9-23:H + *Z3,Z6,Z9-21:H (3:2) + other componentns	Yamakawa, 2012(a)	A
<i>Dysstroma</i> ^d <i>brunneata ethela</i> Hulst att.	Z3,Z6,epo9-20:H (9S,10R)-isomer	Wong, 1985(b)	C
<i>Dysstroma</i> sp. (<i>citrata</i> ?) att.	Z3,Z6,Z9-20:H or Z3,Z6,Z9-21:H	Wong, 1985(b)	
<i>Ectropis</i> ^e <i>excellens</i> Butler <ootobisuji-edashaku> att.	epo6,Z9-18:H	Ando, 1995(a)	A
<i>Ectropis grisescens</i> Warren phe.	*Z3,epo6,Z9-18:H + *Z3,Z6,Z9-18:H (4:1)	Ma, 2016	C
	(4:1, 3:2)	Han, 2024	

<i>Ectropis obliqua</i> Prout tea looper <usujiro-edashaku> phe.	*Z3,epo6,Z9-18:H + *Z3,Z6,Z9-18:H + another component N (3:2) (6S,7R)-isomer E + *Z3,epo6,Z9-19:H (2:1:2)	Yao, 1991 Yang, 2016 Yu, 2017 Luo, 2017	A
<i>Ennomos</i> ^e <i>subsignaria</i> Hübner elm spanworm phe.	*Z6,epo9-19:H (9S,10R)-isomer + another component	Ryall, 2010	C
<i>Epelis</i> ^e <i>truncataria</i> Walker att.	epo3,Z6,Z9-17:H	Millar, 1990(c)	D
<i>Epirrhoe</i> ^d <i>sperryi</i> Herbulot phe.	Z3,Z6,Z9-19:H *Z3,Z6,Z9-19:H + other components	Wong, 1985(b) Millar, 1992(a)	C
<i>Epirrita</i> ^d <i>autumnata</i> Borkhausen <aki-namishaku> phe.	*Δ1,Z3,Z6,Z9-21:H	Zhu, 1995(b)	A
<i>Epirrita viridipurpurescens</i> Prout <midoriaki-namishaku> att.	Z3,Z6,Z9-21:H	Ando, 1993	A
<i>Erannis</i> ^e <i>defoliaria</i> Clerck mottled umber moth <oochabanefuyu-edashaku> phe.	*Z3,epo6,Z9-19:H + *Z3,Z6,Z9-19:H (10:3) *Z3,epo6,Z9-19:H (6S,7R)-isomer + *Z3,Z6,Z9-19:H (1:1)	Hansson, 1990(b) Szöcs, 1993(b)	B
<i>Erannis golda</i> Djakonov <chabanefuyu-edashaku> att.	Z3,epo6,Z9-18:H	Ando, 1995(a)	A

<i>Esakiopteryx</i> ^d <i>volitans</i> Butler <usubenisuji-namishaku> att.	Z3,Z6,Z9-19:H	Ando, 1993	A
<i>Euchlaena</i> ^e <i>madusaria</i> Walker att.	Z6,epo9-19:H (9S,10R)-isomer + (9R,10S)-isomer (1:1)	Millar, 1991(a)	D
<i>Eufidonia</i> ^e <i>convergaria</i> Walker phe.	*Z3,Z6,Z9-19:H + *Z3,epo6,Z9-19:H (6S,7R)-isomer (1:1)	Millar, 1990(a)	D
<i>Eulithis</i> ^d <i>testata</i> L. <kimadara-namishaku> att.	Z3,Z6,Z9-20:H or Z3,Z6,Z9-21:H + epoxydienes	Wong, 1985(b)	A
<i>Eupithecia</i> ^d <i>abietaria</i> Götze cloaked pug moth phe.	*Z3,Z6,Z9-19:H + *Z3,Z6,epo9-19:H (9S,10R)-isomer (19:1) + other components	Wang, 2015(a)	B
<i>Eupithecia</i> <i>annulata</i> Hulst att.	epoxydienes of Z3,Z6,Z9-20:H + epoxydienes of Z3,Z6,Z9-19:H or Z3,Z6,Z9-21:H Z3,Z6,epo9-20:H (9S,10R)-isomer	Wong, 1985(b) Millar, 1991(b)	C
<i>Eupithecia</i> <i>assimilata</i> Doubleday currant pug moth phe.	*Z3,Z6,epo9-21:H (9S,10R)-isomer + other components	Campbell, 2007	C
<i>Eupithecia</i> <i>subnotata</i> Hübner att.	Z3,Z6,Z9-19:H	Szöcs, 1987	C
<i>Eupithecia</i> <i>vulgata</i> Haworth att.	Z9,Z12,Z15-18:Ald + Z3,Z6,epo9-21:H + Δ1,Z3,Z6,epo9-21:H (8:1:1)	Ostrauskas, 2004	C
<i>Hemithea</i> ^b <i>tritonaria</i> Walker <herigurohime-aoshaku>	*Z6,Z9,Z12-18:H	Yamakawa, 2009	A

phe.	+ *(3E,6E)- β -farnesene	Yamakawa, 2011(a)	
<i>Hydriomena</i> ^d <i>furcata</i> Thunbery <yanagi-namishaku> att.	E9-12:OAc	Liska, 1990	A
<i>Hydriomena ruberata</i> Freyer att.	Z11-16:OAc	Frérot, 1987(a)	C
<i>Hypagyrtis</i> ^e <i>piniata</i> att.	Z3,Z6,Z9-19:H + Z3,epo6,Z9-19:H (6S,7R)-isomer (10:1)	Underhill in Arn, 1986(a)	D
<i>Idaea</i> ^c <i>aversata</i> L. <ezoki-himeshaku> phe.	*Z9,Z11-14:OAc + E9,Z11-14:OAc + *Z7,Z9-12:OAc (100:7:10)	Zhu, 1996	B
<i>Idaea</i> (= <i>Sterrha</i>) <i>biselata</i> Hufnagel <usuki-himeshaku> phe.	E7,Z9-12:OAc + E7,Z9-12:Ald (1:1) Z7-12:OAc *Z7,Z9-12:OAc	Biwer, 1975 Szöcs, 1987 Ando, 1987 Priesner in Arn, 1986(a) Zhu, 1996	A
<i>Idaea emarginata</i> att.	Z9,Z11-14:OAc + Z7,Z9-12:OAc + Z7,E9-12:OAc (10:10:1)	Zhu, 1996	C
<i>Idaea</i> (= <i>Sterrha</i>) <i>imbecilla</i> Inoue <oosumonki-himeshaku> att.	Z7-12:OAc	Ando, 1977	A
<i>Idaea</i> (= <i>Sterrha</i>) <i>rubraria</i> Stgr. att.	E7,Z9-12:OAc	Szöcs, 1987	C
<i>Idaea straminata</i> Borkhausen phe.	*Z7,Z9-12:OAc + *E7,Z9-12:OAc + *Z9,Z11-14:OAc (10:1:10) + another component	Zhu, 1996	C
<i>Idaea trisetata</i> Prout <mijinki-himeshaku>	E7,Z9-12:OH	Ando, 1987	A

att.			
<i>Idiochlora</i> ^b <i>ussuriaria</i> Bremer <namisujiko-aoshaku> att.	Z6,Z9,Z12-17:H	Yamakawa, 2011(a)	A
<i>Inurois</i> ^a <i>fletcheri</i> Inoue <usuba-fuyushaku> att.	Z3,Z6,Z9,E11-20:H	Yamamoto, 2008	A
<i>Inurois</i> <i>fumosa</i> Inoue <usumon-fuyushaku> att.	epo3,Z6,Z9-21:H	Ando, 1993	A
<i>Inurois</i> <i>membranaria</i> Christoph <kuroten-fuyushaku> att.	epo3,Z6,Z9-21:H	Ando, 1993	A
<i>Itame</i> ^e <i>argillacearia</i> Packard blueberry spanworm phe.	*epo3,Z6,Z9-17:H (3R,4S)-isomer + *Z3,Z6,Z9-17:H (1:1)	Silva, 2013	D
<i>Itame</i> <i>brunneata</i> Thunberg att.	epo3,Z6,Z9-17:H (3S,4R)-isomer	Millar, 1990(c)	D
<i>Itame</i> <i>occiduaria</i> Packard att.	epo3,Z6,Z9-17:H (3R,4S)-isomer + Z3,Z6,Z9-17:H (9:2)	Millar, 1990(c)	D
<i>Jodis</i> ^b <i>lactearia</i> L. <namigatausuki-aoshaku> att.	Z11-14:OAc + Z9,E11-14:OAc Z3,Z6,Z9,Z12-20:H	Priesner in Arn, 1986(a) Yamakawa, 2011(a)	A
<i>Lambdina</i> ^e <i>athasaria</i> Walker spring hemlock looper phe.	*Me7-17:H + *Me7,Me11-17:H (1:1) + another component (7S)-isomer + 7,11-meso (25:8)	Gries, 1994(b) Duff, 2001	D
<i>Lambdina</i> <i>fiscellaria</i> <i>fiscellaria</i> Guenée	*Me5,Me11-17:H + *Me2,Me5-17:H (1:1)	Gries, 1991	D

eastern hemlock looper phe.	+ other components		
	Me5,Me11-17:H (5R,11S)-isomer	Li, 1993(a) Silk in Arn, 1997	
	Me2,Me5-17:H (5R)-isomer	Silk in Arn, 1997	
<i>Lambdina fiscellaria</i> <i>lugubrosa</i> Hulst western hemlock looper phe.	*Me5,Me11-17:H + *Me2,Me5-17:H + *Me7-17:H (1:1:1)	Gries, 1993(b)	D
	Me5,Me11-17:H + Me2,Me5-17:H (1:1)	Evenden, 1995	
	Me5,Me11-17:H (5R,11S)-isomer	Li, 1993(a)	
	+ Me2,Me5-17:H (5S)-isomer + Me7-17:H (7S)-isomer	Li, 1993(b)	
<i>Lambdina pellucidaria</i> Grote & Robinson pitch pine looper phe.	*Me7-17:H + *Me7,Me11-17:H (1:1) + another component	Maier, 1998	D
	(7S)-isomer + 7,11-meso (25:8)	Duff, 2001	
<i>Leptostales</i> ^c att.	<i>ferruminaria</i> Packard Z9,Z11-14:Ald + Z9,Z11-14:OH (10:1)	Reed, 1985(b)	D
<i>Lobophora</i> ^d phe.	<i>nivigerata</i> Walker Z3,Z6,Z9-21:H + Z6,Z9-21:H (19:1)	Underhill in Arn, 1986(a)	C
	*Z3,Z6,Z9-21:H + Z6,Z9-21:H (19-4:1)	Millar, 1992(a)	
<i>Lomographa</i> ^e phe.	<i>semiclarata</i> Walker *Z3,Z6,Z9-17:H	Millar, 1990(b)	C
<i>Lycia</i> ^e att.	<i>ursaria</i> Walker epo3,Z6,Z9-19:H (3S,4R)-isomer + Z3,Z6,Z9-19:H	Millar, 1990(c)	C
<i>Maxates</i> ^b <i>versicausa</i>	*Z6,Z9,Z12-20:H E	Yamakawa, 2009;	A

<i>microptera</i> Inoue <sakishimatsubame-aoshaku> phe.		2011(a)	
<i>Menophra</i> ^e (= <i>Hemerophila</i>) <i>atrilineata</i> Butler mulberry looper <kuwa-edashaku> phe.	*Z3,Z6,epo9-18:H + *Z6,epo9-18:H (10:1) (9 <i>S</i> ,10 <i>R</i>)-isomer	Tan, 1996 Pu, 1999	A
<i>Menophra senilis</i> Butler <usukumo-edashaku> att.	epo6,Z9-19:H	Ando, 1995(a)	A
<i>Mesoleuca</i> ^d <i>ruficillata</i> Guenée att.	Z3,Z6,Z9-21:H + Z3,Z6,Z9-22:H (4:1) + Z3,Z6,Z9-20:H + Z3,epo6,Z9-21:H (5:50:1) (6 <i>R</i> ,7 <i>S</i>)-isomer	Wong, 1985(b) Millar, 1991(c)	C
<i>Metanema</i> ^e <i>inatomaria</i> Guenée att.	Z3,Z6,epo9-19:H + Z3,Z6,epo9-20:H (4:1) (9 <i>R</i> ,10 <i>S</i>)-isomers or + Z3,Z6,Z9,E11-19:H (4:1)	Wong, 1985(b)	D
<i>Milionia</i> ^e <i>basalis pryeri</i> Druce <kiobi-edashaku> phe.	*epo3,Z6,Z9-19:H (3 <i>S</i> ,4 <i>R</i>)-isomer	Yasui, 2005	A
<i>Mnesampela</i> ^e <i>privata</i> Guenée autumn gum moth phe.	*Z3,Z6,Z9-19:H + *Z3,Z6,Z9-21:H (16:1)	Steinbauer, 2004 Walker, 2009	D
<i>Naxa seriaria</i> Motschulsky dotted white geometrid <hoshishaku> phe.	*Z3,Z6,Z9,Z12,Z15-21:H	Lee, 2020	A
<i>Nepytia</i> ^e <i>freemani</i> Munroe western false hemlock looper phe.	*Me3,Me13-17:H (3 <i>S</i> ,13 <i>R</i>)-isomer	Gries, 1993(c) King, 1995	D
<i>Operophtera</i> ^d <i>bruceata</i> Hulst	Δ1,Z3,Z6,Z9-19:H	Roelofs, 1982(b)	C

Bruce spanworm <i>phe.</i>	* $\Delta 1, Z3, Z6, Z9-19:H$	Underhill, 1987(a)	
<i>Operophtera brumata</i> L. winter moth <i>phe.</i>	* $\Delta 1, Z3, Z6, Z9-19:H$	Roelofs, 1982(b) Bestmann, 1982(c) Albert, 1984 Knauf, 1984	C
<i>Operophtera fagata</i> Scharf. northern winter moth <i>phe.</i>	* $Z6, Z9-19:H$ + * $\Delta 1, Z3, Z6, Z9-19:H$ (10:1) + other components	Szöcs, 2004	C
<i>Operophtera occidentalis</i> <i>att.</i>	$\Delta 1, Z3, Z6, Z9-19:H$	Roelofs, 1982(b)	C
<i>Operophtera rectipostmedia</i> Inoue <ichimojifuyu-namishaku> <i>att.</i>	$\Delta 1, Z3, Z6, Z9-19:H$	Yamamoto, 2008	A
<i>Operophtera relegata</i> Prout <kuroobifuyu-namishaku> <i>att.</i>	$Z3, epo6, Z9-19:H$ or $Z3, Z6, epo9-19:H$ or $epo3, Z6, Z9-19:H$ $Z3, Z6, epo9-19:H$ (9S,10R):(9R,10S) = 1:1	Ando, 1993 Qin, 1997	A
<i>Ourapteryx</i> ^e <i>sambucaria</i> L. <i>att.</i>	$Z3, Z6, Z9-19:H$	Subchev, 1986(a)	C
<i>Pachyerannis</i> ^e <i>obliquaria</i> Motschulsky <kurosujifuyu-edashaku> <i>att.</i>	$epo3, Z6, Z9-19:H$ (3R,4S)-isomer	Qin, 1997	A
<i>Pachyligia</i> ^e <i>dolosa</i> Butler <atojiro-edashaku> <i>att.</i>	$Z3, Z6, epo9-21:H$ or $Z3, epo6, Z9-21:H$	Ando, 1993	A
<i>Pachyodes</i> ^b <i>superans</i> Butler <oo-aoshaku> <i>att.</i>	$Z3, Z6, Z9-20:H$	Ando, 1993	A
<i>Paleacrita</i> ^e <i>vernata</i> Peck spring cankerworm	* $Z3, Z6, Z9-20:H$ + * $Z3, Z6, Z9-19:H$	Underhill in Arn, 1986(a)	D

phe.	+ *Z6,Z9-19:H (8:2:1)	Millar, 1990(d)	
<i>Pamphlebia</i> ^b <i>rubrolimbraria</i> <i>rubrolimbraria</i> Guenée <herigurotogari-aoshaku> phe.	*Z6,Z9,Z12-18:H + other components E	Yamakawa, 2009; 2011(a)	A
<i>Peribatodes</i> ^e <i>rhomboidaria</i> Denis & Schiffermüller phe.	*Z3,Z6,Z9-19:H + *Z6,Z9-19:3-one (5:1) (1:1–1:4)	Buser, 1985 Tóth, 1987	C
<i>Perizoma</i> ^d <i>grandis</i> Hulst att.	E11-14:Ald	Daterman, 1977	C
<i>Plagodis</i> ^e <i>alcoolaria</i> Guenée att.	Z3,Z6,Z9-20:H + Z3,epo6,Z9-20:H (6R,7S)-isomer (1:1)	Millar, 1991(c)	C
<i>Probole</i> ^e <i>alienaria</i> Herrich-Schäffer att.	Z3,epo6,Z9-19:H (6R,7S):(6S,7R) = 1:1	Landolt, 1996	D
<i>Probole</i> <i>amicaria</i> Herrich-Schäffer phe.	*epo3,Z6,Z9-19:H (3S,4R)-isomer + Z3,epo6,Z9-19:H (6R,7S)-isomer + *Z3,Z6,Z9-19:H (9:1:8)	Millar, 1990(b); (c)	D
<i>Prochoerodes</i> ^e <i>transversata</i> Drury large maple spanworm att.	Z3,Z6,epo9-19:H (9S,10R)-isomer + Z3,Z6,Z9-19:H (4:1)	Wong, 1985(b)	D
<i>Pseudocoremia</i> ^e <i>fenerata</i> Felder & Rogenhofer att.	Z6,epo9-19:H	Gibb, 2006(b)	D
<i>Pseudocoremia</i> <i>leucelaea</i> Meyrick att.	Z6,epo9-19:H	Gibb, 2006(b)	D
<i>Pseudocoremia</i> <i>suavis</i> Butler common forest looper phe.	*Z3,Z6,epo9-19:H + other components	Gibb, 2006(b)	D

<i>Rhynchobapta</i> ^e <i>cervinaria</i> <i>bilineata</i> Leech <futasujio-edashaku> att.	Z6,Z9-17:H	Ando, 1995(a)	A
<i>Sabulodes</i> ^e <i>caberata</i> Guenée omnivorous looper phe.	*Z6,Z9-19:H + other components	McDonough, 1986	D
<i>Scopula</i> ^c <i>personata</i> Prout <namisujichibi-himeshaku> att.	Z9,E11-14:OAc	Nagano, 1979	A
<i>Semiothisa</i> ^e <i>bicolorata</i> F. att.	Z3,Z6,Z9-17:H + Z3,epo6,Z9-17:H (10:1)	Millar, 1987	C
<i>Semiothisa cineraria</i> Bremer & Grey scholar tree looper phe.	*epo3,Z6,Z9-17:H + *Z3,Z6,Z9-17:H (6:1) (3R,4S)-isomer	Li, 1993(c) Kong, 2012(b)	C
<i>Semiothisa</i> (= <i>Chiasmia</i>) <i>clathrata</i> L. <himeamime-edashaku> phe.	*epo3,Z6,Z9-17:H (3R,4S)-isomer + *Z3,Z6,Z9-17:H (3:1)	Tóth, 1991(a); 1994(a)	A
<i>Semiothisa delectata</i> Hulst att.	Z3,epo6,Z9-17:H + Z3,Z6,Z9-17:H (10:1)	Millar, 1987	C
<i>Semiothisa marmorata</i> Ferguson att.	epo3,Z6,Z9-17:H (3R,4S)-isomer + Z3,Z6,Z9-17:H (9:1–1:1)	Gries, 1993(a)	C
<i>Semiothisa neptaria</i> Guenée phe.	*Z3,Z6,Z9-17:H N epo3,Z6,Z9-17:H (3R,4S):(3S,4R) = 2:1	Millar, 1987 Gries, 1993(a)	C
<i>Semiothisa sexmaculata</i> Packard phe.	*epo3,Z6,Z9-17:H (3R,4S)-isomer	Gries, 1993(a)	C
<i>Semiothisa signaria</i> <i>disrupta</i> Walker phe.	*epo3,Z6,Z9-17:H + *Z3,Z6,Z9-17:H (10:1) or	Millar, 1987	C

	epo3,Z6,Z9-18:H + Z3,Z6,Z9-18:H (9:1)		
<i>Semiothisa ulsterata</i> Pearsall att.	Z3,epo6,Z9-17:H (6S,7R)-isomer	Millar, 1987 Millar, 1990(c)	C
<i>Sibatania</i> ^d <i>mactata</i> Felder & Rogenhofer <birodo-namishaku> att.	Z3,Z6,Z9-21:H	Ando, 1993	A
<i>Sicya</i> ^e <i>macularia</i> Harris att.	epo3,Z6,Z9-19:H (3S,4R)-isomer + Z3,Z6,Z9-19:H (9:1)	Millar, 1990(b), (c)	D
<i>Synaxis</i> ^e <i>jubararia</i> Hulst att.	Z3,Z6,Z9-19:H + Z3,Z6,epo9-19:H (4:1–1:1)	Wong, 1985(b)	D
<i>Synegia</i> ^e <i>esther</i> Butler <kurohaguruma-edashaku> att.	Z6,Z9-21:H	Ando, 1995(a)	A
<i>Tephrina</i> ^e <i>arenacearia</i> Hübner phe.	*epo3,Z6,Z9-17:H (3S,4R)-isomer + Z3,epo6,Z9-17:H	Tóth, 1991(a); 1994(a)	C
<i>Thalassodes</i> ^b <i>immissaria</i> <i>intaminata</i> Inoue <sazanamishiro-aoshaku> phe.	*Z3,Z6,Z9,Z12-20:H	Yamakawa, 2009	A
<i>Theria</i> ^e <i>rupicapraria</i> phe.	*Z6,Z9-20:H + *Z6,Z9-21:H + other components	Szöcs in Arn, 1997	D N
<i>Thyrinteina</i> ^e <i>arnobia</i> Stoll phe.	*epo3,Z6,Z9-21:H	N Moreira, 2013	D
<i>Trichopteryx</i> ^d <i>carpinata</i> Borkhausen att.	Z6,Z9-19:H	Oleander, 2019	C

<i>Trichopteryx polycommata</i> Denis & Schiffermüller barred tooth striped moth <hanenagakobane-namishaku> phe.	*Z6,Z9-19:H	Oleander, 2019	B
<i>Triphosa</i> ^d <i>haesitata</i> <i>affirmata</i> Guenée att.	Z9,Z12,Z15-18:OAc + Z3,Z6,Z9-20:H (1:20) or + Z3,Z6,Z9-21:H (1:20)	Wong, 1985(b)	C
<i>Wilemania</i> ^e <i>nitobei</i> Nitobe <nitobe-edashaku> att.	Z3,Z6,Z9,E11-19:H	Yamamoto, 2008	A
<i>Xanthorhoe</i> ^d <i>abrasaria aquilonaria</i> Herrich-Schiffermüller att.	Z3,Z6,Z9-21:H + its epoxydienes (4:1) Z3,epo6,Z9-21:H (6S,7R)-isomer + Z3,Z6,epo9-21:H (9S,10R)-isomer (10:1)	Wong, 1985(b) Millar, 1991(c)	C
<i>Xanthorhoe ferrugata</i> Clerck att.	Z3,epo6,Z9-21:H (6S,7R)-isomer	Millar, 1991(c)	C
<i>Xanthorhoe iduata</i> Guenée att.	Z3,Z6,Z9-21:H + its epoxydienes (1:1)	Wong, 1985(b)	C
<i>Xanthorhoe munitata</i> Hübner att.	epoxydienes of Z3,Z6,Z9-21:H Z3,epo6,Z9-21:H (6S,7R)-isomer + Z3,Z6,Z9-21:H (10:1)	Wong, 1985(b) Millar, 1991(c)	C
<i>Xanthotype</i> ^e <i>sospeta</i> Drury att.	Z6,epo9-19:H (9S,10R)-isomer	Millar, 1991(a)	D
<i>Zethenia</i> ^e <i>albonotaria</i> <i>nesiotis</i> Wehrlic <monshirotsamakiri-edashaku> att.	epo3,Z6,Z9-19:H (3S,4R)-isomer	Qin, 1997	A

(Uraniidae) ツバメガ科

<i>Epiplema moza</i> Butler <kurohoshi-futao> att.	E11-16:OAc	Ando, 1975	A
<i>Epiplema plaqifera</i> Butler <kuroobishiro-futao> att.	E9-14:OH	Ando, 1977	A
(29) [Bombycoidea] カイコガ上科 (Endromidae)			
<i>Andraca bipunctata</i> Walker tea cluster caterpillar phe.	*E11,E14-18:Ald + other components	Ho, 1996	D
(Bombycidae) カイコガ科			
<i>Bombyx mandarina</i> Moore <kuwako> phe.	*E10,Z12-16:OH + another component *E3,Z13-18:OH	Kuwahara, 1979 Daimon, 2012(b) Kuwahara, 1984 Gao in Arn, 1997	A
<i>Bombyx mori</i> L. silkworm moth <kaiko> phe.	*E10,Z12-16:OH + *E10,Z12-16:Ald + another component	Butenandt, 1959; 1961 A Kaissling, 1978 Kasang, 1978(a) Kasang, 1978 (b)	
<i>Rondotia menciata</i> Moore mulberry white caterpillar phe.	*E10,Z12-16:OAc	Dai, 1988	D
<i>Trilocha varians</i> Walker <ichijikukasan> phe.	*E10,Z12-16:Ald + *E10,Z12-16:OAc (5:2)	Daimon, 2012(a)	D
(Saturniidae = Attacidae) ヤママユガ科			

<i>Actias luna</i> L. luna moth phe.	*E6,Z11-18:Ald + *E6-18:Ald (4:1) + another component	Millar, 2016	C
<i>Antheraea pernyi</i> Guérin-Méneville <saku-san> phe.	E6,Z11-16:OAc E E6,Z11-16:Ald E *E6,Z11-16:Ald + *E6,Z11-16:OAc + *E4,Z9-14:OAc (5:1:2) E + other components	Kaissling in Arn, 1986(a) Bestmann, 1987	A
<i>Antheraea polyphemus</i> Cramer phe.	*E6,Z11-16:OAc + *E6,Z11-16:Ald (9:1)	Kochansky, 1975(b)	C
<i>Callosamia promethea</i> Drury promethea moth phe.	*E4,E6,Z11,Z13-16:Ald	Gago, 2013	D
<i>Coloradia pandora pandora</i> Blake pandora moth phe.	*E10,Z12-16:Ald + *E10,Z12-16:OAc + *E10,E12-16:OAc (10:5:1) + other components	McElfresh, 2000	D
<i>Coloradia velda</i> Johnson & Walter common sheep moth phe.	*E10,Z12-16:OAc + *E10,E12-16:OAc + *E10,Z12-16:OH (10:1:0.33) + other components	McElfresh, 1999(c)	D
<i>Graellsia isabellae</i> Spanish moon moth phe.	*E4,E6,Z11-16:Ald	Millar, 2010	D
<i>Hemileuca burnsi</i> Watson phe.	E10,Z12-16:OAc + E10,Z12-16:OH + E10,Z12-16:Ald + other components *E10,Z12-16:OAc + *E10,Z12-16:OH + *E10,Z12-16:Ald + *E10,E12-16:OAc + *16:OAc (100:14:0.4:23:232)	McElfresh, 1999(d) McElfresh, 2008	D

<i>Hemileuca eglanterina</i> Boisduval common sheep moth phe.	*E10,Z12-16:OAc + *E10,Z12-16:OH + *E10,Z12-16:Ald (100:10:1) + other components	McElfresh, 1999(a)	D
<i>Hemileuca electra electra</i> Wright phe.	*E10,Z12-16:OAc (main) + *E10,Z12-16:OH + *E10,Z12-16:Ald + other components	McElfresh, 1999(d)	D
<i>Hemileuca electra mojavensis</i> Tuskes & McElfresh phe.	*E10,Z12-16:OAc (main) + *E10,Z12-16:OH + *E10,Z12-16:Ald + other components	McElfresh, 1999(d)	D
<i>Hemileuca maia</i> Drury buck moth phe.	*E10,Z12-16:Ald + *E10,Z12-16:OH + *E10,Z12-16:OAc (20:5:2) + other components	McElfresh, 2001(b)	D
<i>Hemileuca nevadensis</i> Strecker Nevada buckmoth phe.	*E10,Z12-16:Ald + other components	McElfresh, 2024	D
<i>Hemileuca nuttalli</i> Strecker Nuttall's sheep moth phe.	*E10,Z12-16:OAc + *E10,E12-16:OAc (2:1–1:2) + other components	McElfresh, 1999(b)	D
<i>Loepa sakaei</i> Inoue <haguruma-yamamayu> phe.	*E4,Z9-14:OAc	Yan, 2015(a)	A
<i>Lonomia obliqua</i> Walker phe.	*E11-16:OAc + *E11-16:OH (20:7)	Zarbin, 2007	D
<i>Nudaurelia cytherea cytherea</i> F. pine tree emperor moth phe.	*Z5-10:OisoVa	Henderson, 1972; 1973	D
<i>Rhodinia fugax</i> Butler pellucid silk moth <usutabiga> phe.	*E6,Z11-16:Ald	Yan, 2015(a)	A
<i>Samia cynthia ricini</i> Donovan eri-silkworm moth	*E4,E6,Z11-16:OAc (major) + *E4,E6,Z11-16:Ald N	Bestmann, 1989	A

<eri-san, hima-san>

phe.

<i>Saturnia albofasciata</i> Johnson phe.	*E4,Z9-14:Ald + another component	McElfresh, 2001(a)	C
<i>Saturnia mendocino</i> Behrens phe.	*E4,Z9-14:Ald + another component	McElfresh, 2001(a)	C
<i>Saturnia</i> (= <i>Eudia</i>) <i>pavonia</i> att.	Z6,Z11-16:OAc	Bestmann, 1982(d)	C
<i>Saturnia walterorum</i> Hogue & Johnson phe.	*E4,Z9-14:Ald + another component	McElfresh, 2001(a)	C

(Sphingidae) スズメガ科

<i>Agrius convolvuli</i> L. sweetpotato hornworm <ebigara-suzume> phe.	*E11,E13-16:Ald	Wakamura, 1996(a)	A
<i>Amphion floridensis</i> Clark att.	E10,Z12-16:Ald	Landolt, 1989(a)	D
<i>Deilephila elpenor</i> L. elephant hawk-moth phe.	*E11-16:Ald + *E10,E12-16:Ald N	Bestmann, 1992(b)	B
<i>Deilephila elpenor lewisii</i> Butler <beni-suzume> phe.	*E11-16:Ald + *E10,E12-16:Ald (17:3)	Uehara, 2012	A
<i>Deilephila porcellus</i> att.	E10,E12-16:Ald	Priesner in Arn, 1986(a)	C
<i>Dolbina tancrei</i> Staudinger <sazanami-suzume> phe.	*E9,Z11-15:Ald + *Z9,Z11-15:Ald (9:1)	Uehara, 2013	A
<i>Hemaris affinis</i> Bremer <kurosukiba-houjaku> phe.	*Z11-16:Ald + *E10,E12-16:Ald + *E10,Z12-16:Ald (9:7:4)	Uehara, 2015	A

<i>Hemaris diffinis</i> Boisduval att.	Z10,E12-16:Ald		Reed, 1987	C
<i>Hemaris fuciformis</i> L. att.	Z10,E12-16:Ald		Priesner in Arn, 1986(a)	C
<i>Hippotion celerio</i> L. silver-striped hawk-moth phe.	*E10,E12-16:Ald	N	Bestmann, 1992(b)	C
<i>Hyles gallii</i> Rottenburg <ibuki-suzume> att.	E10,E12-16:Ald E10,Z12-16:Ald	E E	Reed, 1987	A
<i>Hyloicus pinastri</i> L. <matsukuro-suzume> att.	E10,E12-16:Ald E10,Z12-16:Ald	E E	Priesner in Arn, 1986(a)	A
<i>Manduca sexta</i> L. tobacco hornworm moth phe.	*E10,Z12-16:Ald + *E10,E12,Z14-16:Ald (2:1) + other components		Starratt, 1979 Tumlinson, 1989; 1994	D
<i>Neogurelca himachala</i> <i>sangaica</i> Butler <hoshihime-houjaku> phe.	E10,Z12-16:Ald *E10,Z12-16:Ald		Daimon, 2012(b) Uehara, 2015 Uehara, 2016	A
<i>Pachysphinx modesta</i> Harris att.	Z10,E12-16:OAc		Reed, 1987	D
<i>Proserpinus flavofasciata</i> Walker att.	E10,E12-16:Ald		Reed, 1987	D
<i>Smerinthus cerisyi</i> Kirby att.	Z10,E12-16:OAc + Z10,E12-16:Ald (10:1)		Reed, 1987	C
<i>Smerinthus jamaicensis</i> Drury att.	Z10,E12-16:Ald + Z10,Z12-16:Ald (10:1)		Reed, 1987	C
<i>Smerinthus tokyonis</i> Matsumura <kouchi-suzume> phe.	*Z10,Z12-16:OAc + *E10,Z12-16:OAc + *Z10,E12-16:OAc [87:7:6]		Kosaki, 2021	A
<i>Sphinx drupiferarum</i> J. E. Smith phe.	*E10,Z12-16:Ald	N	Reed, 1987	C

<i>Theretra japonica</i> Boisduval <ko-suzume> att.	E10,Z12-16:Ald	Uehara, 2015	A
<i>Theretra oldenlandiae</i> <i>oldenlandiae</i> F. <sesuji-suzume> phe.	*E10,Z12-16:Ald + *E10,E12-16:Ald + *E11-16:Ald (4:3:3)	Uehara, 2012	A

(30) [Noctuoidea] ヤガ上科
(Notodontidae) シャチホコガ科

<i>Heterocampa guttivitta</i> Walker saddled prominent moth phe.	*≡11,Z13-16:Ald + *≡11-16:Ald (9:1) + another component	Silk, 2000	C
<i>Micromelalopha siversi</i> Staudinger phe.	*Z13,E15-18:Ald + other component	Liu, 2019; 2021(a)	C
<i>Notodonta dromedarius</i> phe.	*Z11,Z13-16:Ald + other components	Bestmann, 1993(a)	C
<i>Notodonta torva</i> Hübner <tobimadara-shachihoko> phe.	*Z11,Z13-16:OAc + other components	Bestmann, 1991	B
<i>Schizura semirufescens</i> att.	Z7-12:OH	Roelofs, 1971(a)	D
<i>Thaumatopoea bonjeani</i> Powell phe.	*Z11,Z13-16:Ald + *Z11,Z13-16:OH (9:1)	Frérot, 1990	D
<i>Thaumatopoea jordana</i> Stgr. phe.	*≡11,Z13-16:OH + *≡11,Z13-16:Ald + *≡11,Z13-16:OAc [5:4:1] N	Frérot, 1993(c)	D
<i>Thaumatopoea pinivora</i> Treischke phe.	Z11,Z13-16:Ald + Z11,Z13-16:OH (9:1) *Z11,Z13-16:OH + *Z11,Z13-16:Ald [4:1] N	Frérot, 1990 Frérot, 1993(c)	D
<i>Thaumatopoea pityocampa</i> Denis & Schiffermüller	*≡11,Z13-16:OAc	Guerrero, 1981 Einhorn, 1983	D

processionary moth phe.		Quero, 1997	
	≡11,Z13-16:OAc	Cuevas, 1983 Tiberi, 1984	
	≡11-16:OAc	Quero, 1995	
<i>Thaumetopoea processionea</i> L. oak processionary moth phe.	≡11,Z13-16:OAc	Tiberi, 1984	D
	*Z11,Z13-16:OAc + *Z11,Z13-16:OH [19:1] N	Frerot, 1993(c)	
	*Z11,Z13-16:OAc + other components	Quero, 2003 Breuer, 2003	
	+ *Z11,E13,Δ15-16:OAc (1:1)	Gries, 2004	
<i>Thaumetopoea solitaria</i> Fr. phe.	*Z13,Z15-18:Ald N	Frerot, 1993(c)	D
<i>Thaumetopoea wilkinsoni</i> Tams. phe.	≡11,Z13-16:OAc	Halperin, 1982	D
	*≡11,Z13-16:OAc N	Frerot, 1993(c)	

(Noctuidae) ヤガ科
(Noctuidae; Dilobinae) ヤガ科;

<i>Diloba caeruleocephala</i> L. figure-of-eight moth att.	Z8-13:OAc	Subchev, 2000(b)	D
--	-----------	------------------	---

(Noctuidae; Acronictinae) ヤガ科 ; ケンモンヤガ亜科

<i>Acronicta grisea</i> Walker att.	Z7-12:OAc + Z9-12:OAc (1:1)	Steck, 1977(a)	C
<i>Acronicta sperata</i> Grote dagger moth att.	Z7-12:OAc + Z7-12:Ald (9:1)	Underhill, 1977(a)	C
<i>Acronicta tridens</i> att.	Z9-14:Ald	Tóth in Arn, 1986(a)	C

<i>Raphia frater</i> Grote att.	Z7-12:OH + Z7-12:OAc	Weatherston, 1974(a) McLeod, 1982	D
<i>Simyra henrici</i> Grote att.	Z7-14:Ald	Steck, 1982(a)	C

(Noctuidae; Heliothinae) ヤガ科 ; タバコガ亜科

<i>Helicoverpa</i> (= <i>Heliothis</i>) <i>armigera</i> Hübner old world bollworm cotton bollworm <oo-tabakoga> phe.	*Z11-16:Ald + Z11-14:Ald (1:1) + Z9-14:Ald (100:1–100:5) + Z9-16:Ald (25:1) (10:1) + *Z11-14:Ald (1:3) + other components + *Z9-16:Ald (20:1–97:3) + other components + *Z9-16:Ald + *Z9-14:Ald (98.3:1.4:0.3) + other components	Piccardi, 1977 Gothilf, 1978 Rothschild, 1978 Kehat, 1980 Buleza in Arn, 1992 Konjuchov, 1983 Nesbitt, 1979(b); 1980(b) Dunkelblum, 1980 Kehat, 1990 Zhang, 2012	A
<i>Helicoverpa</i> (= <i>Heliothis</i>) <i>assulta</i> Guenée oriental tobacco budworm <tabakoga> phe. Japan strain	*Z9-16:Ald + *Z9-16:OAc + *Z11-16:Ald + *16:Ald (100:15:3:8) + other components	Sugie, 1991(b)	A
Korea strain	+ *Z11-16:OAc (100:30:5:1.5)	Cork, 1992	

	+ other components	Park, 1996	
	Z9-16:Ald + Z11-16:Ald (25:1)	Park, 1994	
Thailand strain	+ Z9-16:OAc (7:5:1)	Cork, 1992	
China strain	Z9-16:Ald + Z11-16:Ald (20:1)	Cork, 1992	
	(100:9.5)	Cai in Arn, 1997	
<i>Helicoverpa gelotopoen</i> Dyar phe.	*16:Ald + *Z9-16:Ald (1:1) + another component	Cork, 2003	C
<i>Helicoverpa</i> (= <i>Heliothis</i>) <i>punctigera</i> Wallengren Australian bollworm phe.	Z11-16:Ald + Z11-16:OAc + Z9-14:Ald (50:50:1)	Rothschild, 1978	C
	*Z11-16:Ald + *Z11-16:OAc + Z9-14:Ald (20:20:1) + other components	Rothschild, 1982	
<i>Helicoverpa</i> (= <i>Heliothis</i>) <i>zea</i> Boddie corn earworm phe.	Z9-14:OFo E	Priesner, 1975	C
	*Z11-16:Ald	Roelofs, 1974(c)	
	+ *Z9-16:Ald (65:1–40:1) + other components	Klun, 1979(b); 1980(b) Pope, 1984 Teal, 1984	
	+ *Z11-16:OH + *16:Ald N	Descoins, 1988	
	+ Z9-16:Ald + Z7-16:Ald + 16:Ald (87:3:2:8)	Lopez, 1990	
<i>Heliothis belladonna</i> Henry & Edwards att.	Z11-16:Ald + Z9-16:Ald + Z7-16:Ald + 16:Ald	Landolt in Pherobase	C
<i>Heliothis maritima</i> Graslin	*Z11-16:Ald	Kovalev, 1991	B

fulvous clover moth phe.	+ other components E		
	+ *Z11-16:OH + *16:Ald (100:5:6)	Szöcs, 1993(a)	
<i>Heliothis maritime adauca</i> Butler flax budworm <tsumekusaga> phe.	*Z11-16:Ald + *Z11-16:OH (100:1) + another component	Kakizaki, 2003	A
<i>Heliothis ononis</i> Denis & Schiffermüller att.	Z11-16:Ald	Steck, 1982(a)	C
<i>Heliothis peltigera</i> Denis & Schiffermüller phe.	Z11-16:Ald + Z9-14:Ald (16:1) *Z11-16:Ald + *Z9-14:Ald + *Z11-16:OH (10:5:3) + other components	Nesbitt, 1979(b) Dunkelblum, 1989	C
<i>Heliothis phloxiphaga</i> Grote & Robinson phe.	*Z11-16:Ald + *Z11-16:OH + *Z9-16:Ald (482:15:3)	Raina, 1986(b)	C
<i>Heliothis subflexa</i> Guenée phe.	*Z11-16:Ald + *Z9-16:Ald + *Z7-16:OAc + *Z9-16:OAc + *Z11-16:OAc (41:15:3:6:26) + other components + *Z11-16:OH + *Z11-16:OAc (10:5:1:1) wind tunnel + other components	Teal, 1981 Klun, 1982 Vickers, 2002 Nojima, 2018	C
<i>Heliothis virescens</i> F. tobacco budworm phe.	*Z11-16:Ald + *Z9-14:Ald (16:1) (15:1)	Roelofs, 1974(c) Tumlinson, 1975 Hendricks, 1989	C

	+ other components	Klun, 1979(b); 1980(c) Pope, 1982 Vetter, 1983 Ramaswamy, 1985 Teal, 1986	
	+ Z11-16:OH (15:1:0.04)	Shaver, 1989	
	+ *Z11-16:OH (100:5:1)	Groot, 2018	
	Z9-14:OFo + Z9-14:Ald (32:1–16:1)	Mitchell, 1978	
<i>Protoschinia scutosa</i> Denis & Schiffermüller <yomogiga> att.	Z11-16:OH + Z7-12:OAc + Z9-14:OAc (1:3:1)	Konstantin in Arn, 1986(a) Li, 1993(d)	A
<i>Pyrrhia umbra</i> Hufnagel <ki-tabakoga> att.	Z11-16:OAc	Stan, 1992	A
<i>Schinia bina</i> Guenée att.	Z11-16:OAc + Z11-16:Ald (7:3)	Underhill, 1977(a)	D
<i>Schinia meadi</i> Grote att.	Z11-16:Ald	Steck, 1982(a)	D
<i>Schinia sueta</i> Grote att.	Z9-14:OAc + Z11-16:OAc + Z11-16:OH	Byers, 1987	D

(Noctuidae; Noctuinae) ヤガ科 ; モンヤガ亜科

<i>Abagrotis placida</i> att.	Z7-14:OAc + Z11-14:OAc (10000:1)	Steck, 1982(b)	D
<i>Actebia</i> (= <i>Ochropleura</i>) <i>fennica</i> Tauscher black army cutworm <atousu-yaga> phe.	Z11-14:OAc + Z7-12:OAc (1:1) *Z11-14:OAc + *Z7-12:OAc (20:1) + other components	Steck, 1979(c) Struble, 1989	A

<i>Agrotis clavis</i> Hufnagel att.	Z11-14:OAc	Hrdý, 1979	C
	Z5-10:OAc	Tóth, 1992(c)	
<i>Agrotis collaris</i> Wallengren att.	Z7-14:OAc + Z5-14:OAc (20:1)	Steck in Arn, 1986(a)	C
<i>Agrotis confuse</i> Stephens att.	Z7-12:OAc	Il'icheva in Arn, 1992	C
<i>Agrotis</i> (=Scotia) <i>crassa</i> Hübner att.	Z7-12:OAc + Z9-12:OAc (1:1)	Szöcs, 1981	C
<i>Agrotis</i> (=Scotia) <i>exclamationis</i> L. heart-and-dart moth <senmon-yaga> phe.	*Z5-14:OAc + *Z9-14:OAc (19:1) (9:1) (20:3) (25:4) + other components	Bestmann, 1980 Vrkoc, 1983 Priesner, 1985(b) Grodner, 2018 Lebedeva, 2000(b)	B
<i>Agrotis fucosa</i> Butler (= <i>segetum</i> ?) common cutworm moth <kabura-yaga> phe.	*Z5-10:OAc + *Z7-10:OAc (1:9)	Wakamura, 1978; 1980	A
<i>Agrotis ipsilon</i> Hufnagel black cutworm <tamana-yaga> phe.	Z7-12:OAc *Z7-12:OAc + *Z9-14:OAc (3:1) + Z11-16:OAc (3:4:2) (3:1:15) + Z11-16:OH + 16:OAc (8:4:4:1:2)	Steck, 1979(c) Hill, 1979(b) Causse in Arn, 1986(a) Wakamura, 1986(a) Buleza, 1991	A
European strain	+*Z11-16:OAc + other components	Picimbon, 1997	

American strain other strains	+ *Z11-16:OAc (3:1:6)	Gemeno, 1998; 2000	
<i>Agrotis obliqua</i> Smith <i>att.</i>	Z5-14:OAc	Steck, 1982(a)	C
<i>Agrotis orthogonia</i> Morrison pale western cutworm <i>att.</i>	Z7-12:OAc + Z5-12:OAc (2:1)	Struble, 1978(a)	C
<i>Agrotis</i> (= <i>Scotia</i>) <i>segetum</i> Denis & Schiffermüller turnip moth white-line dart moth <i>phe.</i>	*Z5-10:OAc + *Z9-16:OAc *Z7-12:OAc + *Z9-14:OAc (4:1–1:1) *Z7-12:OAc + *Z5-10:OAc (2:1) + other components + Z9-14:OAc (1:1:1) + *Z9-14:OAc (1:1:1) + other components + *Z5-12:OAc (50:10:25:1)	Bestmann, 1978(a) Voronkova in Arn, 1992 Tóth, 1980 Arn, 1980 Arn, 1983 Grodner, 2018 Löfstedt, 1982, 1985(b), (c); 1986(b) Hansson, 1990(a) Lebedeva, 1991 Svensson, 1997 Wu, 1995	B?
in Zimbabwe	(25:100:3:10)	Wu, 1999	
	Z7-12:OH	Tóth, 1991(c)	
(tests in the world)	Z5-10:OAc + Z7-12:OAc + Z9-14:OAc	Tóth, 1992(c)	
<i>Agrotis venerabilis</i> Walker dusky cutworm <i>att.</i>	Z5-10:OAc + Z7-12:OAc (20:1) + Z5-12:OAc (100:10:1)	Steck, 1979(d) Steck, 1982(b)	C

	+ Z7-12:Ald (100:10:1)	Steck, 1982(a)	
<i>Agrotis vetusta</i> Walker att.	Z11-16:OAc + Z9-14:OAc (50:1)	Steck, 1982(a)	C
<i>Agrotis volubilis</i> Harvey att.	Z5-14:OAc + Z5-14:Ald (1:1)	Underhill, 1977(a)	C
	+ Z7-14:OAc (100:1)	Steck, 1982(a)	
<i>Chersotis juncta</i> Grote att.	Z11-16:OAc + Z11-16:Ald	Steck, 1982(a)	C
<i>Chersotis multangula</i> Hübner att.	Z11-16:OAc E + Z5-10:OAc (10:1)	Priesner, 1975 Subchev, 1990	C
<i>Cryptocala acadiensis</i> Bethune att.	Z9-14:OAc + Z11-16:OAc + Z9-14:Ald	Steck, 1976 Steck, 1982(a)	D
<i>Diarsia brunnea</i> Denis & Schiffermüller <miyamaaka-yaga> att.	Z11-16:OAc + Z11-16:Ald (3:1)	Subchev in Arn, 1992 Priesner in Arn, 1986(a)	A
<i>Diarsia dahlia</i> Hübner barred chestnut moth <ezoohbako-yaga> att.	Z7-14:OAc + Z9-14:OAc + Z5-14:OAc (10:2:1)	Priesner, 1985(a)	A
<i>Diarsia deparca</i> Butler <kousucha-yaga> att.	Z9-14:OAc	Ando, 1977	A
<i>Diarsia pseudorosaria</i> Hardwick att.	Z11-16:OAc + Z9-16:OAc (3:1)	Kamm, 1985	C
<i>Diarsia rubi</i> Vieweg att.	Z11-16:OAc	Terytze in Pherobase	C
<i>Euagrotis tepperi</i> Smith att.	Z11-16:OAc + Z9-14:OAc	Steck, 1982(a)	D

	+ Z7-12:OAc (10:1:1)		
<i>Eurois astricta</i> Morrison att.	Z11-16:OAc + Z9-14:OAc + Z11-16:Ald (8:2:1)	Underhill, 1977(a)	C
<i>Eurois occulta</i> L. <ooshirahoshi-yaga> att.	Z9-14:OAc + Z11-16:OAc (3:1)	Steck, 1976	A
	or + Z11,E14-16:OAc (3:1)	Chisholm, 1980(b)	
in Canada	+ Z11-16:Ald (100:30:1)	Steck, 1982(b)	
in Europa	Z9-14:OAc + Z11-16:OAc (1:1)	Priesner in Arn, 1986(a)	
<i>Euxoa acornis</i> Smith att.	Z9-14:OAc + Z9-14:Ald + Z11-16:OAc (6:3:2)	Underhill, 1977(a)	C
<i>Euxoa albipennis</i> Grote att.	Z5-10:OAc + Z7-12:OAc + Z7-12:OH (10:1:1)	Steck, 1979(d)	C
<i>Euxoa altera</i> Smith att.	Z11-16:OAc + Z9-14:OAc (5:1)	Steck, 1982(a)	C
<i>Euxoa auxiliaris</i> Grote army cutworm att.	Z5-14:OAc + E7-14:OAc (1:19)	Struble, 1977(b)	C
	+ Z7-14:OAc + Z9-14:OAc (100:1:10)	Struble, 1981(a)	
<i>Euxoa basalis</i> Grote att.	Z7-12:OAc + Z7-12:OH + Z5-10:OAc (5:5:1) or + Z5-12:OAc (5:5:1)	Steck, 1982(a)	C
<i>Euxoa campestris</i> Grote att.	Z5-10:OAc or + Z5-12:Ald (10:1)	Byers, 1981 Underhill, 1981	C
<i>Euxoa cicatricosa</i> Grote & Robinson att.	Z7-12:OAc	Steck, 1982(a)	C
<i>Euxoa dargo</i> Strecker att.	Z11-16:OAc	Steck, 1979(c)	C

	+ Z9-14:OAc (1:9)	Steck, 1982(a)	
<i>Euxoa declarata</i> Walker att.	Z5-10:OAc or + Z5-12:Ald (10:1)	Byers, 1981 Underhill, 1981	C
<i>Euxoa distinguenda</i> Lederer att.	Z3-10:OAc	Priesner, 1988(b)	C
<i>Euxoa divergens</i> Walker att.	Z9-12:OAc + Z7-10:OAc + Z7-12:OAc (200:1)	Steck, 1979(c) Steck, 1982(a)	C
<i>Euxoa drewseni</i> Staudinger phe.	*Z5-12:OAc + *Z7-14:OAc + *12:OAc (6:1:2) + other components	Struble, 1983(a)	C
<i>Euxoa eruta</i> Hübner att.	Z3-10:OAc + Z5-10:OAc (1:1)	Priesner, 1988(b)	C
<i>Euxoa flavicollis</i> Smith att.	Z9-14:OAc + Z7-12:OAc (1000:1)	Steck, 1979(c) Steck, 1982(a)	C
<i>Euxoa hastifera</i> Donzel att.	Z5-10:OAc + Z7-12:OAc (1:1) (2:1)	Tóth in Arn, 1986(a) Subchev, 1990 Coroiu, 1986	C
<i>Euxoa idahoensis</i> Grote att.	Z5-10:OAc + Z5-12:OAc + Z7-12:OAc + Z9-12:OAc	Byers, 1987	C
<i>Euxoa lutulenta</i> Smith att.	Z9-14:OAc + Z11-16:OAc	Steck, 1976	C
<i>Euxoa maimes</i> Smith phe.	*Z9-14:OAc + *Z11-14:OAc + *Z7-14:OAc (200:2:1) + other components	Struble, 1985	C
<i>Euxoa manitobana</i> McDunough att.	Z9-14:OAc + Z7-14:OAc (4:1)	Steck, 1982(a)	C

<i>Euxoa messoria</i> Harris darksided cutworm phe.	Z11-16:OAc + Z7-16:OAc (40:1) or + Z7,Z11-16:OAc (9:1) + Z7-14:OAc Z11,E14-16:OAc + Z7-16:OAc (25:1) Z11-16:OAc + Z7-16:OAc (20:1) *Z11-16:OAc + *Z7-16:OAc + *Z11-16:OH + Z11-16:Ald (1000:25:2:20) + other components	Struble, 1977(c) Steck, 1979(c) Chisholm, 1980(b) Ayre, 1982(b) Struble, 1987(b)	C
<i>Euxoa mimallonis</i> Grote att.	Z5-10:OAc	Steck, 1982(a)	C
<i>Euxoa nigricans</i> L. att.	Z7-12:OAc + Z5-10:OAc (1:1)	Arn, 1983 Szöcs, 1983	C
<i>Euxoa obeliscoides</i> Guenée att.	Z9-14:OAc + Z11-16:Ald (1:1) + Z7-12:OAc (500:1)	Underhill, 1977(a) Steck, 1982(b)	C
<i>Euxoa ochrogaster</i> Guenée redbacked cutworm phe.	Z5-12:OAc + Z8-12:OAc (1:2) + Z5-11:OAc (25:50:1) + Z7-12:OAc (200:1) *Z5-12:OAc + *Z7-12:OAc + *Z9-12:OAc + Z5-10:OAc (200:2:1:1) + other components (400:4:1:1)	Struble, 1978(b) Ayre, 1982(b) Steck, 1980(b) Struble, 1980(a); 1981(b) Steck, 1982(b)	C
<i>Euxoa olivia</i> Morrison	Z5-10:OAc	Underhill, 1981	C

<i>Euxoa perolivalis</i> Smith <i>att.</i>	Z9-14:OAc	Struble, 1987(c)	C
<i>Euxoa pestula</i> Grote <i>att.</i>	Z5-10:OAc + Z7-12:OAc + Z7-12:Ald (100:1:1)	Steck, 1982(a)	C
<i>Euxoa plagigera</i> Morrison <i>att.</i>	Z9-14:OAc + Z9-14:OH (5:1)	Steck, 1982(a)	C
<i>Euxoa pleuritica</i> Grote <i>att.</i>	Z7-12:OAc + Z7-12:OH + Z5-12:OAc (5:1:1–5:5:1) or + Z5-10:OAc (25:5:5:2)	Underhill, 1977(a) Steck, 1978	C
<i>Euxoa ridingsiana</i> Grote <i>phe.</i>	Z9-14:OAc + Z7-12:OAc + Z11-16:OAc (500:1:20) *Z9-14:OAc + *Z7-14:OAc + *Z7-12:OAc (40:2:1) + other components	Steck, 1979(c) Steck, 1982(a) Struble, 1985	C
<i>Euxoa rockburnei</i> Hardwick <i>att.</i>	Z5-10:OAc + Z5-12:Ald (10:1)	Byers, 1981 Underhill, 1981	C
<i>Euxoa scandens</i> Riley white cutworm <i>att.</i>	Z7-12:OH	McLeod, 1982	C
<i>Euxoa seliginis</i> Duponchel <i>att.</i>	Z5-10:OAc	Nagy, 2023	C
<i>Euxoa servita</i> Smith <i>att.</i>	Z7-14:OAc + Z7-14:Ald	Steck, 1979(c) Steck, 1982(a)	C
<i>Euxoa siccata</i> Smith <i>att.</i>	Z5-12:OAc + Z7-12:OAc	Byers, 1987	C
<i>Euxoa tessellata</i> Harris	Z7-16:OAc	Roelofs, 1970(a)	C

striped cutworm <i>att.</i>	+ Z5-14:OAc (200:1) or + Z5-16:OAc (1:1)	Struble, 1982	
<i>Euxoa tritici</i> L. <i>att.</i>	Z5-10:OAc	Nagy, 2023	C
<i>Euxoa tristicula</i> Morrison early cutworm <i>att.</i>	Z9-12:OAc + 12:OAc (1:3) + Z7-12:OAc + Z9-14:OAc (2:5:0.01)	Steck, 1979(a) Steck, 1982(a)	C
<i>Euxoa</i> sp. 1 <i>att.</i>	E11-14:Ald	Dateman, 1977	
<i>Euxoa</i> sp. 2 <i>att.</i>	E11-14:Ald	Dateman, 1977	
<i>Euxoa</i> sp. 3 <i>att.</i>	Z7-16:OAc	Underhill, 1977(a)	
<i>Euxoa</i> sp. 4 <i>att.</i>	Z5-12:OAc	Underhill, 1977(a)	
<i>Feltia ducens</i> Walker <i>att.</i>	Z11-16:OAc + Z9-14:Ald (1:1) + Z7-12:OAc + Z9-14:OAc (2000:1:1)	Underhill, 1977(a) Steck, 1982(a)	D
<i>Feltia jaculifera</i> Guenée dingy cutworm <i>phe.</i>	*Z11-16:OAc + Z9-14:OAc + Z7-12:OAc (1000:1:1)	Steck, 1986	D
species A	+ *Z9-14:OAc	Byers, 1990	
species B	+ *Z7-12:OAc (0:1:10) (2000:1:1)	Gemenio, 1998	
<i>Hermonassa cecilia</i> Butler <kurokumo-yaga> <i>att.</i>	Z9-14:OAc + Z9-14:Ald (9:1)	Ando, 1975 Ando, 1981	A
<i>Loxagrotis albicosta</i> Smith western bean cutworm <i>phe.</i>	*Z5-12:OAc + *Z7-12:OAc + *Δ11-12:OAc (5:1:5)	Klun, 1983	D

<i>Macronoctua onusta</i> Grote iris borer <i>phe.</i>	*Z11-16:Ald + *Z11-16:OH + *Z9-14:Ald (47:2:1) + other components	Klun, 1989	D
<i>Mesogona acetosellae</i> Denis & Schiffermüller <i>att.</i>	Z11-16:OAc	Stan in Arn, 1992	D
<i>Noctua comes</i> Hübner lesser yellow underwing moth <i>att.</i>	Z5-14:OAc	Priesner, 1985(a)	C
<i>Noctua fimbriata</i> Schreber <i>att.</i>	Z11-14:OAc + Z9-14:OAc (9:1)	Konstantin in Arn, 1986(a) Frerot, 1982(a) Ghizdavu, 1985	C
<i>Noctua fissipuncta</i> Haworth <i>att.</i>	Z11-16:Ald	Grichanov in Pherobase	C
<i>Noctua interjecta</i> Hübner <i>att.</i>	Z9-14:OAc + Z11-14:OAc	Priesner in Arn, 1986(a)	C
<i>Noctua janthina</i> Dennis & Schiffermüller <i>att.</i>	Z9-14:OAc + Z11-14:OAc (9:1)	Szöcs, 1983 Frerot, 1982(a) Ghizdavu, 1985	C
<i>Noctua orbona</i> Hufnagel <i>att.</i>	Z7-12:OAc	Subchev, 1990 Coroiu in Arn, 1997	C
<i>Noctua pronuba</i> L. large yellow underwing <i>att.</i>	Z11-14:OAc Z9,Z12,Z15-18:Ald + Z3,Z6,epo9-21:H + Δ1,Z3,Z6,epo9-21:H (8:1:1)	Hrudová, 2003 Ostrauskas, 2004	C C
<i>Ochropleura plecta</i> L. <maejiro-yaga> <i>att.</i>	Z11-16:OAc + E11-16:OAc (1:1)	Subchev, 1981 Voerman in Arn, 1986(a)	B

	+ Z11-16:Ald (20:1)	Priesner in Arn, 1986(a)	
	(100:3–100:1)	Tóth, 1986(b) Stan in Arn, 1992	
<i>Ochropleura signifera</i> Denis & Schiffermüller <i>att.</i>	Z9-14:OAc + Z9-14:OH	Subchev, 1990	C
<i>Ochropleura triangularis</i> Moore <kokimae-yaga> <i>att.</i>	Z9-14:OAc	Ando, 1977	A
<i>Opigena polygona</i> Denis & Schiffermüller <i>att.</i>	Z9-14:OAc + Z11-14:OAc	Peltotalo, 1986	D
<i>Paradiarsia littoralis</i> Packard <i>att.</i>	Z7-12:OAc + Z5-12:OAc (100:1)	Steck, 1982(a); (b)	C
<i>Peridroma saucia</i> Hübner variegated cutworm <nisetamana-yaga> <i>phe.</i>	Z11-16:OAc + Z9-14:OAc (2:1–1:1) (15:2)	Struble, 1976 Descoins, 1978 Landolt, 2003	A
	<i>*Z11-16:OAc</i> + <i>*Z9-14:OAc</i> (3:1)	Inomata, 2002	
In Korea	(2:1)	Choi, 2009(b)	
<i>Rhyacia</i> (=Diarsia) <i>rubi</i> Viewg. <i>att.</i>	Z11-16:OAc	Terytze, 1987	C
<i>Sineugraphe disgnosta</i> Boursin <usuirokabasuji-yaga> <i>att.</i>	Z7-12:OH	Ando, 1981	A
<i>Spaelotis clandestina</i> Harris w-marked cutworm <i>phe.</i>	Z7-14:Ald <i>*Z7-14:Ald</i> + other components	Steck, 1979(c) Steck, 1982(c)	C
<i>Tmetolophota atristriga</i> Walker pink grass worm strain A	<i>*Z11-16:OAc</i>	El-Sayed, 2022	D

phe.		+ *Z11-16:Ald (3:1)		
	strain B	*Z11-16:OAc + *Z11-16:Ald + *Z3,Z6,Z9-23:H (3:1:0.2) + other components		
<i>Xestia</i> (=Amathes, Rhyacia) baja Schifferrmüller dotted clay moth att.		Z9-14:OAc + Z7-12:OAc + Z5-12:OAc (1000:100:1)	Priesner, 1984(b)	C
<i>Xestia</i> (=Amathes) candelarum Staudinger att.		Z7-14:OAc E + Z5-14:OAc	Priesner, 1977 Priesner in Arn, 1986(a)	C
<i>Xestia</i> (=Amathes) c-nigrum L. spotted cutworm <shiromon-yaga> phe.				A
	U.S.A (small sp.)	E7-14:OAc	Roelofs, 1970(a)	
	U.S.A (large sp.)	Z7-14:OAc		
	Japan	Z7-14:OAc	Fujimura, 1976 Ando, 1977	
	Japan	*Z7-14:OAc	Hirai in Arn, 1986(a)	
	Germany		Bestmann, 1979	
	Canada	+ Z5-14:OAc (100:9–100:1)	Steck, 1982(d)	
	U.S.A.	(100:1)	Landolt, 2011	
	Bulgaria, Romania, Hungary	Z7-14:OAc	Subchev, 1996	
<i>Xestia</i> (=Amathes) collaris Grote & Robinson att.		Z7-14:OAc + Z9-14:OAc (1:1)	Steck, 1979(c)	C
<i>Xestia ditrapezium</i> Denis & Schifferrmüller <tanpo-yaga> att.		Z7-14:OAc + Z9-14:OAc + Z5-14:OAc (10:2:1)	Priesner, 1985(a)	B

<i>Xestia dolosa</i> Franclemont phe.	*Z7-14:OAc	Bjostad in Arn, 1986(a)	C
<i>Xestia rhomboidea</i> Esper att.	Z5-14:OAc + Z9-14:OAc (20:1)	Priesner, 1985(a)	C
<i>Xestia triangulum</i> Hufnagel att.	Z5-14:OAc	Priesner, 1985(a)	C
<i>Xestia xanthographa</i> Denis & Schiffermüller att.	Z9-14:OAc + Z11-14:OAc (9:1)	Booij, 198	C
	Z11-16:OAc + Z11-16:Ald (10:3)	Priesner in Arn, 1986(a)	
<i>Xestia</i> sp. att.	E11-14:Ald	Daterman, 1977	

(Noctuidae; Hadeninae) ヤガ科; ヨトウガ亜科

<i>Acantholeucania</i> (= <i>Mythimna</i>) <i>loreyi</i> Duponchel lorey leafworm <kusashiroki-yotou> phe.	Z9-12:OAc	Ando, 1977	A
	*Z9-14:OAc + *Z11-16:OAc	Takahashi, 1979	
	+ *Z7-12:OAc (20:5:2)	Takahashi, 1980; 1983 Sato, 1980	
	(100:20:9)	Wang, 2023	
	Z9-14:OAc + Z11-14:OAc	Soldán, 1983	
	+ Z7-12:OAc (9:1)	Lin, 1982	
	+ other components	Ho, 2002	
<i>Acosmetia caliginosa</i> Hübner att.	E9-14:OAc E	Priesner, 1975	D
<i>Agrochola circellaris</i> Hufnagel att.	Z11-16:OAc	Stan, 1992	C

<i>Agrochola helvola</i> L. att.	Z9-14:Ald + Z11-16:Ald (1:1)	Priesner in Arn, 1986(a)	C
<i>Agrochola humilis</i> Dennis & Shiffermüller att.	Z11-16:Ald + Z9-14:Ald (100:3)	Subchev, 1994	C
<i>Agrochola litura</i> L. att.	Z9-14:Ald + Z11-16:Ald (10:1)	Subchev, 1994 Priesner in Arn, 1986(a)	C
<i>Agrochola lota</i> Clerck att.	Z9-14:OAc	Subchev, 1990	C
<i>Agrochola lychnidis</i> Dennis & Shiffermüller att.	Z9-14:Ald	Subchev, 1994	C
<i>Agrochola macilenta</i> Hübner att.	Z11-16:OAc	Tóth, 1979 Stan in Arn, 1992	C
<i>Aletia oxygala</i> Grote att.	Z11-16:Ald + Z11-16:OAc (20:1)	Chisholm, 1979 Steck, 1982(a)	C
<i>Amphipoea americana</i> Speyer att.	Z9-14:OAc + Z11-14:OAc (5:1)	Struble, 1987(c)	C
<i>Amphipoea fucosa</i> Freyer <kitashoubu-yotou> att.	Z9-14:OAc + Z11-14:OAc (9:1)	Peltotalo, 1986 Mizukoshi, 2006	A
<i>Amphipoea oculea</i> L. att.	Z9-14:OAc + Z11-14:OAc (10:1)	Priesner in Arn, 1986(a)	C
<i>Anarta melanopa</i> Thunberg att.	Z11-16:OAc + Z11-16:Ald	Linnaluoto, 1983	D
<i>Anarta myrtilli</i> L. att.	Z9-14:OAc + Z11-14:OAc	Austara in Pherobase	D
<i>Andropolia contacta</i> Walker att.	Z5-12:OAc + Z7-12:OAc (1:1)	Steck, 1977(a)	D

<i>Anhimella contrahens</i> Walker att.	Z11-16:Ald + Z11-16:OH (10:1)	Steck, 1982(a)	D
<i>Apamea anceps</i> Denis & Shiffermüller att.	Z11-16:Ald + Z11-16:OH (1:3)	Grichanov in Arn, 1992 Sorochinskaya in Arn, 1992	C
<i>Apamea indela</i> Smith att.	Z11-16:OAc + Z11-16:OH + Z11-16:Ald (200:50:1)	Steck, 1982(b)	C
<i>Apamea inordinate</i> Morrison att.	Z11-16:OAc + Z11-16:OH	Byers, 1987	C
<i>Apamea</i> (= <i>Amphipoea</i>) <i>interoceanica</i> Smith strawberry cutworm att.	Z9-14:OAc + E11-14:OAc (5:1)	Roelofs, 1970(a) Struble, 1987(c)	C
<i>Apamea monoglypha</i> Hufnagel att.	Z11-16:OAc + Z11-16:Ald (100:1) (1000:1) + Z7-12:OAc (1:1)	Priesner in Arn, 1986(a) Stan in Arn, 1992 Stan in Arn, 1992 Subchev in Arn, 1992	C
<i>Apamea oblonga</i> Haworth <ishikari-yotou> att.	Z11-16:OAc + Z11-16:OH	Stan in Arn, 1992	A
<i>Apamea sordens</i> Hufnagel <shiromimihaiiro-yotou> att.	Z11-16:OAc + Z11-16:OH + Z11-16:Ald	Subchev in Arn, 1992	A
<i>Apamea</i> (= <i>Amphipoea</i>) <i>velata</i> Walker att.	Z11-16:OAc	Roelofs, 1971(a)	C
<i>Axylia</i> (= <i>Rhyathia</i>) <i>putris</i> L. <mokume-yoto> att.	Z9-14:OAc 12,12,12-F ₃ -Z9-12:OAc	Descoins, 1978 Szöcs, 1981 Ando, 1981 Bengtsson, 1990	A

	+ Z11-16:OAc	Priesner in Arn, 1986(a)	
<i>Dargida diffusa</i> Walker <i>att.</i>	Z11-16:OAc + Z11-16:Ald	Landolt in Pherobase	D
<i>Dargida terrapictalis</i> Buckett <i>att.</i>	Z11-16:OAc + Z11-16:Ald	Landolt in Pherobase	D
<i>Discestra</i> (=Scotogramma) <i>farnhami</i> Grote <i>att.</i>	Z11-16:Ald + Z9-14:Ald + Z9-16:Ald (100:1:1)	Steck, 1979(c) Steck, 1982(b)	C
<i>Discestra</i> (=Scotogramma) <i>trifolii</i> Hufnagel clover cutworm <i>phe.</i>	Z11-16:OAc + Z11-16:OH (9:1) + Z5-16:OAc (100:1) *Z11-16:OAc + *Z11-16:OH (9:1) Z11-14:OAc	Roelofs, 1970(a) Subchev, 1981 Krivokhizhin, 1984 Struble, 1975(a) Subchev, 1987 Underhill, 1976 Ayre, 1982(a) Boness, 1978 Hrdý, 1979	C
	Z11,E14-16:OAc + Z11,E14-16:OH (10:1)	Chisholm, 1980(b)	
<i>Dypterygia scabriuscula</i> L. <i>att.</i>	Z11-16:OAc + Z9-14:Ald	Stan, 1992	C
<i>Egira pulla</i> Denis & Schiffermüller <i>att.</i>	Z9-14:OAc	Subchev in Arn, 1992	C
<i>Enargia infumata</i> Grote <i>att.</i>	Z11-16:OAc + Z9-14:OAc (500:1)	Steck, 1982(b)	C
<i>Euplexia lucipara</i> L. <akagane-yotou> <i>att.</i>	Z11-16:Ald + Z11-16:OAc (10:1)	Priesner in Arn, 1986(a) Subchev in Arn, 1992	A
<i>Eupsilia quadrilinea</i> Leech	Z11-16:OH	Ando, 1977	A

<yosujinokome-kiriga> att.	or E11-16:OH		
<i>Eupsilia transversa</i> Hufnagel <ezomitsuboshi-kiriga> att.	Z11-16:OH	Priesner in Arn, 1986(a) Subchev in Arn, 1992	A
<i>Eupsilia tripunctata</i> Butler <mitsuboshi-kiriga> att.	Z11-16:OAc + Z11-16:Ald + Z11-16:OH (9:9:2)	Ando, 1981	A
<i>Faronta diffusa</i> Walker wheat head armyworm att.	Z11-16:OAc + Z11-16:Ald (9:1)	Underhill, 1977(a)	D
<i>Graphania bromias</i> Meyrick phe.	*Z9-14:OAc + *Z9-14:OH (2:1) + another component	Frérot, 1993(b)	D
<i>Graphania insignis</i> Walker phe.	*Z7-12:OH + *Z9-14:OH (1:1)	Frérot, 1993(b)	D
<i>Graphania mutans</i> Walker phe. Auckland population	*Z9-14:OH + *Z9-14:OAc + *Z7-14:OH + *Z7-14:OAc (100:50:13:3)	Frérot, 1991	D
Lincoln population	+ *Z9-14:Ald (15:35:14:5:100)		
<i>Graphania plena</i> Walker phe.	*Z7-12:OAc + *Z9-14:OAc (100:33) + other components	Frérot, 1993(b)	D
<i>Graphania ustistriga</i> Walker phe.	*Z7-12:OAc + *Z7-12:OH N	Frérot, 1993(b)	D
<i>Hada</i> (=Polia) <i>nana</i> Hufnagel att.	Z9-14:OAc E	Priesner, 1975	C
<i>Heliophobus reticulata</i> Gze. att.	Z9-14:OAc	Szöcs, 1983	C
<i>Helotropha reniformis</i> Grote att.	Z11-16:OAc + Z7-16:OAc (40:1)	Struble, 1977(c)	C

	+ Z11-16:OH (40:1:0.08)	Struble, 1987(b)	
<i>Hemiglaea</i> (=Blepharosis) <i>costalis</i> Butler <kimae-kiriga> <i>att.</i>	Z9-14:Ald + Z9-14:OAc (9:1)	Ando, 1981	A
<i>Hoplodrina alsines</i> Brahm <i>att.</i>	Z7-12:OAc + Z9-14:OAc (1:1) + Z11-16:OAc (1:1:1)	Arn, 1983 Szöcs, 1983	C
<i>Hoplodrina ambigua</i> Denis & Schiffermüller <i>att.</i>	Z11-16:OAc + Z11-16:OH	Sherman in Pherobase	C
<i>Hoplodrina blanda</i> Denis & Schiffermüller <i>att.</i>	Z9-14:OAc + Z9,E11-14:OAc + Z9,E12-14:OAc	Arn, 1983 Ostrauskas, 2003	C
<i>Hoplodrina octogenaria</i> Goeze <i>att.</i>	Z11-16:OAc Z9-14:OAc + Z9,E11-14:OAc + Z9,E12-14:OAc	Stan, 1992 Ostrauskas, 2003	C
<i>Hoplodrina superstes</i> Ochsenheimer <i>att.</i>	Z5-10:OAc + Z7-12:OAc (1:1) (1:10)	Szöcs, 1983 Subchev, 1990	C
<i>Hydraecia micacea</i> Esper potato stem borer <i>phe.</i>	*E11-14:OAc + *Z11-14:OAc + *Z9-14:OAc + *14:OAc (15:13:3:69) Z11-14:OAc + Z9-14:OAc + 14:OAc (13:3:69)	Teal, 1983 Burns, 1989	C
<i>Hypocoena rufostrigata</i> Packard <i>att.</i>	Z11-16:Ald + Z11-16:OH + Z9-14:Ald (100:1:1)	Steck, 1982(a)	D

<i>Hyssia cavernosa</i> Eversmann <i>att.</i>	Z9-14:OAc E	Priesner, 1975	D
<i>Ipimorpha pleonectusa</i> Grote <i>att.</i>	Z11-16:Ald + Z11-16:OH (100:1)	Steck, 1982(a)	C
<i>Ipimorpha retusa</i> L. <yanagi-kiriga> <i>att.</i>	Z11-16:OAc + Z11-16:OH (9:1)	Stan in Arn, 1992	A
<i>Ipimorpha subtusa</i> Denis & Schiffermüller <doro-kiriga> <i>att.</i>	Z11-16:Ald + Z9-16:Ald (19:1)	Grichanov in Pherobase Bulyginskaya in Pherobase	A
<i>Lacanobia subjuncta</i> Grote & Robinson <i>phe.</i>	*Z11-16:OAc + *Z11-16:Ald + *Z11-16:OH (3:1:0.08)	Landolt, 1998	C
<i>Lacinipolia lorea</i> Guenée <i>att.</i>	Z7-14:OAc	Roelofs, 1971(a)	D
<i>Lacinipolia renigera</i> Stephens bristly cutworm <i>phe.</i>	Z9-14:OAc *Z9-14:OAc + *Z9,E12-14:OAc (100:3)	Steck, 1982(a) Haynes, 1990	D
<i>Lacinipolia vicina</i> Grote <i>att.</i>	Z9-14:OAc + Z11-16:OAc + Z7-14:OAc (5:5:1)	Steck, 1982(a)	D
<i>Leucania anteoclara</i> Smith <i>phe.</i>	*Z11-16:OAc + *Z11-16:Ald + *Z9-14:OAc (10:4:1) + other components	Byers, 1997	C
<i>Leucania commoides</i> Guenée <i>phe.</i>	Z9-14:OAc + Z11-16:OAc + Z11-16:OH (5:4:1) *Z9-14:OAc + *Z11-16:OAc + *Z11-16:OH (5:4:1) + other components	Struble, 1977(d) Byers, 1997	C

<i>Leucania linda</i> Franclemout att.	Z9-14:OAc + Z11-14:OAc (19:1)	Roelofs, 1976(b)	C
<i>Leucania lithargyria</i> Esper att.	Z11-16:Ald	Grihanov in Arn, 1992	C
<i>Leucania multilinea</i> Walker att.	Z9-14:OAc + Z11-16:OAc + Z11-16:OH (4:4:1)	Struble, 1977(d)	C
<i>Leucania phragmitidicola</i> Guenée att.	Z9-14:OAc Z11-16:OAc	Roelofs, 1971(a) Fleischer, 2005	C
<i>Lithomoia solidaginis</i> Hübner <shirosuji-kiriga> att.	Z11-16:Ald	Underhill, 1977(a)	A
<i>Lithophane ornitopus</i> Hufnagel att.	Z9-14:OAc + Z9-14:Ald (10:1–2:1)	Subchev, 1990	C
<i>Lithophane thaxteri</i> Grote att.	Z9-14:OAc	Steck, 1979(c)	C
<i>Lithophane unimoda</i> Lintner att.	Z9-14:OAc	Steck, 1982(a)	C
<i>Mamestra biren</i> Goeze phe.	Z9-14:OAc + Z11-14:OAc (20:1) *Z9-14:OAc + *Z7-14:OAc + *14:OAc + *Z9-14:OH [72:11:15:2] N	Priesner in Arn, 1986(a) Frerot, 1987(b)	C
<i>Mamestra blenna</i> Hübner att.	Z11-16:OAc + Z11-16:OH + Z11-16:Ald (10:3:1)	Tóth, 1986(b)	C
<i>Mamestra brassicae</i> L. cabbage armyworm <yotouga> phe.	Z11-16:OAc *Z11-16:OAc + other components	Ando, 1977 Bestmann, 1978(b) Descoins, 1978 Hirai, 1978 Struble, 1980(b)	A

		Attygalle, 1987 Farine, 1981 Sugie, 1993	
	+ Z11-16:Ald (100:0.1)	Subchev, 1984 Stan in Arn, 1992	
	+ Z11-16:OFo (100:0.1)	Subchev, 1984	
	+ *Z11-17:OAc [19:1] N	Novák, 1979	
	(8:1)	Van de Veire, 1986	
	(4:1)	Nedopekina in Arn, 1992	
	+ Z7-12:OAc (5:1) or + Z9-14:OAc (1000:1)	Subchev, 1987	
	Z11-14:OAc	Hrdý, 1979	
<i>Mamestra cappa</i> Hübner <i>att.</i>	Z7-12:OAc + Z11-16:OAc + Z11-16:OH	Sherman in Pherobase	C
<i>Mamestra configurata</i> Walker bertha armyworm <i>phe.</i>	Z10-16:OAc	Struble, 1975(b)	C
	*Z11-16:OAc + E11-16:OAc (17:3)	Chisholm, 1975	
	+ *Z9-14:OAc (19:1)	Underhill, 1977(b)	
	(15:2)	Landolt, 2003	
	+ *Z7-12:OAc (500:26:0.1) or + Z11-16:Ald (500:26:1)	Struble, 1984	
	Z11-16:OAc + Z9-14:OAc + Z7-12:OAc + Z7-12:OH (250:13:20:10)	Byers, 1987	
<i>Mamestra contigua</i> Denis & Schiffermüller <i>att.</i>	Z11-16:OAc + Z11-16:OH (9:1)	Stan in Arn, 1992	C

<i>Mamestra</i> (= <i>Lacanobia</i>) <i>oleracea</i> L. phe.	*Z11-16:OAc + *Z11-16:OH [1:1] N (9:1)	Descoins, 1978 Kovalev in Arn, 1986(a) Sans, 1997	C
<i>Mamestra</i> (= <i>Melanchra</i>) <i>persicariae</i> L. att.	Z11-16:OAc	Möttus in Arn, 1986(a)	C
<i>Mamestra suasa</i> Denis & Schiffermüller phe.	Z11-16:OAc *Z11-16:OAc + Z11-16:Ald (1:1) (10:1) + *Z11-16:Ald (10:1) + other components + Z7-12:OAc (10:3) + Z7-12:OAc + Z11-16:Ald (100:100:1)	Subchev, 1981 Vrkoc, 1981 Szöcs, 1983 Subchev, 1984 Priesner in Arn, 1986(a) Tóth, 1986(b) Frerot, 1988(c) Subchev, 1987 Subchev in Arn, 1997	C
<i>Mamestra thalassina</i> Hufnagel phe.	Z11-16:OAc *Z11-16:OAc + *Z11-16:Ald + *Z11-16:OH E	Möttus in Arn, 1986(a) Renou, 1991	C
<i>Mamestra w-latinum</i> Hufnagel att.	Z11-16:OAc	Subchev, 1981 Szöcs, 1983	C
<i>Mesapamea secalis</i> L. att.	Z11-14:OH + E11-14:OH (97:3) Z11-16:OAc + Z11-16:OH	Fassotte in Arn, 1986(a) Subchev in Arn, 1992	C
<i>Mniotype versuta</i> Smith att.	Z9-14:OAc + Z11-16:OAc	Byers, 1987	C

<i>Morrisonia confusa</i> Hübner att.	Z11-16:OAc	Roelofs, 1970(a)	D
<i>Mythimna albipuncta</i> Denis & Schiffermüller att.	Z11-16:OH + Z11-16:Ald (1:1)	Tóth in Arn, 1986(a) Subchev in Arn, 1992	C
<i>Mythimna conigera</i> Denis & Schiffermüller att.	Z11-16:Ald	Subchev in Arn, 1992	C
<i>Mythimna farrago</i> F. att.	Z11-16:Ald	Tóth in Arn, 1986(a)	C
<i>Mythimna hamifera</i> Walker <uki-yotou> att.	Z11-16:Ald + Z9-16:Ald (19:1)	Kohno, 2014	A
<i>Mythimna pallens</i> L. att.	Z11-16:OAc + Z11-16:Ald (1:1)	Tóth in Arn, 1986(a) Subchev in Arn, 1992 Stan in Arn, 1992	C
<i>Mythimna turca</i> L. <futaobiki-yotou> att.	Z11-16:OAc + Z11-16:Ald + Z7-16:OAc Z11-16:Ald + Z9-16:Ald (19:1)	Subchev in Pherobase Kohno, 2014	A
<i>Mythimna vitellina</i> Hübner att.	Z11-16:OAc + Z11-16:Ald	Subchev in Arn, 1992	C
<i>Nedra ramosula</i> Guenée att.	Z11-14:OH	Roelofs, 1970(a)	D
<i>Nephelodes emmedonia</i> Cramer bronze cutworm att.	Z11-16:Ald	Underhill, 1977(a)	D
<i>Nephelodes minians</i> Guenée bronzed cutworm phe.	Z11-16:Ald + Z11-16:OAc *Z11-16:Ald + *Z11-16:OAc (5:1)	Steck, 1977(b) Zhu, 2004	D

<i>Oligia bridghami</i> Grote & Robinson att.	Z11-16:OAc + Z11-16:OH (500:1)	Steck, 1982(a)	C
<i>Oligia egens</i> Walker att.	Z11-16:OAc + Z7-16:OAc	Byers, 1987	C
<i>Oligia fascinucula</i> Haworth att.	Z9-14:OAc + Z11-14:OAc (9:1)	Boness, 1978	C
<i>Oligia furuncula</i> Hw. att.	Z11-16:OAc + Z11-16:Ald (10:1–10:3) + Z11-16:OH	Tóth, 1986(b) Subchev in Arn, 1992	C
<i>Oligia latruncula</i> Denis & Schiffermüller att.	Z9-14:OAc + Z11-16:OAc (1:1) + Z11-14:OAc (17:20:3)	Priesner, Tóth in Arn, 1986(a) Guerin in Arn, 1986(a)	C
<i>Oligia mactata</i> Guenée att.	Z11-16:OAc + Z11-16:OH (500:1)	Steck, 1982(a)	C
<i>Oligia strigilis</i> L. att.	Z11-16:OAc + Z9-14:OAc (9:1)	Szöcs, 1983	C
<i>Oligia versicolor</i> Borkhausen att.	Z9-14:OAc + Z11-14:OAc (10:1)	Priesner in Arn, 1986(a)	C
<i>Orbona fragariae pallidior</i> Warren <ichigo-kiriga> att.	Z11-16:Ald + Z9-16:Ald (19:1)	Kohno, 2014	A
<i>Orthodes crenulata</i> Butler att.	Z11-16:OAc	Roelofs, 1970(a)	D
<i>Orthodes vecors</i> Guenée att.	Z11-16:OAc	Roelofs, 1970(a)	D
<i>Orthosia angustipennis</i> Matsumura <hosoba-kiriga> att.	Z9,E12-14:OAc	Ando, 1977	A
<i>Orthosia carnipennis</i> Butler <akaba-kiriga>	Z9-14:OAc + Z11-16:OAc (1:1)	Ando, 1981	A

att.	+ Z11-14:OAc (9:1)	Mizukoshi, 2006	
<i>Orthosia cruda</i> Denis & Schiffermüller	Z11-16:OAc + Z9-14:OAc (9:1)	Booij, 1984(b)	C
att.	(20:1)	Tóth, 1993	
<i>Orthosia ella</i> Butler <yomogi-kiriga>	Z11-16:OAc	Ando, 1977	A
att.	+ Z11-16:Ald (1000:1)	Kakizaki in Pherobase	
<i>Orthosia evanida</i> Butler <kaba-kiriga>	Z9-14:Ald	Ando, 1981	A
att.			
<i>Orthosia gothica</i> L.	Z9-14:OAc + Z11-14:OAc (20:1)	Austara in Arn, 1986(a) Bradshaw, 1983	B
att.	+ Z9-14:OH + Z5-14:OAc (20:1:20:1)	Tóth, 1992(f)	
<i>Orthosia gothica</i> <i>askoldensis</i> Staudinger <kashiwa-kiriga>	Z9-14:Ald + Z9-14:OAc (9:1)	Ando, 1981	A
att.			
<i>Orthosia</i> (= <i>Monima</i>) <i>gracilis</i> Denis & Schiffermüller	Z11-16:OAc E	Priesner, 1975	C
att.	Z11-16:OAc	Struble in Arn, 1986(a) Subchev in Arn, 1992	
<i>Orthosia hibisci</i> Guenée speckled green fruitworm	Z9,E12-14:Ald or Z9-14:Ald	Hill, 1978	C
att.	Z9-14:Ald + Z11-14:Ald (100:1)	Steck, 1982(a)	
<i>Orthosia incerta</i> Hufnagel <miyamakaba-kiriga>	Z9-14:Ald + Z11-16:Ald (9:1)	Booij, 1984(b)	A
att.			

<i>Orthosia limbata</i> Butler <shiroheri-kiriga> <i>att.</i>	Z9-14:OAc + Z9-14:Ald (9:1)	Ando, 1981	A
<i>Orthosia lizetta</i> Butler <kuromimi-kiriga> <i>att.</i>	Z11-16:OAc + Z11-16:Ald (1:1)	Ando, 1981	A
<i>Orthosia miniosa</i> Denis & Schiffermüller <i>att.</i>	Z9-14:OAc + Z11-14:OAc (20:1)	Priesner in Arn, 1986(a)	C
<i>Orthosia munda</i> Denis & Schiffermüller <sumomo-kiriga> <i>att.</i>	Z11-16:OH + Z11-16:Ald (20:1) + Z11-16:OAc (9:9:2)	Tóth, 1993 Ando, 1981	A
<i>Orthosia odiosa</i> Butler <chairi-kiriga> <i>att.</i>	Z7-12:OAc	Ando, 1977	A
<i>Orthosia paromoea</i> Hampson <buna-kiriga> <i>att.</i>	Z7-14:OAc	Ando, 1977	A
<i>Orthosia stabilis</i> Denis & Schiffermüller <i>att.</i>	Z11-16:Ald + Z9-14:Ald (100:1)	Subchev, 1986(b) Tóth, 1993	C
<i>Pachetra sagittigera</i> (= <i>fulminea</i>) Hufnagel <i>att.</i>	Z7-12:OAc E Z7-12:OAc + Z5-12:OAc	Priesner, 1975 Priesner in Arn, 1986(a)	D
<i>Panolis flammea</i> Denis & Shiffermüller pine beauty moth <matsu-kiriga> <i>phe.</i>	Z9-14:OAc + Z11-14:OAc (20:1) or +Z11-16:OAc (20:1) Z9-14:OAc or Z9,E12-14:OAc *Z9-14:OAc + *Z11-16:OAc + *Z11-14:OAc (100:5:1)	Priesner, 1978 Priesner, 1983 Knauf, 1979 Baker, 1982	B

<i>Parastichtis discivaria</i> Walker att.	Z11-16:OAc + Z11-16:Ald	Steck, 1982(a)	C
<i>Parastichtis suspecta</i> Hübner <haiiro-yotou> att.	Z11-16:OAc	Myttus in Arn, 1986(a)	A
<i>Polia assimilis</i> Morrison att.	Z11-14:OAc + Z9-14:OAc (100:1)	Steck, 1982(b)	C
<i>Polia</i> (= <i>Lacanobia</i>) <i>atlantica</i> Grote att.	Z11-16:OAc + Z7-12:OAc (9:1) + Z11-16:Ald + Z11-14:Ald (200:1:1)	Steck, 1977(a) Steck, 1980(a)	C
<i>Polia bombycina</i> Hufnagel <oochairo-yotou> att.	Z9-14:OAc + Z9-14:Ald (1:1)	Tóth in Arn, 1986(a)	A
<i>Polia discalis</i> Grote att.	Z9-14:OAc + Z11-14:OAc (10:1)	Steck, 1982(a)	C
<i>Polia grandis</i> Boisduval att.	E9-14:OAc	Roelofs, 1970(a)	C
<i>Polia ingravis</i> Smith att.	Z9-14:OAc + Z11-16:OAc (100:1)	Steck, 1982(b)	C
<i>Polia lilacina</i> Harvey att.	Z7-14:OAc + Z9-14:OAc (10:1)	Steck, 1982(a)	C
<i>Polia nebulosa</i> Hufnagel <ooshirahoshi-yotou> att.	Z11-14:OAc + E11-14:OAc + Z9-14:OAc (100:10:3)	Subchev in Pherobase	A
<i>Polia</i> (= <i>Lacanobia</i>) <i>nevadae</i> Grote att.	Z11-16:OAc + Z11-16:Ald	Steck, 1982(a)	C
<i>Polia purpurissata</i> Grote att.	Z9-14:OAc + Z7-14:OAc (100:1)	Steck, 1982(a)	C
<i>Polia segregata</i> Smith att.	Z7-14:OAc + Z11-14:OAc (10:1)	Steck, 1979(c) Steck, 1982(a)	C

<i>Polia tacoma</i> Strecker <i>att.</i>	Z9-14:OAc + Z9-14:Ald (9:1) (100:1)	Underhill, 1977(a) Steck, 1982(b)	C
<i>Pseudaletia</i> (= <i>Leucania</i> , <i>Mythimna</i>) <i>separata</i> Walker oriental armyworm <awa-yotou> <i>phe.</i>			A
Japan strain	*Z11-16:OAc + *Z11-16:OH (4:1–9:1)	Takahashi, 1979; 1980	
China strain	(4:1) + *16:Ald + *Z11-16:OH (100:10:0.1) *Z11-16:Ald + another component	Lin in Arn, 1992 Zhu, 1987(c) Wei, 1985 Wang, 1997	
A strain	*Z11-16:Ald + other components	Meng, 2025	
E strain	*Z11-16:OAc + *Z11-16:OH (4:1) + other components		
Taiwan strain	*Z11-16:OAc + *Z11-16:OH (2:1) + other components	Kou, 1992(b)	
Russian strain	*Z11-16:Ald + *Z11-16:OAc (20:1) + other components	Lebedeva, 2000(a)	
<i>Pseudaletia</i> (= <i>Mythimna</i>) <i>unipuncta</i> Haworth armyworm moth <i>phe.</i>	*Z11-16:OAc + other components Z11-16:OAc + Z11-16:OH (100:0.2) + Z11-16:Ald + Z9-14:OAc (100:0.2:0.05:0.01)	Hill, 1980 McDonough, 1980 Farine in Arn, 1992 Soldán, 1983 Steck, 1980(a) Steck, 1982(e)	C

	+ Z9-14:OAc + 16:OAc (1:5:2:1)	Guerrero, 1986	
	+ Z11-16:Ald + 12:OAc (9:1:1:2)	Rotundo in Arn, 1992	
<i>Rhynchaglaea fuscipennis</i> Sugi <kurochamadara-kiriga> <i>att.</i>	Z7-12:OAc	Ando, 1977	A
	Z9-14:Ald	Ando, 1981	
<i>Rhynchaglaea scitula</i> Butler <chamadara-kiriga> <i>att.</i>	Z9,E12-14:OH	Ando, 1977	A
<i>Sarcopolia</i> (= <i>Mamestra</i>) <i>illoba</i> Butler <shiroshita-yotou> <i>att.</i>	Z11-16:OAc	Ando, 1977	A
<i>Sesamia calamistis</i> Hampson <i>phe.</i>	*Z11-16:OAc + *Z9-14:OAc (3:1) + other components	Zagatti, 1988	C
<i>Sesamia cretica</i> Lederer durra stemborer <i>phe.</i> in Italy	Z9-14:OH + Z9-14:OAc (3:1)	Arsura, 1977	C
	*Z9-14:OH + *Z9-14:OAc + *Z11-16:OH (90:1:9)	Germinara, 2007	
in Iran, Egypt	(8:1:1)	Avand-Faghih, 2008	
<i>Sesamia grisescens</i> Walker <i>phe.</i>	*Z11-16:OAc + *Z11-16:OH (3:2) + other components	Whittle, 1995	C
<i>Sesamia inferens</i> Walker purple stem borer pink borer <ine-yotou> <i>phe.</i> China	*Z11-16:OAc + Z11-16:OH (4:1)	Nesbitt, 1976 Wu, 1986(a)	A
	+ *Z11-16:OH + *Z11-16:Ald (4:1:0.1)	Zhu, 1987(b)	
Japan	+ *Z11-16:OH (3:1)	Nagayama, 2006	

	+ Z9-14:OAc	L.-Cassou In Pherobase	
<i>Spodoptera</i> (= <i>Prodenia</i>) <i>eridania</i> Cramer southern armyworm phe.	*Z9-14:OAc + *Z9,E12-14:OAc (4:1) (1:1) + *Z9,E11-14:OAc (7:3:1) + other components + Z11-16:OAc (56:21:9:14)	Jacobson, 1970 Redfern, 1971 Teal, 1985 Mitchell, 1994	C
<i>Spodoptera evanida</i> att.	Z9-14:OAc + Z9,E12-14:OAc	L.-Cassou in Pherobase	C
<i>Spodoptera exempta</i> Walker African armyworm <afuricashirona-yotou> phe.	*Z9-14:OAc + *Z9,E12-14:OAc (20:1) (99:1–9:1) + *Z11-16:OAc (20:1:1) + other components	Beevor, 1975 Wakamura, 2011 Cork, 1989	A
<i>Spodoptera exigua</i> Hübner beet armyworm <shiroichimoji-yotou> phe.	*Z9,E12-14:OAc + other componets + *Z9-14:OH (5:4) + other componets att. (10:1) att. (9:1–7:3) + *Z9,E12-14:OH + other components att. (7:3-3:7) *Z9,E12-14:OAc + *Z9-14:OH + *Z11-16:OAc (87.2:2.5:10.3) + other components att. (7:3:1–7:3:5) phe. (56:37:7) + other componets	Brady, 1972(a) Persoons, 1981 Tumlinson, 1981 Mitchell, 1983 Wakamura, 1987 Mochizuki, 1993 Mochizuki, 1994 Tumlinson, 1990 Mitchell, 1994 Jung, 2003 Acin, 2010	A

<i>Spodoptera frugiperda</i> J. E. Smith fall armyworm phe.	Z5,Z9-13:OAc or E5,Z9-13:OAc *Z9-14:OAc + Z9,E12-14:OAc (24:1) + Z9-12:OAc (1:20) + Z9-12:OAc + Z7-12:OAc + Z11-16:OAc (81.61:0.25:0.45:17.69) + *Z7-12:OAc (30:1) + other components + *9:Ald (1000:5.8:10)	Warthen, 1967 Sekul, 1967 Mitchell, 1976 Jones, 1979 Mitchell, 1985 Tumlinson, 1986 Descoins, 1988 Saveer, 2023	C
Brazil strain	+ *Z7-12:OAc + *E7-12:OAc (100:1:1) + other components	Batista-Pereira, 2006	
Invasive strain in Japan	+ *Z7-12:OAc (100:1) + other components + *Z11-16:OAc + *Z9-12:OAc + *Z9,E12-14:OAc (200:2:40;1:1)	Wakamura, 2021 Tabata, 2023	
Chaina strain	(25:1) + other components	Jiang, 2022	
Chaina strain	+ *Z11-16:OAc (88:1:11) + other components	Wang, 2022	
strains in Kenya	+ *Z7-14:OAc + *Z11-14:OAc + *Z11-16:OAc N	Sisay, 2024	
Australia atrain	+ *Z7-12:OAc + *Z9-12:OAc + *Z11-16:OAc (86:3:6:5) N	Akter, 2025	
<i>Spodoptera latifascia</i> Walker phe.	*Z9-14:OAc + *Z9,E12-14:OAc N	Teixeira, 1989	C

	(19:1) + other components	Monti, 1995	
<i>Spodoptera littoralis</i> Boisduval cotton leafworm phe.	*Z9,E11-14:OAc + other components + *Z9,E12-14:OAc (10:1) (100:1) + other components + *E10,E12-14:OAc N	Nesbitt, 1973 Campion, 1974; 1980 Dunkelblum, 1987(b) Tamaki, 1974(a) Yushima, 1974 Kehat, 1976; 1977 Dunkelblum, 1982 Navarro, 1997	C
<i>Spodoptera litura</i> F. common cutworm <hasumon-yotou> phe.	*Z9,E11-14:OAc + *Z9,E12-14:OAc (9:1)	Tamaki, 1973 1974(b)	A
<i>Spodoptera pectinicornis</i> Hampson <ukikusa-yoto> att.	Z7-12:OAc	Hai, 2002	C
<i>Spodoptera</i> (= <i>Prodenia</i>) <i>praefica</i> Grote western yellow-striped armyworm phe.	Z7-12:OAc *Z7-12:OAc + *Z9-14:OAc (50:1) + other components	Birch, 1977 Landolt, 2003	C
<i>Spodoptera sunia</i> Guenée phe.	*Z9-14:OAc (major) + *Z9-14:OH + *Z11-16:OAc + *Z9,E12-14:OAc N	Bestmann, 1988(a)	C
<i>Spodoptera trituratora</i> Walker att.	Z9-14:OAc (major) + Z9,E12-14:OAc + E9-14:OAc (17:3)	Campion, 1975 Blair, 1978	C
<i>Tholera cespitis</i> Denis & Schiffermüller att.	Z11-16:Ald	Subchev in Pherobase	D
<i>Trachea atriplicis</i> L. <shirosujiao-yotou>	Z11-16:OAc + Z11-16:OH (8:1)	Stan in Arn, 1992	B

att.	(4:1)	Li, 1993(d)	
	+ Z11-16:Ald (10:1:1)	Subchev, 1992	
<i>Xanthia icteritia</i> Hufnagel <monki-kiriga> att.	Z11-16:Ald	Grichanov in Pherobase	A
	+ Z9-16:Ald (19:1)	Bulyginskaya in Pherobase	
<i>Xanthia lutea</i> Ström att.	Z9,E12-14:Ald	Steck, 1982(a)	C
<i>Xylena exoleta</i> L. att.	Z11-16:Ald	Subchev in Pherobase	C
<i>Xylena formosa</i> Butler <kibaramokume-kiriga> att.	Z11-16:Ald	Ando, 1977	A
	+ Z9-16:Ald (19:1)	Kohno, 2014	
<i>Xylena fumosa</i> Butler <ayamokume-kiriga> att.	Z11-16:Ald + Z9-16:Ald (19:1)	Kohno, 2014	A
<i>Xylomyges curialis</i> Grote phe.	*Z11-16:OH	McDonough, 1982(b)	C
<i>Xylomyges dolosa</i> Grote att.	Z7-12:OAc	Steck, 1979(c)	C

(Noctuidae; Cuculliinae) ヤガ科 ; セダカモクメ亜科

<i>Allophytes oxyacanthae</i> L. att.	Z9-14:OAc + Z9-14:OH (1:1)	Tóth in Arn, 1986(a)	D
<i>Ammoconia caecimacula</i> Denis & Shiffermüller att.	Z9-14:OAc	Tóth, 1979	D
<i>Antivaleria</i> (= <i>Valeriodes</i>) <i>viridimacula</i> Graeser <aobahagata-kiriga> att.	Z11-16:OAc	Ando, 1977	A

<i>Atethmia ambusta</i> F. att.	Z7-14:OAc + Z5-14:OAc (10:1)	Subchev, 1995	D
<i>Blepharita solieri</i> Boisduval phe.	*Z11-16:Ald	Rotundo, 1983	C
<i>Callierges ramosa</i> Esper att.	Z11-16:OAc + Z11-16:Ald	Subchev, 1986(b)	D
<i>Calophasia platyptera</i> Esper att.	Z9-14:OAc + Z9-14:Ald (1:1)	Tóth in Arn, 1986(a)	D
<i>Conistra grisescens</i> Draudt <miyamaobi-kiriga> att.	Z7-12:OAc	Ando, 1977	A
<i>Conistra rubiginea</i> Denis & Schiffermüller att.	Z11-16:OAc + Z11-16:Ald	Subchev in Arn, 1992	C
<i>Conistra torida</i> L. att.	Z11-16:OAc + Z11-16:Ald	Subchev in Pherobase	C
<i>Conistra unimacula</i> Sugi <hoshiobi-kiriga> att.	Z11-16:OAc	Ando, 1977	A
<i>Conistra vaccinii</i> L. att.	Z7-14:OAc	Priesner in Arn, 1986(a)	C
<i>Conistra veronicae</i> Hübner att.	Z7-12:OAc	Subchev, 1990	C
<i>Copitarsia decolora</i> Guenée phe.	*Z9-14:OAc + *Z9-14:OH (100:1 – 4:1)	Rojas, 2006	D
<i>Copitarsia uncilata</i> Burgos & Leiva phe.	*Z9-14:OAc or *E9-14:OAc + other components N	Altamar-Varón, 2016	D
<i>Cucullia argentea</i> Hufnagel <aomonginsedakamokume> att.	Z7-12:OFo	Szöcs, 1981	A
<i>Cucullia chamomilliae</i> Denis & Schiffermüller att.	Z9-14:OAc + Z11-14:OAc (9:1)	Frerot, 1982(a)	C

<i>Cucullia florea</i> Guenée <i>att.</i>	Z9-14:OAc	Steck, 1982(a)	C
<i>Cucullia intermedia</i> Speyer <i>att.</i>	Z9-14:OAc	Roelofs, 1971(a)	C
<i>Cucullia lucifuga</i> Denis & Schiffermüller <miyamasedakamokume> <i>att.</i>	Z9-14:OAc + Z7-14:OAc + 14:OAc (8:1:1) 12,12,12-F ₃ -Z9-12:OAc	Frérot, 1987(a) Bengtsson, 1990	A
<i>Cucullia lychnitis</i> Rambur <i>att.</i>	Z9-14:OH E	Priesner, 1975	C
<i>Cucullia omissa</i> Dod <i>att.</i>	Z9-14:OAc	Steck, 1982(a)	C
<i>Cucullia postera</i> Guenée <i>att.</i>	Z9-14:OAc + Z9-14:Ald (100:1)	Steck, 1982(a)	C
<i>Cucullia speyeri</i> Lintner <i>att.</i>	Z9-14:OAc	Steck, 1982(a)	C
<i>Cucullia tanaceti</i> Denis & Schiffermüller <i>att.</i>	Z9-14:OAc + Z7-12:OAc (5:1)	Konstantin in Arn, 1986(a)	C
<i>Cucullia umbratica</i> L. <i>att.</i>	Z9-14:OAc E Z9-14:OAc + Z9-14:OH (1:4) + Z7-12:OAc (1:1) or + Z7-14:OAc (1:1) + Z7-12:OAc + Z5-10:OAc (1:1:1) + Z7-12:OAc + Z11-14:OAc + Z7-12:OAc	Priesner, 1975 Platia in Arn, 1986(a) Szöcs, 1983 Coroiu, 1986 Priesner in Arn, 1986(a) Ostrauskas, 2003	C
<i>Epiglaea apiata</i> Grove	*Z9-16:OAc	Zhang, 2003(b)	D

cranberry blossom worm <i>phe.</i>	+ *Z9-14:OAc + *14:OAc		
<i>Fishia derelicta</i> Hampson <i>att.</i>	Z7-12:OAc + Z9-14:OAc (3:1) + Z9-14:Ald (4:8:1)	Steck, 1982(a) Underhill, 1977(a)	D
<i>Fishia evelina hanhami</i> Grote <i>att.</i>	Z5-14:OAc + Z9-14:OAc (8:1)	Steck, 1979(c)	D
<i>Homoglaea</i> sp. <i>att.</i>	E11-14:OAc	Dateman, 1977	D
<i>Homohadena infixa</i> Walker <i>att.</i>	Z7-14:OAc + Z9-14:OAc (100:1)	Steck, 1982(b)	D
<i>Isopolia strigidisca</i> Moore <himarayahagata-yotou> <i>att.</i>	Z11-14:OAc	Ando, 1981	A
<i>Jodia croceago</i> Denis & Schiffermüller <i>att.</i>	Z11-16:OAc	Subchev, 1990	C
<i>Oncocnemis chandleri</i> Grote <i>att.</i>	E5,Z7-12:OAc	Reed, 1984	C
<i>Oncocnemis cibalis</i> Grote <i>att.</i>	E5,Z7-12:OAc + Z7-12:OAc (1:1)	Reed, 1984	C
<i>Oncocnemis lepipuloides</i> McDunnough <i>att.</i>	Z7-12:OAc + Z9-14:OAc	Steck, 1982(a)	C
<i>Oncocnemis mackiei</i> Barnes & Benjamin <i>att.</i>	E5,Z7-12:OAc	Reed, 1984	C
<i>Oncocnemis piffardi</i> Walker <i>att.</i>	Z9-12:OAc Z9-14:OAc + Z7-12:OAc (500:1)	Underhill, 1977(a) Steck, 1982(b)	C
<i>Polymixis polymita</i> L. <i>att.</i>	Z9-14:OAc + Z11-14:OAc (1:1)	Ghizdavu, 1985	D

<i>Pyreferra citrombra</i> Franclemont att.	Z9-14:OAc + Z7-12:OAc	Roelofs, 1971(a) Steck, 1982(a)	D
<i>Rancora albida</i> Guenée att.	Z9-14:OAc	Steck, 1982(a)	D
<i>Sunira bicolorago</i> Guenée att.	Z9-16:OAc + Z11-16:OAc	Steck, 1982(a)	D
<i>Sutyna profunda</i> Smith att.	Z9-16:OAc + Z11-16:OAc	Steck, 1982(a)	D
<i>Sympistis heliophila</i> Paykull <takane-yotou> att.	Z7-12:OAc	Linnaeuoto, 1983	A
<i>Telorta acuminata</i> Butler <usukitogari-kiriga> att.	Z11-16:Ald + Z9-16:Ald (19:1)	Ando, 1981 Kohno, 2014	A
<i>Telorta divergens</i> Butler <nokometogari-kiriga> att.	Z11-16:OAc	Ando, 1975	A
<i>Telorta edentata</i> Leech <kitogari-kiriga> att.	E11-16:OAc or Z11-16:OAc	Ando, 1975 Ando, 1977	A
<i>Teratoglaea pacifica</i> Sugi <eguri-kiriga> att.	Z9-14:OAc or Z9,E12-14:OAc	Ando, 1977	A

(Noctuidae; Amphipyrrinae) ヤガ科 ; カラスヨトウ亜科

<i>Agroperina cogitata</i> Smith att.	Z11-16:OAc + Z9-14:OAc (20:1)	Steck, 1982(a) Byers, 1987	C
<i>Agroperina dubitans</i> Walker att.	Z11-16:OAc + Z9-14:OAc (20:1)	Underhill, 1977(b)	C
<i>Agroperina indela</i> Smith att.	Z11-16:OAc + Z11-16:OH (9:1)	Ayre, 1982(a)	C

<i>Agroperina popofensis indela</i> Smith <i>att.</i>	Z11-16:OAc + Z11-16:OH	Byers, 1987	C
<i>Amphipyra monolitha</i> Guenée <ooshimakarasu-yotou> <i>att.</i>	Z11-16:OAc	Ando, 1975	A
<i>Amphipyra pyramidea</i> L <i>att.</i>	Z11-16:OAc	Subchev in Pherobase	B
<i>Athetis dissimilis</i> Hampson <ten-usuiro-yotou> <i>att.</i>	Z9-14:OH Z9,E12-14:OH + Z9-14:OH (9:1)	Ando, 1977 Kim, 2016	A
<i>Athetis hospes</i> Freyer <i>att.</i>	Z9-14:OH	Capizzi, Guerrero in Arn, 1986(a) Albages, 1988 Guerrero, 1986	C
<i>Athetis lepigone</i> Möschler <kousuiro-yotou> <i>phe.</i>	Z7-12:OAc + Z9-14:OAc (1:1) *Z9-14:OAc + *Z7-12:OAc (7:3)	Szöcs, 1981 Li, 1993(d) Yan, 2018(a)	A
<i>Athetis</i> (= <i>Dadica</i>) <i>lineosa</i> Moore <shiromon-obi-yotou> <i>att.</i>	Z9-14:OAc + Z11-14:OAc (1:1)	Ando, 1981	A
<i>Athetis pallustris</i> Hübner <i>att.</i>	Z9-14:OAc + Z7-14:OAc (9:1)	Frérot, 1987(a)	C
<i>Athyra pulmonaris</i> Esper <i>att.</i>	Z11-16:OAc + Z11-16:OH (1:1)	Priesner in Arn, 1986(a)	D
<i>Busseola fusca</i> Fuller maize stalk borer <i>phe.</i>	*Z11-14:OAc + *E11-14:OAc + *Z9-14:OAc (5:1:1) + *Z11-16:OAc (62:15:13:10)	Nesbitt, 1980c Hall, 1981 Félix, 2009	D
<i>Busseola segeta</i> Bowden <i>phe.</i>	*Z11-14:OAc + *E11-14:OAc + *Z11-16:OAc	Félix, 2011	D

	+ *Z9-14:OAc + *Z11-14:OH (62:20:10:5:5)		
<i>Busseola</i> sp. phe.	*Z11-14:OAc + *E11-14:OAc + *Z11-16:OAc + *Z9-14:OAc + *Z11-14:OH (62:20:10:5:5)	Félix, 2011	D
<i>Charanyca trigrammica</i> Hufnagel att.	Z5-10:OAc + Z7-12:OAc + Z9-14:OAc (3:1:1)	Arn, 1983	D
<i>Crymodes devastator</i> Brace glassy cutworm att.	Z11-16:Ald + Z11-16:OAc + Z11-16:OH (100:50:3)	Steck, 1980(c)	C
<i>Dicycla oo</i> L. att.	Z9-14:OAc + Z11-16:OAc (9:1)	Szöcs, 1983	D
<i>Diparopsis castanea</i> Hmpson red bollworm phe.	*E9,Δ11-12:OAc + *Δ11-12:OAc (4:1) + *Z9,Δ11-12:OAc (16:4:5) + other components	Nesbitt, 1973 Nesbitt, 1975(a)	D
<i>Gortyna flavago</i> Schiffermüller att.	Z11-16:Ald + Z9-16:Ald (25:1)	Subchev, 1994	C
<i>Gortyna leucostigma</i> Hübner att.	Z11-16:OAc	Priesner in Arn, 1986(a)	C
<i>Gortyna xanthenes</i> Germar artichoke moth phe.	*Z11-16:Ald + *Z9-16:Ald + *Z11-16:OH + *16:Ald (500:15:12:15)	Rotundo, 1985(a)	C
<i>Oria musculosa</i> Hübner att.	Z11-16:OAc	Subchev, 1981 Tóth, 1992(e)	D
<i>Orthogonia sera</i> Felder & Felder <nokomesedaka-yotou> att.	Z7-12:OAc	Ando, 1975	A
<i>Panemeria tenebrata</i> Scopoli att.	Z9-14:OAc	Szöcs, 1983	D

	+ Z11-14:OAc (9:1)	Ghizdavu, 1985	
<i>Platysenta videns</i> Guenée <i>att.</i>	Z11-16:Ald + Z9-14:Ald + 16:Ald + 14:Ald (12:4:3:6)	Teal, 1982	C
<i>Protagrotis niveivenosa</i> Grote <i>att.</i>	Z11-16:Ald + Z9-14:OAc	Steck, 1982(a)	D
<i>Protagrotis obscura</i> Barnes & McDunnough <i>att.</i>	Z11-16:Ald	Kamm, 1982	D
<i>Thalpophila matura</i> Hufnagel <i>att.</i>	Z11-16:OAc	Subchev in Arn, 1992	D

(Noctuidae; *Sarrothripinae*) ヤガ科 ; キノカワガ亜科

<i>Nolathripa</i> (= <i>Lamprothripa</i>) <i>lactaria</i> Graeser <komabashiro-kinokawaga> <i>att.</i>	Z9,E12-14:OPr	Ando, 1977	A
--	---------------	------------	---

(Noctuidae; *Chloephorinae*) ヤガ科 ; リンガ亜科

<i>Earias biplaga</i> Walker <i>att.</i>	Z11-16:Ald	Nesbitt, 1979(b)	C
<i>Earias insulana</i> Boisduval spiny bollworm <i>phe.</i>	*E10,E12-16:Ald + E10,Z12-16:Ald + Z11-16:Ald (10:1:2)	Hall, 1980 Cork, 1988	C
<i>Earias vittella</i> F. spotted bollworm <kusaobi-ringa> <i>phe.</i>	*E10,E12-16:Ald + *Z11-16:Ald + *Z11-18:Ald (5:1:1) + another component	Cork, 1985(b); 1988	A

(Noctuidae; *Acontiinae*) ヤガ科 ; コヤガ亜科

<i>Deltotes candidula</i> Denis & Schiffermüller att.	Z9-16:Ald	Capizzi in Arn, 1986(a)	D
<i>Emmelia</i> (= <i>Acontia</i>) <i>trabealis</i> Scopoli <kimadara-koyaga> att.	Z5-10:OAc Z11-16:OAc + Z5-10:OAc (10:1)	Arn, 1983 Szöcs, 1983 Nagy, 2023 Subchev, 1987	A
<i>Eustrotia uncula</i> Clerck <suji-koyaga> att.	Z5-10:OAc + Z3-10:OAc (10:1)	Priesner, 1988(b)	A
<i>Lithacodia albidula</i> Guenée att.	Z5-12:OAc + Z7-14:OAc	Steck, 1982(a)	C
<i>Lithacodia deceptor</i> Scopoli att.	Z7-12:OH	Priesner in Arn, 1986(a)	C
<i>Lithacodia pygarga</i> Hufnagel marbled white-spot moth <shirofu-koyaga> att.	Z7-14:OAc + Z5-14:OAc (10:1)	Priesner, 1985(a)	A
<i>Lithacodia signifera</i> Scopoli att.	Z9-14:OAc	Li, 1993(d)	C
<i>Micardia argentata</i> Butler <shirohishimon-koyaga> att.	E7-12:OAc or Z7-12:OAc	Ando, 1977	A
<i>Naranga aenescens</i> Moor rice green caterpillar <futaobi-koyaga> phe.	*Z11-16:OAc + *Z9-16:OAc + *Z9-14:OAc (4:1:1) Korean strain (4:1:2)	Ando, 1980(a) Cho, 2014	A
<i>Phyllophila oblitterata</i> <i>cretacea</i> Butler <yomogi-koyaga> att.	Z9-14:OAc or Z9,E12-14:OAc	Nagano, 1979	A

(Noctuidae; Plusiinae) ヤガ科 ; キンウワバ亜科

<i>Anadevidia peponis</i> F. <urikin-uwaba> phe.	*Z7-12:OAc + *Z5-10:OAc + *Z7-12:OH (10:5:1) + other components	Inomata, 2000	A
<i>Anagrapha falcifera</i> Kirby celery looper att.	Z7-12:OAc + Z7-12:OFo (1:1) + Z7-12:OH (10:1)	Roelofs, 1970(a) Butler, 1977 Steck, 1979(b)	D
<i>Argyrogramma signata</i> F. att.	Z5-10:OAc	Hai, 2002	D
<i>Argyrogramma verruca</i> F. phe.	Z7-12:OAc + E7-12:OAc (47:3) *Z5-10:OAc	McLaughlin, 1975 Heath, 1987	D
<i>Autographa aemula</i> Denis & Schiffermüller att.	Z7-12:OH	Priesner in Arn, 1986(a)	C
<i>Autographa ampla</i> Walker att.	Z7-12:OAc	Roelofs, 1970(a)	C
<i>Autographa biloba</i> Stephens phe.	*Z7-12:OAc N	Berger, 1968	C
<i>Autographa bractea</i> Denis & Schiffermüller att.	Z7-12:OH	Priesner in Arn, 1986(a)	C
<i>Autographa californica</i> Speyer alfalfa looper phe.	Z7-12:OAc + Z7-12:OFo (5:1) *Z7-12:OAc + Z7-12:OH (10:1) + Z9-14:OAc + Z11-16:OAc (80:6:2:13)	Shorey, 1965 Butler, 1977 Kaae, 1973(b) Steck, 1979(b) Landolt, 2003	C

<i>Autographa</i> (= <i>Autoplusia</i>) <i>egena</i> Guenée att.	Z5-12:OAc	Kaae, 1973(a)	C
<i>Autographa flagellum</i> Walker att.	Z7-12:OAc + Z7-14:OAc	Steck, 1979(c)	C
<i>Autographa gamma</i> L. silver Y moth <gamakin-uwaba> phe.	Z7-12:OAc + Z7-12:OH (20:1)	Ghizdavu, 1979 Priesner in Arn, 1986(a)	A
	Z7-14:OAc + E7-14:OAc	Soldán, 1983	
	*Z7-12:OAc + *Z7-12:OH (10:1–19:1)	Dunkelblum, 1983 Tóth, 1983 Mazor, 1992	
<i>Autographa nigrisigna</i> Walker semi-looper <tamanagin-uwaba> phe.	*Z7-12:OAc + *Z7-12:OH + *Z5-12:OAc + *Z7-14:OAc (100:62:2:4) + other components	Sugie, 1991(a)	A
<i>Autographa precationis</i> Guenée att.	Z7-12:OAc	Roelofs, 1971(a)	C
<i>Autographa pulchrina</i> Haworth att.	Z7-12:OAc E	Priesner, 1977	C
<i>Chrysaspidia bractea</i> Schiffermüller att.	Z11-16:OAc	Bykhovets in Pherobase	D
<i>Chrysaspidia contexta</i> Grote att.	Z7-12:OAc	Roelofs, 1970(a)	D
<i>Chrysaspidia festucae</i> L. att.	Z11-17:OH	Bykhovets in Pherobase	D
<i>Chrysaspidia venusta</i> Walker att.	Z5-12:OAc + Z7-12:OAc (1:1)	Steck, 1977(a)	D
<i>Chrysodeixis acuta</i> Walker <hosobanekin-uwaba>	Z5-10:OAc + Z7-12:OAc (1:1)	Tóth, 1992(c)	A

att.			
<i>Chrysodeixis argentifera</i> Guenée att.	Z7-12:OAc	Tóth in Arn, 1986(a)	C
<i>Chrysodeixis eriosoma</i> Doubleday New Zealand silver Y moth <ichijikukin-uwaba> phe.	*Z7-12:OAc + *Z9-12:OAc (50:1) or + Z9-14:OAc (5:1) Z7-12:OAc + Z9-12:OAc (17:3) + Z9-14:OAc + Z11-16:OAc (10:2:1)	Benn, 1982 Sugie, 1990 Inomata, 2000	A
<i>Cornutiplusia</i> (= <i>Syngrapha</i>) <i>circumflexa</i> L. phe.	Z7-12:OH + Z7-12:OAc (5:1) *Z7-12:OH + *Z7-12:OAc (5:1)	Dunkelblum in Arn, 1986(a) Mazor, 1991	C
<i>Ctenoplusia</i> (= <i>Acanthoplusia</i>) <i>agnata</i> Staudinger three-spotted plusia <mitsumonkin-uwaba> phe.	*Z7-12:OAc + *Z9-12:OAc (10:1)	Sugie, 1990	A
in Vietnam	Z7-12:OAc	Hai, 2002	
<i>Ctenoplusia albostrigata</i> Bremer & Grey <ezogikukin-uwaba> phe.	*Z9,E12-14:OAc N Z7-12:OAc + Z5-10:OAc (2:1)	Boughdad in Arn, 1997 Inomata, 2000	A
in Vietnam	(9:1)	Hai, 2002	
in Japan	*Z7-12:OAc + other components	Inomata, 2005	
<i>Diachrysia chrysitis</i> L. burnished brass moth <ezohisagokin-uwaba> phe.	Z7-10:OAc + Z5-12:OAc (1:9) + Z5-10:OAc (1:10)	Capizzi in Arn, 1986(a) Priesner, 1985(c) Tóth, 1988	A

	*Z7-10:OAc + *Z5-10:OAc	Hansson in Arn, 1992 Löfstedt, 1994	
<i>Diachrysia chryson</i> Esper <ookin-uwaba> att.	Z7-12:OAc + Z7-12:OH (1:1)	Priesner, 1985(c)	A
<i>Diachrysia nadeja</i> Oberthür <kohisagokin-uwaba> att.	Z7-10:OAc + Z5-10:OAc	R.-Reser in Pherobase	A
<i>Diachrysia stenochrysis</i> Warren <oohisagokin-uwaba> phe.	*Z7-10:OAc + other components	Inomata, 2005	A
<i>Diachrysia tutti</i> Kostr. phe.	Z7-10:OAc + Z5-10:OAc (50:1)	Priesner, 1985(c) Tóth, 1988	C
	*Z7-10:OAc + *Z5-10:OAc	Hansson in Arn, 1992 Löfstedt, 1994	
<i>Macdunnoughia confusa</i> Stephens <kikugin-uwaba> phe.	Z7-12:OAc + Z9-14:OAc (1:1) + Z7-14:OAc	Booij, 1984(a) Ando, 1981 Li, 1993(d)	A
	*Z7-12:OAc + *Z9-14:OAc (5:1) + other components	Inomata, 2000	
<i>Macdunnoughia crassigna</i> Warren <ookikugin-uwaba> phe.	*Z7-12:OAc + *Z9-14:OAc (3:1) + another component	Wang, 2024	A
<i>Macdunnoughia purissima</i> Butler <ginmonshiro-uwaba> phe.	Z7-12:OAc + Z5-10:OAc + Z7-12:OH + Z5-12:OAc (10:5:1:1)	Inomata, 2000	A
	*Z7-12:OAc + *Z7-12:OH + *Z5-12:OAc (5:4:1)	Inomata, 2005	

<i>Plusia aereoides</i> Grote att.	Z7-12:OAc	Roelofs, 1970(a)	C
<i>Plusia</i> (= <i>Chrysodeixis</i>) <i>chalcites</i> Esper tomato looper phe.	*Z7-12:OAc + *Z9-14:OAc (5:1) + other components + *Z9-12:OAc (10:1:1)	Dunkelblum, 1981 Dunkelblum, 1987(a); 1993	C
<i>Plusia festucae</i> L. rice looper <inekin-uwaba> phe.	*Z5-12:OAc + *Z7-14:OAc + *Z5-12:OH (100:15:6) + another component	Ando, 1995(b)	A
<i>Plusia</i> (= <i>Chrysaspidia</i>) <i>putnami</i> Grote att.	Z5-12:OAc + Z7-12:OAc (100:1)	Steck, 1977(a) Steck, 1982(b)	B
<i>Pseudoplusia includens</i> Walker soybean looper phe.	*Z7-12:OAc + *12:OAc + *Δ11-12:OAc + *Z7-12:OPr + *Z7-12:OBu (93.2:1.2:0.7:0.9:0.2)	Berger, 1968 Tumlinson, 1972 Linn, 1987	D
<i>Rachiplusia ou</i> Guenée phe.	*Z7-12:OAc N	Berger, 1968	D
<i>Sclerogenia</i> (= <i>Autographa</i>) <i>jessica</i> Butler <waginmon-uwaba> att.	Z7-12:OAc + Z7-12:OH (9:1)	Ando, 1981	A
<i>Syngrapha ain</i> Hochenwarth <kishitagin-uwaba> phe.	Z7-12:OH + Z7-12:OAc (3:1) *Z7-12:OAc + *Z7-12:OH (3:2)	Priesner in Arn, 1986(a) Inomata, 2005	A
<i>Syngrapha epigaea</i> Grote att.	Z7-12:OAc + 14:OAc (20:1)	Steck, 1982(a)	C

<i>Syngrapha parilis</i> Hübner att.	Z7-12:OAc	Linnaluoto, 1983	C
<i>Syngrapha rectangula</i> Kirby att.	Z7-12:OAc	Steck, 1982(a)	C
<i>Syngrapha variabilis</i> att.	Z7-14:OAc E	Priesner, 1977	C
<i>Thysanoplusia intermixta</i> Warren chrysanthemum golden plusia <kikukin-uwaba> phe.	*E5,Z7-12:OAc + *E5,Z7-12:OH + *Z7-12:OAc (100:13:18) + another component	Ando, 1998	A
<i>Thysanoplusia orichalcea</i> F. <nettaikikukin-uwaba> phe.	*Z7-12:OAc + *E5,Z7-12:OAc (100:11) + other components	Ando, 1998	A
<i>Trichoplusia ni</i> Hübner cabbage looper <irakusagin-uwaba> phe.	*Z7-12:OAc + *12:OAc (9:1) + other components + Z7-14:OAc (200:1) Z7-12:OAc	Berger, 1966 Kaae, 1973(b) Bjostad, 1980(b); 1984 Dunkelblum, 1993 Linn, 1984 Steck, 1980(a) Mayer, 1995	A
<i>Trichoplusia oxygramma</i> Geyer att.	Z7-12:OAc + E7-12:OAc (47:3) + Z9-14:OAc (10:0.9)	Mitchell, 1972; 1973 McLaughlin, 1975 Landolt, 1986(c)	C
<i>Zonoplusia ochureata</i> Walker <koseakakin-uwaba> att.	Z7-12:OAc + Z5-12:OAc (1:1)	Hai, 2002	A

(Noctuidae; Metoponiinae) ヤガ科 ;

<i>Tyta luctuosa</i> Denis & Schiff. phe.	*Z11-16:Ald + * Z9-14:Ald (5:1) N + other components	Cao, 2002, 2003	D
--	--	-----------------	---

(Nolidae) コブガ科

<i>Nola confusalis</i> Herrich-Schäffer <hime-kobuga> att.	E10,Z12-16:Ald	Priesner in Arn, 1986(a)	A
<i>Uraba lugens</i> Walker gum leaf skeletonizer phe.	E10,Z12-16:OAc + E10,Z12-16:OH (3:1) *E10,Z12-16:OAc + *E10,Z12-16:OH (3:1) + another component	Suckling, 2005(b) Gibb, 2008	D

(Erebidae; Calpinae) トモエガ科 ; エグリバ亜科

<i>Rusicada privata</i> Walker hibiscus-leaf caterpillar moth <ooaka-kiriba> phe.	*Me7-17:H	Kim, 2023	A
--	-----------	-----------	---

(Erebidae; Catocalinae) トモエガ科 ; シタバガ亜科

<i>Achaea janata</i> L. castor semilooper <shirahoshiashibuto-kuchiba> phe.	*Z3,Z6,Z9-21:H + *Z6,Z9-21:H + *21:H + *Z9,Z12-18:Ald (65:1:1:1)	Persoons, 1993 Krishnakumari, 1998	A
<i>Anticarsia gemmatilis</i> Hübner velvetbean caterpillar phe.	*Z3,Z6,Z9-20:H + *Z3,Z6,Z9-21:H (5:3) (39:11)	Heath, 1983 McLaughlin, 1989	C
<i>Bastilla arctotaenia</i> Guenée <hosoobiashibuto-kuchiba> phe.	*Z3,Z6,Z9-21:H	Abubaker, 2024(a)	A
<i>Caenurgina distincta</i> Neumuller phe.	Z3,Z6,Z9-20:H + Z3,Z6,epo9-20:H (1:1) (9S,10R)-isomer	Wong, 1985(b)	D

	*Z3,Z6,Z9-20:H + *Z3,Z6,epo9-20:H (8:1) + other components	Millar, 1991(b)	
<i>Caenurgina erechtea</i> Cramer forage looper phe.	*Z3,Z6,Z9-21:H + *Z3,Z6,Z9-20:H (4:1)	Underhill, 1983	D
<i>Euclidia cuspidea</i> Hübner phe.	Z3,Z6,Z9-21:H + Z3,Z6,epo9-21:H + Z3,Z6,Z9-20:H (45:1:1)	Wong, 1985(b) Underhill in Arn, 1986(a)	C
	*Z3,Z6,Z9-21:H + *Z3,Z6,epo9-21:H (10:1) + other components	Millar, 1991(b)	
<i>Eulepidotis addens</i> Walker att.	Z3,Z6,epo9-21:H (9S,10R)-isomer E	Renou, 1988	D
<i>Gonodonta bidens</i> Geyer att.	Z3,Z6,Z9-21:H E	Renou, 1988	D
<i>Gonodonta incurva</i> Sepp att.	Z3,Z6,Z9-21:H E	Renou, 1988	D
<i>Gonodonta parens</i> Guenée att.	Z3,Z6,Z9-21:H E	Renou, 1988	D
<i>Gonodonta sicheas</i> Cramer att.	Z3,Z6,Z9-21:H E	Renou, 1988	D
<i>Grammodes geometrica</i> F. <nakaguro-kuchiba> phe.	*Z3,Z6,Z9-21:H + *Z3,Z6,Z9-23:H + *Z3,Z6,Z9-20:H (50:2:1)	Abubaker, 2024(b)	A
<i>Hypenomorpha calamina</i> Butler <hirobachibitogari-atsuba> att.	Z6,epo9-20:H	Ando, 1995(a)	A
<i>Lesmone formularis</i> Geyer att.	Z3,Z6,epo9-21:H (9S,10R)-isomer E	Renou, 1988	D
<i>Massala obvertens</i> Walker att.	Z3,Z6,Z9-20:H E	Renou, 1988	D

<i>Melipotes fasciolaris</i> Hübner att.	Z3,Z6,epo9-21:H (9S,10R)-isomer E	Renou, 1988	D
<i>Melipotes januaris</i> Guenée att.	Z3,Z6,Z9-21:H E	Renou, 1988	D
<i>Mocis disseverans</i> Walker phe.	*Z3,Z6,Z9-21:H + *Z3,Z6,Z9-20:H (49:1) Z3,Z6,Z9-21:H	Landolt, 1986(b) McLaughlin, 1989	C
<i>Mocis latipes</i> Guenée phe.	*Z3,Z6,Z9-21:H + *Z6,Z9-21:H (3:1) (4:1) + *Z3,Z6,Z9-20:H (49:1)	Descoins, 1986 Landolt, 1989(b) Landolt, 1986(b)	C
<i>Mocis marcida</i> Guenée phe.	*Z3,Z6,Z9-21:H + *Z3,Z6,Z9-20:H N	Landolt, 1986(b)	C
<i>Mocis megas</i> Guenée phe.	*Z3,Z6,Z9-21:H + *Z3,Z6,epo9-21:H (9S,10R)-isomer E	Descoins, 1990	C
<i>Neachrostia bipuncta</i> Sugi <futatenchibi-atsuba> att.	Z3,Z6,Z9-18:H	Ando, 1995(a)	A
<i>Ophisma tropicalis</i> Guenée att.	Z3,Z6,epo9-21:H (9S,10R)-isomer E	Renou, 1988	C
<i>Pangrapta trimantesalis</i> Walker <unmontsumakiri-atsuba> att.	Z3,Z6,epo9-23:H	Ando, 1995(a)	A
<i>Paragabara flavomacula</i> Oberthür <kiboshi-atsuba> att.	Z3,epo6,Z9-21:H	Ando, 1993	A
<i>Syllectra erycata</i> Cramer att.	Z3,Z6,epo9-21:H E	Renou, 1988	D
<i>Zale duplicata</i> Bethune att.	Z3,Z6,epo9-21:H (9R,10S)-isomer	Wong, 1985(b)	D

<i>Zale fictilis</i> Guenée <i>att.</i>	<i>Z3,Z6,epo9-21:H</i> (9 <i>S</i> ,10 <i>R</i>)-isomer E	Renou, 1988	D
<i>Zale lunifera</i> Hübner <i>att.</i>	<i>Z3,Z6,epo9-21:H</i> (9 <i>R</i> ,10 <i>S</i>)-isomer	Landolt,1996	D

(Erebidae; Ophiderinae) トモエガ科 ; クチバ亜科

<i>Aedia leucomelas</i> L. <nakajiro-shitaba> <i>phe.</i>	<i>*Z3,Z6,Z9-21:H</i>	Tamaki, 1996	A
<i>Alabama argillacea</i> Hübner <i>phe.</i>	<i>*Me9-19:H</i> (<i>S</i>)-isomer + other components	Hall, 1993	D
<i>Anomis sabulifera</i> Guenée jute semilooper <i>phe.</i>	<i>*Z6,Z9-21:H</i> + <i>*Z3,Z6,Z9-21:H</i> (3:1)	Babu, 2021	C
<i>Anomis texana</i> <i>phe.</i>	<i>*Me7-17:H</i> (<i>S</i>)-isomer + another component	Hall, 1993	C
<i>Hypersynoides submarginata</i> Walker <ooshiroten-kuchiba> <i>att.</i>	<i>epo3,Z6,Z9-19:H</i> + <i>Z3,Z6,Z9-19:H</i> (1:1–1:0.1)	Witjaksono, 1999	A
<i>Hypocala andremona</i> Stoll <i>att.</i>	<i>Z3,Z6,epo9-21:H</i> (9 <i>S</i> ,10 <i>R</i>)-isomer E	Renou, 1988	C
<i>Hypocala rostrata</i> F. <indokishita-kuchiba> <i>att.</i>	<i>Z3,epo6,Z9-21:H</i> (6 <i>S</i> ,7 <i>R</i>)-isomer + <i>epo3,epo6,Z9-21:H</i> (10:1)	Wakamura, 2002	A
<i>Luceria</i> sp. <i>att.</i>	<i>Z3,Z6,epo9-18:H</i>	Hai, 2002	C
<i>Oraesia excavata</i> Butler fruit-piercing moth <akaeguriba> <i>phe.</i>	<i>*Z6,epo9-21:H</i> + <i>*Z3,Z6,epo9-21:H</i> (20:0–17:3) (9 <i>S</i> ,10 <i>R</i>)-isomer	Ohmasa, 1991 Yamamoto, 1999	A

<i>Rivula leucanioides</i> Walker <take-atsuba> att.	Z3,epo6,Z9-18:H	Ando, 1995(a)	A
<i>Rivula propinqualis</i> Guenée att.	epoxydienes of Z3,Z6,Z9-19:H Z3,Z6,Z9-19:H + Z3,epo6,Z9-19:H (6S,7R)-isomer (10:1)	Wong, 1985(b) Millar, 1990(a)	C
<i>Rivula sasaphila</i> Sugi <kuriiro-atsuba> att.	Z3,epo6,Z9-19:H	Ando, 1993	A
<i>Rivula sericealis</i> Scopoli <tenkuro-atsuba> att.	Z3,epo6,Z9-19:H	Ando, 1993	A
<i>Scoliopteryx libatrix</i> L. herald moth <hagata-kiriba> phe.	*Z6,Me13-21:H (S)-isomer	Francke, 2000 Toshova, 2003	A
Gen et sp. att.	Δ 1,Z3,Z6,Z9-19:H	Yamamoto, 2008	A

(Erebidae; Hypeninae) トモエガ科 ; アツバ亜科

<i>Bomolocha palparia</i> Walker (?) att.	Z3,Z6,epo9-20:H (9S,10R)-isomer	Wong, 1985(b)	C
<i>Hypena</i> sp. att.	Z3,Z6,epo9-21:H	Hai, 2002	C
<i>Lomanaltes eductalis</i> Walker att.	Z3,Z6,epo9-21:H (9S,10R)-isomer	Wong, 1985(b)	D
<i>Spargaloma sexpunctata</i> Grote att.	Z3,Z6,epo9-20:H (9S,10R)-isomer	Wong, 1985(b)	D

(Erebidae: Herminiinae) トモエガ科 ; クルマアツバ亜科

<i>Adrapsa notigera</i> Butler <fujiro-atsuba> att.	Z3,epo6,Z9-23:H	Ando, 1995(a)	A
<i>Bleptina caradrinalis</i> Guenée att.	epoxydienes of Z3,Z6,Z9-21:H Z3,epo6,Z9-21:H (6R,7S):(6S,7R) = 4:1 or Z3,epo6,Z9-20:H (6R,7S):(6S,7R) = 1:1	Wong, 1985(b) Millar, 1991(c)	C
<i>Idia aemula</i> Hübner att.	epoxydienes of Z3,Z6,Z9-21:H	Wong, 1985(b)	D
<i>Idia americalis</i> Guenée att.	epoxydienes of Z3,Z6,Z9-20:H Z3,epo6,Z9-20:H (6S,7R)-isomer + Z3,epo6,Z9-21:H (6S,7R)-isomer (1:1)	Wong, 1985(b) Millar, 1991(c)	D
<i>Palthis angulalis</i> Hübner att.	epo6,Z9-19:H (6S,7R)-isomer	Millar, 1991(a)	D
<i>Paracolax pryeri</i> Butler <shirotenmurasaki-atsuba> att.	Z3,epo6,Z9-20:H	Ando, 1993	A
<i>Renia salusalis</i> Walker att.	Z3,epo6,Z9-19:H (6S,7R)-isomer	Landolt, 1996	D
<i>Tetanolita mynesalis</i> Walker phe.	*Z3,epo6,Z9-21:H (6S,7R)-isomer + *Z3,Z6,Z9-21:H (1:1)	Haynes, 1996	D
<i>Zanclognatha lunaris</i> Scopoli <kobuhige-atsuba> att.	Me2,epo7-18:H	Minyailo, 1977	A
<i>Zanclognatha</i> sp. att.	Z3,epo6,Z9-19:H	Hai, 2002	C

(Erebidae: Lymantriinae) トモエガ科 ; ドクガ亜科

<i>Arna</i> (=Euproctis) <i>pseudoconspersa</i> Strand tea tussock moth <cha-dokuga> phe.	*Me10,Me14-15:OisoBu + *Me14-15:OisoBu (20:1–5:1) + another component (10R:10S = 10:0–1:9)	Wakamura, 1994 Ichikawa, 1995 Wakamura, 1996(b) Zhao, 1998 Tsai, 1999	A
<i>Artaxa</i> (=Euproctis) <i>subflava</i> Bremer oriental tussock moth <dokuga> phe.	*Me10,Me14-15:OisoBu (R)-isomer + another component	Wakamura, 2007(b)	A
<i>Dasychira baibarana</i> Matsumura tea black tussock moth phe.	*Z3,Z6,epo9-21:H + *Z3,Z6,epo9,E11-21:H + *Z3,Z6-21:11-one (5:4:11)	Magsi, 2022	C
<i>Dasychira grisefacta ella</i> Bryk. att.	Z6-21:11-one	Daterman, 1976	C
<i>Dasychira plagiata</i> Walker att.	Z6-21:11-one + E6-21:11-one (100:1)	Grant, 1977	C
<i>Dasychira vagans grisea</i> Barnes & McDunnough att.	Z6-21:11-one	Daterman, 1976	C
<i>Euproctis chrysorrhoea</i> L. browntail moth phe.	*Z7,Z13,Z16,Z19-22:OisoBu	Leonhardt, 1991 Khrimian, 2008	C
<i>Euproctis terminalis</i> Walker pine browntail moth phe.	*Z7,Z13,Z16,Z19-22:OisoBu	Bouwer, 2021	C
<i>Gynaephora ginghamensis</i> phe.	*Z3,Z6,Z9-21:H + Z3,Z6,Z9-20:H (100:1)	Chen in Arn, 1986(a)	C
<i>Leucoma salicis</i> L. satin moth <yanagi-dokuga> phe. In Canada	*Z3,epo6,epo9-21:H + other components (6S,7R,9S,10R)-isomer	Gries, 1997(c) Holden, 2000	A

In Hungary	(6R,7S,9R,10S)-isomer	Szöcs, 2005	
<i>Lymantria bantaizana</i> Matsumura <bantai-maimai> phe.	*Me2,Z7,E9-18:H	Gries, 2005(c)	A
<i>Lymantria concolor</i> Walker att.	Me2,epo7-18:H	Bhardwaj, 1987	C
<i>Lymantria</i> (= <i>Porthetria</i>) <i>dispar</i> L. gypsy moth phe.	*Me2,epo7-18:H (7R,8S)-(+)-isomer	Bierl, 1970; 1972 Klimetzek, 1976 Cardé, 1977(b) Miller, 1978	B
	+ *Me2,epo7,Δ17-18:H (7R,8S)-(+)-isomer + other components	Gries, 2005(a)	
<i>Lymantria dispar asiatica</i> Vnukovskij Asian gypsy moth att.	Me2,epo7-18:H (7R,8S)-isomers	Wallner, 1984	B
	+ Me2,epo7,Δ17-18:H (10:1) (7R,8S)-isomers	Park, 2019	
<i>Lymantria dispar japonica</i> Motschulsky Japanese gypsy moth <maimaiga> att.	Me2,epo7-18:H (7R,8S)-(+)-isomer	Beroza, 1973(a) Iwaki, 1974	A
<i>Lymantria fumida</i> Butler <haraaka-maimai> phe.	Me2,epo7-18:H *Me2,epo7-18:H (7R,8S)-(+)-isomer + *Me2,Z7-18:H (10:1)	Beroza, 1973(a) Schaefer, 1999	A
<i>Lymantria lucescens</i> Butler phe. <ooyama-maimai>	*Me2,Z7-18:H	Gries, 2002	A
<i>Lymantria mathura</i> L. rosy (pink) gypsy moth <kashiwa-maimai> phe.	Me2,epo7-18:H (7R,8S)-(+)-isomer *Z3,Z6,epo9-19:H	Odell, 1992 Oliver, 1999	A

	(9S,10R)-isomer + another component		
	(9S,10R):(9R,10S) = (4:1)	Gries, 1999(b)	
<i>Lymantria monacha</i> L. nun moth <nonne-maimai> phe.	Me2,epo7-18:H	Schönherr, 1972 Klimetzek, 1976 Minyailo, 1976	A
	*Me2,epo7-18:H	Bierl, 1975	
	(-):(+) = 9:1 E	Hansen, 1984	
	(+)-isomer + Me2,Z7-18:H (1:3)	Grant, 1996	
	(+)-isomer + *epo7-18:H (7R,8S)-(+)-isomer + *Me2,Z7-18:H (10:10:1)	Gries, 1996; 2001	
	(±)-Me2,epo7-18:H + (±)-epo7-18:H + Me2,Z7-18:H (10:10:1)	Vasian, 2025	
<i>Lymantria obfuscata</i> Walker Indian gypsy moth phe.	Me2,epo7-18:H	Beroza, 1973(b)	C
	*Me2,epo7-18:H (7R,8S)-(+)-isomer + *Me2,Z7-18:H (2:1)	Gries, 2007	
<i>Lymantria serva</i> phe.	*Me2,Z7-18:H	Gries, 2002	C
<i>Lymantria xyliana</i> Swinhoe Casuarina moth <maeguro-maimai> phe.	*Me2,epo7-20:H	Gries, 1999(c)	A
<i>Orgyia antiqua</i> L. rusty tussock moth att.	Z6-21:11-one	Daterman, 1976	C
<i>Orgyia cana</i> Edwards western tussock moth att.	Z6-21:11-one	Daterman, 1976	C

<i>Orgyia detrita</i> Guérin-Ménéville phe.	*Z6,Z9-21:11-OH S:R = 1:1 [S:R = 7:2] + *Z6,Z9-20:11-OH + *Z6,Z9-22:11-OH (10:1:1)	Gries, 2003	C
<i>Orgyia ericae</i> Germar grey-spotted tussock moth phe.	*Z6,Z9-21:H + *Z6-21:11-one (10:1) + another component	Chen, 2010	C
<i>Orgyia gonostigma</i> att.	Z6-21:11-one	Kovalev in Arn, 1992	C
<i>Orgyia leucostigma</i> J. E. Smith white-marked tussock moth phe. (scale extract)	Z6-21:11-one *Z6,Z9-21:11-one + other components *24:H + *25:H + other components	Grant, 1977 Grant, 2003; 2008 Grant, 1987(b)	C
<i>Orgyia postica</i> Walker <koshiromon-dokuga> phe. Okinawa strain Ishigaki strain Taiwan strain	 *Z6,Z9,tepo11-21:H (11S,12S)-isomer + other components + *Z6-21:11-one	 Wakamura, 2001(a); 2005(a) Chow, 2001	A
<i>Orgyia pseudotsugata</i> McDunnough Douglas-fir tussock moth phe.	*Z6-21:11-one + *Δ1,Z6-21:11-one + *Z6,E8-21:11-one (100:1)	Smith, 1975 Smith, 1978 Gries, 1997(a)	C
<i>Orgyia thyellina</i> Butler white-spotted tussock moth <himeshiromon-dokuga> phe.	*Z6-21:11-one + *Z6-21:9-one (20:1)	Gries, 1999(a)	A
<i>Orgyia vetusta</i> Boisduval western tussock moth phe.	*Z6,E8-21:11-one + other components	Gries, 2005(d)	C

<i>Orvasca</i> (=Euproctis) <i>taiwana</i> Shiraki <taiwanki-dokuga> phe.	*Z9,Me16-17:OisoBu + another component	Yasuda, 1995	A
<i>Perina nuda</i> F. clear-winged tussock moth <sukiba-dokuga> phe.	*Z3,epo6,Z9-21:H (6S,7R)-isomer + *epo3,epo6,Z9-21:H (10:1) [(3S,4R,6S,7R): (3R,4S,6S,7R) = 3:2]	Yamazawa, 2001 Wakamura, 2002	A
<i>Somena</i> (=Euproctis) <i>pulverea</i> Leech <gomafuri-dokuga> phe.	*Z11,Z14,Z17-20:OisoBu + *Z11,Z14,Z17-20:O-Me4'Va (2:1) + other components	Wakamura, 2001(c)	A
<i>Sphrageidus</i> (=Euproctis) <i>similis</i> Fuessly browntail moth <monshiro-dokuga> phe.	*Z7-18:O-Me2'Bu (2'S:2'R = 7:2) + *Z7-18:OisoVa + *Z7-18:OBu + *Z7-18:OisoBu (20:12:1:1) + other components	Yasuda, 1994	A
<i>Sphrageidus</i> (=Euproctis) <i>similis xanthocampa</i> Dyar <monshiro-dokugamodoki> phe.	*Z7-18:OisoVa + other components	Tan, 1984	A
<i>Teia anartoides</i> Walker painted apple moth phe.	*Z6,Z9-21:11-one + *Z6,epo9-21:H (9R,10S)-isomer + *Z6,Z9-21:H + other components	El-Sayed, 2004(a); 2005(a) Gries, 2005(b)	D

(Erebidae: Arctiinae: Lithosiini) トモエガ科 ; ヒトリガ亜科 ; コケガ族

<i>Barsine aberrans aberrans</i> Butler <hagatabeni-kokega> att.	17:7-OPr (S)-isomer + 17:8-OPr (S)-isomer (1:1)	Fujii, 2013(b)	A
<i>Barsine expressa</i> Inoue <sakishimabeni-kokega> phe.	*17:7-OPr (S)-isomer + *17:8-OPr (S)-isomer (1:1) + other components	Fujii, 2013(b)	A

<i>Eilema japonica</i> Leech <kimae-hosoba> phe.	*Z6,Z9-21:H + *Z3,Z6,Z9-21:H + *Z6,Z9-22:H + *Z3,Z6,Z9-22:H (86:17:59:57) + other components	Fujii, 2010(b)	A
<i>Lyclene dharma dharma</i> Moore <himehoshiki-kokega> phe.	*Me6-18:2-one (S)-isomer + *Me14-18:2-one (2:1) (S)-isomer + another component	Yamamoto, 2007 Do, 2009 Adachi, 2010	A
<i>Miltochrista calamina</i> Butler <hagataki-kokega> phe.	*Me5-17:7-OH (5R,7R)-isomer	Yamakawa, 2011(b) Muraki, 2014	A
<i>Miltochrista striata</i> Bremer & Grey phe.	*Z3,Z6,epo9-18:H + *Z3,Z6,Z9-18:H (3:2)	Luo, 2019	B

(Erebidae: Arctiinae: Synthomini) トモエガ科 ; ヒトリガ亜科 ; カノコガ族

<i>Amata</i> (= <i>Syntomis</i>) <i>phegea</i> L. att.	Me2,epo7-18:H Z3,Z6,Z9-21:H	Capek, 1979 Szöcs, 1987	C
<i>Dysauxes ancilla</i> L. att.	Δ1,Z3,Z6,Z9-19:H + Z3,Z6,Z9-19:H (1:1)	Szöcs, 1987	D
<i>Empyreuma mucro</i> Zerny phe.	*Z3,Z6,epo9-21:H (major) + *Z3,Z6,Z9-21:H N	Descoins, 1989	D
<i>Syntomeida epilais</i> Walker phe.	*Z3,Z6,epo9-21:H (major) + *Z3,Z6,Z9-21:H N	Descoins, 1989	D
<i>Syntomoides imaon</i> Cramer <muramatsu-kanoko> phe.	*Δ1,Z3,Z6,Z9-21:H + *Z3,Z6,Z9-21:H + other components	Matsuoka, 2008	A

(Erebidae: Arctiinae: Arctiini) トモエガ科 ; ヒトリガ亜科 ; ヒトリガ族

<i>Amsacta albistriga</i> Walker	*Z3,Z6,Z9-21:H + *Z9,Z12,Z15-18:Ald + *Z9,Z12-18:Ald	Persoons, 1993	D
----------------------------------	--	----------------	---

	+ *18:Ald (24:11.5:1:1)		
<i>Arctia caja</i> L. <hitoriga> phe.	*Z3,Z6,Z9-21:H + *Z3,Z6,epo9-21:H + *Z3,Z6,epo9-20:H N	Bestmann, 1992(a)	B
<i>Arctia plantaginis</i> wood tiger moth <himekishita-hitori> phe.	*Z3,Z6,Z9-21:H + *E4,Z6,Z9-21:H + *Δ1,Z3,Z6,Z9-21:H + *Z2,E4,Z6,Z9-21:H E [30:3:5:1]	Muraki, 2017	A
<i>Arctia villica</i> phe.	*Z3,Z6,Z9-21:H + *Δ1,Z3,Z6,Z9-21:H N	Einhorn, 1984(a)	C
<i>Callimorpha dominula</i> L. scarlet tiger moth phe.	*Z3,Z6,epo9-21:H N (9S,10R)-isomer	Clarke, 1996	C
<i>Cretonotos gangis</i> L. <kurosui-hitori> phe.	*Z3,Z6,epo9-21:H (major) + *Z3,Z6,Z9-21:H + *Z3,Z6,Z9-23:H N	Bell, 1986 Wunderer, 1986	A
<i>Cretonotos transiens</i> Walker <haiiro-hitori> phe.	*Z3,Z6,epo9-21:H (major) + *Z3,Z6,Z9-21:H + *Z3,Z6,Z9-23:H N	Bell, 1986 Wunderer, 1986	A
<i>Cyana</i> sp. att.	Z3,Z6,epo9-18:H	Hai, 2002	C
<i>Cymbalophora pudica</i> Esper phe.	*Z3,Z6,epo9-21:H (9S,10R)-isomer E	Frerot, 1988(b)	D
<i>Diacrisia oblique</i> Walker Bihar hairy caterpillar phe.	*Z3,Z6,Z9-21:H + *Z3,Z6,epo9-21:H + *Δ1,Z3,Z6,epo9-21:H + *Z9,Z12,Z15-18:Ald + *Z9,Z12-18:Ald (26:10:5:30:10)	Persoons, 1993 Yadav, 2001	C
<i>Estigmene acrea</i> saltmarsh caterpillar moth phe.	*Z3,Z6,epo9-21:H + *Z9,Z12,Z15-18:Ald + *Z9,Z12-18:Ald (27:6:1)	Hill, 1981(b)	D
<i>Euchaetes egle</i> Drury	*Z3,Z6,Z9-21:H	Simmons, 1998	D

milkweed tussock moth phe.	+ * $\Delta 1,Z3,Z6,Z9-21:H$ [5:2] + other components N		
<i>Eurata patagiata</i> Burmeister phe.	* $Z9,Z12,Z15-18:OH$ + * $Z9,Z12,Z15-18:Ald$ (3:1)	Rodríguez, 2018	D
<i>Halysidota leda</i> Druce neo-tropical tiger moth phe.	* $Z3,Z6,epo9-21:H$ (major) + * $Z3,Z6,Z9-21:H$ + other components N	Descoins, 1989	D
<i>Halysidota tessellaris</i> Smith att.	$Z3,Z6,epo9-21:H$ (9R,10S)-isomer	Landolt, 1996	D
<i>Holomelina aurantiaca</i> phe.	* $Me2-17:H$	Roelofs, 1971(b)	D
<i>Holomelina ferruginosa</i> phe.	* $Me2-17:H$ N	Roelofs, 1971(b)	D
<i>Holomelina fragilis</i> phe.	* $Me2-17:H$ N	Roelofs, 1971(b)	D
<i>Holomelina immaculata</i> phe.	* $Me2-17:H$	Roelofs, 1971(b)	D
<i>Holomelina laeta</i> att.	$Me2-17:H$ E	Roelofs, 1971(b)	D
<i>Holomelina lamae</i> phe.	* $Me2-17:H$ N + other components	Roelofs, 1971(b) Schal, 1987	D
<i>Holomelina nigricans</i> phe.	* $Me2-17:H$ N	Roelofs, 1971(b)	D
<i>Holomelina rubicundaria</i> att.	$Me2-17:H$	Roelofs, 1971(b)	D
<i>Holomelina</i> sp. att.	$Me2-17:H$	Weatherston, 1974(a)	D
<i>Hyphantria cunea</i> Drury fall webworm moth American white moth <amerikashiro-hitori> phe	* $Z3,Z6,epo9-21:H$ + * $Z9,Z12,Z15-18:Ald$ + * $Z9,Z12-18:Ald$ U.S.A. (27:6:1) U.S.S.R. [13:6:5]	Hill, 1982	A

France	[52:41:7] N	Einhorn, 1982	
	+ * Δ 1,Z3,Z6,epo9-21:H	Tóth, 1989(b)	
	+ *Z3,Z6,epo9-20:H		
	+ * Δ 1,Z3,Z6,epo9-20:H		
Hungary	[60:40:5:8:0.4:0.04] N		
	+ other components		
	Z3,Z6,epo9-21:H	Senda, 1991	
	+ Δ 1,Z3,Z6,epo9-21:H		
	+ Z9,Z12,Z15-18:Ald (5:2:2)		
China	(1:1:8)	Zhang, 1996	
	*Z3,Z6,epo9-21:H	Yamakawa, 2012(b)	
	(9S,10R)-isomer		
	+ * Δ 1,Z3,Z6,epo9-21:H		
	(9S,10R)-isomer		
	+ *Z9,Z12-18:Ald		
	+ *Z9,Z12,Z15-18:Ald		
	(10:2:5:4) N		
New Zealand	*Z3,Z6,epo9-21:H	El-Sayed, 2005(c)	
	+ * Δ 1,Z3,Z6,epo9-21:H		
	+ *Z9,Z12,Z15-18:Ald		
	+ *Z9,Z12-18:Ald (279:1:66:6)		
China	(58:6:34:2)	Su, 2008	
<i>Isia</i> (= <i>Pyrrharctia</i>) <i>isabella</i>	*Me2-17:H	Roelofs, 1971(b)	D
phe.	+ other components	Krasnoff, 1988	
<i>Panaxia</i> (= <i>Callimorpha</i>)	*Z6,Z9-21:H	Schneider, 1998	C
<i>quadripunctaria</i>	+ *Z6,Z9-20:H N		
phe.			
<i>Pareuchaetes pseudoinculata</i>	*Z3,Z6,Z9-21:H N	Schneider, 1992	D
Rego Barros	+ other components		
phe.			
	* Δ 1,Z3,Z6,Z9-21:H N	Frérot, 1993(a)	
	+ other components		
<i>Phragmatobia fuliginosa</i>			B?
ruby tiger moth			

<ama-hitori> phe. Europe strain	*Z3,Z6,epo9-21:H + *Z3,Z6,Z9-21:H + *Z6,epo9-21:H + *Z6,Z9-21:H N	Descoins in Arn, 1992	
	+ Z9,Z12,Z15-18:Ald + Z9,Z12-18:Ald (21:8:1)		
New York strain	*Z3,Z6,Z9-21:H + *Z3,Z6,epo9-21:H (5:1) N	Rule, 1989	
<i>Schistophleps</i> sp. 1 att.	Z3,Z6,epo9-19:H	Hai, 2002	C
<i>Schistophleps</i> sp. 2 att.	Z3,Z6,Z9-19:H	Hai, 2002	C
<i>Schistophleps</i> sp. 3 att.	Z3,Z6,Z9-21:H	Hai, 2002	C
<i>Spilosoma lubricipeda</i> L. att.	Z9,Z12,Z15-18:Ald + Z3,Z6,epo9-21:H + Δ1,Z3,Z6,epo9-21:H (8:1:1)	Ostrauskas, 2004	B
<i>Tyria jacobaeae</i> L. cinnabar moth phe.	*Z3,Z6,epo9-21:H (9S,10R)-isomer + other components N	Frérot, 1988(a) Bestmann, 1994 Clarke, 1996	D
<i>Utetheisa ornatrix</i> phe.	*Z3,Z6,Z9-21:H *Δ1,Z3,Z6,Z9-21:H + *Z6,Z9-21:H + *Z3,Z6,Z9-21:H N	Conner, 1980 Jain, 1983 Choi, 2007	C