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Supplementary Tables S1 – S3 and references:

Table S1. Logarithmic [$Y = a + b\ln(X)$] and non-linear (kinetic formation A-R) regressions describing the relationship between dosage of semiochemical (X) and electroantennographic (EAG) response for various insects (Y).

Insect species – attractant	Dosages (X)	EAG (Y)	Logarithmic adjusted R^2	Kinetic formation A-R (adjusted R^2)[a]
Tomicus minor ♀– (*S*)-*trans*-verbenol[b]	10, 100, 1000, 10000	62, 145, 162, 179	0.515	E (0.970); G (0.964); C (0.960); R (0.981)
T. minor ♂– (*S*)-*trans*-verbenol [b]	10, 100, 1000, 10000	44, 131, 170, 187	0.691	E (0.996); C (0.978); B (0.965); R (0.999)
Ips typographus – (+)-ipsdienol[c]	0.1, 1, 10, 100	17, 35, 45, 56	0.941	E (0.985); R (0.938)
Dendroctonus micans – (+)-ipsdienol[c]	0.1, 1, 10, 100, 1000	12, 24, 36.2, 51.1, 54.2	0.945	G (0.986); K (0.986); F (0.966); R (0.986)
D. micans – *exo*-brevicomin[c]	0.5, 5, 50, 500	26.1, 46, 56.2, 60	0.717	E (0.999); B (0.968); R (0.999); P (0.990)
Hesperophylax occidentalis males– 6-methylnonan-3-one[d]	0.1, 1, 10, 100, 1000	0.48, 0.60, 0.74, 0.85, 0.92	0.983	F (0.999); E (0.990); K (0.905); R (0.939)
Mamestra suasa A cell– Z11-16:Ac[e]	1, 10, 100, 1000, 10000	5.5, 8.3, 21.5, 44.3, 66.0	0.867	F (0.992); G (0.971); K (0.971); R (0.978)
M. suasa B cell– Z9-14:Ac[e]	1, 10, 100, 1000, 10000	6.8, 15.2, 22.2, 50.6, 84.4	0.802	G (0.999); K (0.996); F (0.968); R (0.964)
Microplitis croceipes – Z3-6:Ac[f]	0.1, 1, 10, 100	7.1, 17.1, 49.2, 102.9	0.743	B (0.992); E (0.956); C (0.938); R (0.996)
M. croceipes – benzaldehyde[f]	0.1, 1, 10, 100	3.3, 17.6, 59.4, 112.5	0.838	E (0.992); B (0.987); C (0.979); R (0.995)
Spodoptera littoralis – Z,E-9,11-14:Ac[g]	0.2, 2, 20, 200	2.27, 2.95, 6.41, 6.70	0.657	B (0.994); E (0.667); N (0.924); P (0.924)
S. littoralis – two components[g]	0.2, 2, 20, 200	4.01, 4.78, 8.22, 7.26	0.184	B (0.845); E (0.313); P (0.647); N (0.647)
Colopterus truncates – triene 2, female[h]	0.1, 1, 10, 100	1.24, 2.47, 3.65, 4.00	0.857	E (0.978); B (0.961); R (0.998); N (0.997)
C. truncates – triene 2, male[h]	0.1, 1, 10, 100	1.07, 1.27, 1.71, 1.98	0.944	B (0.963); R (0.999); N (0.992); P (0.992)
Spodoptera littoralis – benzaldehyde[i]	10, 100, 1000, 10000	43.5, 67.7, 95.6, 301.2	0.301	B (0.986); E (0.666); C (0.660); R (0.986)
S. littoralis – eugenol[i]	1, 10, 100, 1000, 10000	90.4, 138.6, 171.1, 188, 233.7	0.956	K (0.816); F (0.833); R (0.685)
S. littoralis – nonanal[i]	1, 10, 100, 1000	72.3, 108.4, 259, 474.7	0.755	B (0.997); E (0.857); C (0.773); R (0.999)
S. littoralis – acetophenone[i]	1, 10, 100, 1000	73.5, 83.3, 210.6, 291.4	0.764	B (0.996); P (0.985); N (0.985); R (0.973)
Coccinella septempunctata – (*E*)-β-farnesene[j]	10, 100, 1000, 10000	9.3, 25.3, 55.1, 52.9	0.619	B (0.993); C (0.933); E (0.926); P (0.931)
C. septempunctata – β-caryophyllene[j]	1, 10, 100, 1000, 10000	4.9, 7.7, 19.9, 39.9, 68	0.823	G (0.981); K (0.978); F (0.973); R (0.951)
Contarinia pisi – 2S12S-diacetoxytridecane[k]	0.1, 1, 10, 100	0.23, 0.25, 0.52, 0.76	0.746	B (0.997); N (0.993); P (0.993); R (0.988)

Agrotis segetum – Z5-10:OAc, Sweden[l]	0.01, 0.1, 1, 10, 100	16.9, 32.4, 55.8, 99.1, 74.3	0.540	F (0.653); B (0.653); J (0.645); N (0.569)
A. segetum – Z5-10:OAc, Zimbabwe[l]	0.01, 0.1, 1, 10, 100	4.3, 29.1, 67.4, 127.5, 122.2	0.857	K (0.994); G (0.992); D (0.946); N (0.924)
A. segetum – Z7-12:OAc, Sweden[l]	0.01, 0.1, 1, 10, 100	8.9, 18.1, 39.9, 68.6, 59.7	0.747	D (0.919); F (0.917); B (0.916); N (0.870)
A. segetum – Z7-10:OAc, Zimbabwe[l]	0.01, 0.1, 1, 10, 100	0.3, 5.6, 45.2, 119.3, 114.1	0.773	A (0.997); F (0.995); B (0.994); P (0.935)
Scolytus multistriatus – α-multistriatin[m]	0.5, 5, 50, 500, 1000	45.2, 54.5, 69.3, 97.9, 100.3	0.920	D (0.967); F (0.967); B (0.958); R (0.967)
S. multistriatus – 4-methyl-3-heptanol[m]	5, 50, 250, 500, 760, 1905	30.3, 37.1, 58.7, 74.2, 93.8, 98.8	0.796	B (0.970); F (0.962); J (0.941); P (0.946)
Agrotis segetum – Z5-10:OAc[n]	0.1, 1, 10, 100, 1000	6.5, 74.6, 77.9, 92.7, 87.2	0.314	A (0.928); D(0.909); E (0.855); M (0.866)
Dendroctonus ponderosae ♀ – *exo*-brevicomin[o]	0.01, 0.1, 1, 10, 100	39.3, 60, 88.4, 118.7, 130.5	0.970	F (0.985); K (0.954); R (0.966)
D. ponderosae ♂ – *exo*-brevicomin[o]	0.01, 0.1, 1, 10, 100	23.3, 25.7, 71.8, 101.8, 121.9	0.964	F (0.998); D (0.947); R (0.985); N (0.947)
D. terebrans ♀ – *endo*-brevicomin[p]	0.005, 0.05, 0.5, 5, 50	27.6, 39, 71.6, 131.8, 130.4	0.832	B (0.990); D (0.990); F (0.990); P (0.956)
D. terebrans ♂ – *endo*-brevicomin[p]	0.005, 0.05, 0.5, 5, 50	29.3, 51.4, 76.4, 110, 201.4	0.793	K (0.958); F (0.854); D (0.842); R (0.850)
D. terebrans ♀ – turpentine[p]	0.005, 0.05, 0.5, 5, 50	18.4, 17, 29.8, 57.4, 61.6	0.768	F (0.991); D (0.991); J (0.986); N (0.971)
D. terebrans ♂ – turpentine[p]	0.005, 0.05, 0.5, 5, 50	19.8, 31.9, 31.9, 78.7, 86.5	0.744	J (0.923); F (0.922); B (0.920); N (0.858)
Lymantria dispar – (+)-disparlure[q]	0.5, 5, 50, 500, 5000	12.4, 33.8, 119.4, 200.6, 375.2	0.839	G (0.997); K (0.997); F (0.897); R (0.862)
Manduca Sexta – bombykal[r]	1, 10, 100, 1000, 10000	0.14, 0.19, 0.38, 0.59, 0.86	0.909	F (0.988); G (0.913); R (0.921)
Coleomegilla maculata ♀ – Z3-6:OH[s]	1, 10, 100, 1000	1.18, 1.27, 2.15, 4.79	0.412	B (0.999); N (0.999), P (0.999); R (0.999)
C. maculata ♂ – Z3-6:OH[s]	1, 10, 100, 1000	1.06, 1.08, 1.87, 2.53	0.713	B (0.992); P (0.984); N (0.984); R (0.978)
C. maculata ♀ – aphid pheromone[s]	1, 10, 100, 1000	1.21, 1.29, 2.89, 3.63	0.728	B (0.989); N (0.965); P (0.965); R (0.943)
C. maculata ♂ – aphid pheromone[s]	1, 10, 100, 1000	0.99, 1.11, 2.31, 2.16	0.339	B (0.906); E (0.370); P (0.735); N (0.735)
Crysoperla carnea ♀ – aphid pheromone[s]	1, 10, 100, 1000	0.69, 1.92, 4.65, 6.64	0.945	E (0.985); B (0.965); R (0.998); P (0.988)
C. carnea ♂ – aphid pheromone[s]	1, 10, 100, 1000	0.61, 1.92, 6.33, 5.44	0.371	E (0.919); A (0.917); I (0.916); P (0.777)
Ectomyelois ceratoniae ♂ – trienal[t]	0.01, 0.1, 1, 10	1.03, 29.89, 62.09, 77.57	0.945	E (0.988); C (0.979); R (0.999); Q (0.987)
Anthonomus grandis ♂ – 1-hexenol[u]	0.1, 1, 10, 100, 1000	3.82, 12, 39.27, 91.09, 120	0.897	F (0.998); E (0.987); D (0.982); R (0.997)
A. grandis ♀ – 1-hexenol[u]	0.1, 1, 10, 100, 1000	2.7, 13.04, 27.72, 103.26, 114.1	0.778	F (0.988); B (0.988); D (0.988); N (0.945)

[a] Up to three kinetic formation regressions A-L (Table 1) listed from left to right in order of best fit using adjusted R^2 > logarithmic R^2, and one or more best-fitting formulas M-R, (if R^2 of formation functions < logarithmic R^2 then only the top two formulas of each category are shown).

[b] Lanne et al. (1987), Coleoptera: Curculionidae, Fig. 4 (µg) female, eq. E: a = 175.7, b = 5.46E-5, c = 2.36; male, eq. E: a = 189.7, b = 5.04E-6, c = 2.68.

[c] Tømmerås et al. (1984), Coleoptera: Curculionidae, Figs. 1 and 2 (µg) *I. typographus*, eq. E: a = 79.1, b = 3.6E-13, c = 7.99; *D. micans* ipsdienol, eq. G: a = 28, b = 0.053, c = 24.76, d = 0.372; *D. micans exo*-brevicomin, eq. E: a = 63.1, b = 4.43E-5, c = 3.62.

[d] Jewett et al. (1996), Trichoptera: Limnephilidae, Fig. 2 (µg) eq. F: a = 0.438, b = 0.707, c = 9.51, d = 8.24.

[e] Lucas and Renou (1989). Lepidoptera: Noctuidae, Fig. 7 (ng) Z11-16:Ac, eq. F: a = 5.95, b = 80.86, c = 6.66E-10, d = 4.47; Z9-14:Ac, eq. G: a = 66.7, b = 0.00068, c = 17.77, d = 0.0328.

[f] Li et al. (1992), Hymenoptera: Braconidae, Fig. 2C, D (μg) Z3-6:Ac, eq. B: a = 9.06, b = 94.1, c = 0.0564; benzaldehyde, eq. E: a = 159.5, b = 5.42E-8, c = 3.856.

[g] Moore (1981), Lepidoptera: Noctuidae, Fig. 2 (μg) Z,E-9,11:Ac, eq. B: a = 2.08, b = 4.68, c = 0.119; two components, eq. B: a = 3.73, b = 4.024, c = 0.188.

[h] Cossé and Bartelt (2000), Coleoptera: Nitidulidae, Fig. 4 (μg) female, eq. R: eq. R: a = 0.847, b = 3.39, c = 0.012; male eq. R: a = 1.039, b = 0.076, c = 0.264.

[i] Anderson et al. (1993), Lepidoptera: Noctuidae, Fig. 1 (μg) oviposition deterrents, benzaldehyde, eq. B: a = 52.43, b = 321.9, c = 0.000148; eugenol, eq. Log.: a = 97.16, b = 14.59; nonanal, eq. B: a = 76.6, b = 398.7, c = 0.0062; acetophenone, eq. B: a = 66.97, b = 224.7, c = 0.01.

[j] Al Abassi et al. (2000), Coleoptera: Coccinellidae, Fig. 3 (ng), spike frequency to aphid alarm pheromone, (*E*)-β-farnesene, eq. B: a = 6.91, b = 47.22, c = 0.005; β-caryophyllene, eq. G: a = 49.18, b = 0.00056, c = 19.02, d = 0.00425.

[k] Hilbur et al. (2001), Diptera: Cecidomyiidae, Fig. 5 (μg) sex pheromone eq. B: a = 0.218, b = 0.543, c = 0.081.

[l] Wu et al. (1999), Lepidoptera: Noctuidae, Fig. 2A and C (μg), spike frequency to sex pheromone components Z5-10:OAc Sweden, eq. F: a =21.43, b = 65.2, c = 0.776, d = 1.005; Z5-10:OAc Zimbabwe, eq. K: a = 28.85, b = 17.5, c = 96.2, d = 0.518; Z7-12:OAc, Sweden, eq. D: a = 10.47, b = 53.62, c = 0.525, d = 0.0086; Z7-12:OAc, Zimbabwe, eq. A: a = 117.04, b = 0.493.

[m] Grant and Lanier (1982), Coleoptera: Curculionidae, Fig. 4 (μg), aggregation pheromone α-multistriatin, eq. D: a = 47.61, b = 53.8, c = 0.00234, d = 2.09E-4; 4-methyl-3-heptanol, eq. B: a = 29.02, b = 72.58, c = 0.00222.

[n] Valeur et al. (2000), ; Lepidoptera: Noctuidae, Fig. 4 (ng), neuron spike frequency to four component sex pheromone, eq. A: a = 86.49, b = 1.73.

[o] Whitehead (1986), Coleoptera: Curculionidae, Fig. 1 (μg), aggregation component, female eq. F: a = 37.4, b = 107.7, c = 2.8E-7, d = 4.456; male eq. F: a = 21.6, b = 117.7, c = 1.58E-7, d = 4.382.

[p] Delorme and Payne (1990), Fig. 1A and B (μg) *endo*-brevicomin female eq. B: a = 30.12, b = 101.2, c = 1.076; male eq. K: a = 59.9, b = 132.4, c = 143, d = 0.089; terpentine – female, eq. F: a = 16.96, b = 44.64, c = 0.217, d = 1.31; male, eq. J: a = 25.7, b = 60.8, c = 0.437, d = 3.39.

[q] Dickens et al. (1997), Lepidoptera: Lymantriidae, Fig. 3 (ng) sex pheromone eq. G: a = 244.2, b = 0.0005, c = 151.5, d = 0.00039.

[r] Dolzer et al. (2003), Lepidoptera: Sphingidae, Fig. 7A (ng) sex pheromone eq. F: a = 0.137, b = 2.074, c = 7.4E-8, d = 15.58.

[s] Zhu et al. (1999), Coleoptera: Coccinellidae, Fig. 4 (μg), Z3-6:OH female, eq. B: a = 1.163, b = 3.82, c = 0.003; male eq. B: a = 1.007, b = 1.525, c = 0.0082; nepetalactone (aphid sex pheromone); female eq. B: a = 1.102, b = 2.536, c = 0.0119; male eq. B: a = 0.874, b = 1.384, c = 0.0287; Neuroptera: Chrysopidae, Fig. 5 (μg) nepetalactone female eq. R: a = 0.561, b = 7.037, c = 5.014E-4; male eq. A: a = 5.9, b = 0.04335.

[t] Todd et al. (1992), Lepidoptera: Pyralidae, Fig. 3 (μg), (*Z,E*)-9,11,13-tetradecatrienal (trienal) eq. R: a = -5.276, b = 89.65, c = 9.88E-4.

[u] Dickens (1989), Coleoptera: Curculionidae Fig. 2 (µg) host plant attractant males, eq. F: a = 4.739, b = 132.1, c = 7.579E-7, d = 3.246; females eq. F: a = 6.28, b = 107.8, c = 0.0234, d = 0.994.

Table S2. Logarithmic [Y = a + bln(X)] and non-linear (kinetic formation A-R) regressions describing the relationship between dosage of pheromone (X) and behavioral responses for various insects (Y) in laboratory bioassays.

Insect species – attractant	Dosages (X)	% Response (Y)	Logarithmic adjusted R^2	Kinetic formation A-R (adjusted R^2)[a]
Ips paraconfusus ♀ – Ie and Id[b]	0.89, 8.9, 89, 890	23, 33, 57, 70	0.928	B (0.971); R (0.999); N (0.997); P (0.997)
I. paraconfusus ♀ – pheromone[c]	0.22, 2.2, 22, 222, 2222	19, 46, 64, 73, 88	0.927	E (0.951); F (0.951); R (0.867)
Dendroctonus brevicomis ♀ – pheromone[d]	0.02, 0.2, 2, 20, 200	18.1, 40.5, 57.2, 76.7, 79.6	0.912	G (0.999); K (0.994); F (0.964); R (0.927)
D. brevicomis ♂ – pheromone[d]	0.02, 0.2, 2, 20, 200	23.1, 37, 66.8, 72.9, 67.2	0.590	D (0.966); E (0.679): P (0.929); N (0.929)
Pityogenes chalcographus – MD[e]	0.002, 0.02, 0.2, 2, 20, 200	29.9, 39.9, 57, 60.6, 70.2, 73.8	0.922	L (0.997); E (0.941); F (0.938); R (0.927)
P. chalcographus – CH[e]	0.2, 2, 20, 200	23.7, 47.2, 70.2, 73.8	0.783	B (0.988); E (0.959); C (0.814); N (0.999)
Pityogenes bidentatus – pheromone[f]	1, 10, 100, 1000	17.5, 42.5, 40, 50	0.304	E (0.746); C (0.736); N (0.759)
Ips pini – frass pheromone[g]	1, 10, 100, 1000	27.4, 38.8, 57.2, 63.1	0.902	B (0.944); N (0.999); P (0.999); R (0.993)
I. pini – aeration extract[h]	1, 10, 100, 1000	30.4, 54.3, 70.6, 77	0.822	E (0.996); B (0.953); R (0.999); P (0.988)
Epiphyas postvittana – pheromone[i]	0.1, 1, 10, 100	24.2, 58.3, 86.7, 76.7	0.286	B (0.934); C (0.859); E (0.856); N (0.886)
Drosphila melanogaster – natural 7,11-27:Hy[j]	25, 75, 125, 325, 510, 1000	3.1, 9.3, 29.2, 23.9, 23.7, 20.3	0.119	A (0.473); E (0.235); C (0.209); P (0.201)
D. melanogaster – 7,11-27:Hy[j]	140, 200, 400, 500, 1000	2.2, 15.6, 16.1, 17.3, 17.7	0.140	B (0.968); J (0.797); F (0.264); N (0.031)
D. melanogaster – natural 7-25:Hy[j]	220, 230, 285, 515, 1200	2.3, 5, 9.3, 18.9, 19	0.602	J (0.969); B (0.965); F (0.964); N (0.735)
D. melanogaster – 7-25:Hy[j]	200, 260, 350, 550, 1550	1.7, 9.3, 7.6, 13.9, 15.1	0.456	F (0.522); A (0.488); B (0.472); N (0.451)
Supella longipalpa – 2R,4R-supelapyrone[k]	1, 3, 10, 30, 100, 1000	15.4, 50.3, 59.7, 90.1, 93.7, 94.2	0.652	L (0.951); H (0.908); K (0.857); R (0.901)
S. longipalpa – 2S,4R-supelapyrone[k]	3, 9.9, 30, 99.9, 300, 999	3.4, 19.9, 70.1, 90.1, 100.3, 93.5	0.745	I (0.984); B (0.972); J (0.969); N (0.933)
Cydia pomonella – codlemone[l]	0.01, 0.1, 1, 10	16.3, 39, 70.8, 66	0.544	B (0.981); E (0.850); C (0.849); N (0.922)
Blattella germanica – sex pheromone[m]	0.1, 1, 5, 10, 50, 100	10.1, 37.3, 81.5, 94.7, 100.7, 101	0.862	H (0.999); L (0.999); D (0.999); P (0.984)
Agrotis segetum – pheromone blend[n]	1, 10, 100, 1000, 10000	0.9, 3, 8.2, 15.5, 14.2	0.804	K (0.979); G (0.979); D (0.962); P (0.922)
Aleochara curtula – Z7-21:Hy[o]	0.01, 0.1, 1, 10	3.3, 51.5, 61.6, 47.2	0.000	I (0.843); E (0.754); A (0.753); M (0.538)
Blattella germanica – pheromone[p]	3.2, 10, 32, 100, 316, 1000	0.08, 0.17, 0.4, 0.45, 0.54, 0.51	0.791	E (0.953); C (0.948); L (0.932); N (0.945)

[a] Up to three kinetic formation regressions A-L (Table 1) listed from left to right in order of best fit using adjusted R^2 > logarithmic R^2, and one or more best-fitting formulas M-R, (if R^2 of formation functions < logarithmic R^2 then only the top two formulas of each category are shown).

[b] Byers et al. (1979), Coleoptera: Curculionidae, Table 2 (ng/min); ipsenol (Ie) and ipsdienol (Id), eq. R: a = 21.1, b = 56.07, c = 1.15E-5.

[c] Byers (1983), Fig. 3; Ie, Id, and (*S*)-*cis*-verbenol (ng/min); eq. E: a = 93.8, b = 5.71E-9, c = 5.283.

[d] Byers and Wood (1981), Coleoptera: Curculionidae, Fig. 3 (ng/min) frontalin, *exo*-brevicomin and myrcene, female eq. G: a = 36.94, b = 32.67, c = 43.59, d = 0.0102; male eq. D: a = 21.03, b = 49.02, c = 1.01, d = 0.0239.

[e] Byers et al. (1990), Coleoptera: Curculionidae, Fig. 3 (ng/min), varied (*E*,*Z*)-2,4-methyl decadienoate (MD) with 22 ng/min chalcogran (CH), eq. L: a = 28.55, b = 28.96, c = 24.58, d = 16.17, e = 0.08; or varied CH with 22 ng/min MD, eq. N: a = 18.24, b = 56.4, c = 0.0094.

[f] Byers (2012c), Coleoptera: Curculionidae, Table 3 (ng/min), grandisol and (*S*)-*cis*-verbenol, eq. N: a = -79.63, b = 125.097, c = 0.0278.

[g] Teale and Lanier (1991), Coleoptera: Curculionidae, Fig. 5 (male frass), eq. N: a = 25.59, b = 38.03, c = 0.0014.

[h] Teale et al. (1991), Fig. 1 (aeration extract), eq. R: a = 20.57, b = 59.08, c = 6.3E-5.

[i] Bellas and Bartell (1983), Lepidoptera: Tortricidae, Table 1 (ng), 14:1 ratio (*E*)-11-14:OAc to (*E*,*E*)-9,11-14:OAc; eq. B: a = 18.15, b = 63.54, c = 0.999.

[j] Antony et al. (1985), ; Diptera: Drosophilidae, Fig. 3A (ng) male vibrations for 7,11-27:Hy natural eq. A: a = 23.79, b = 0.014; 7,11-27:Hy eq. B: a = -3432, b = 3449, c = 0.0389; 7-25:Hy natural eq. J: a = -38.75, b = 58.16, c = 0.011, d = 0.011; 7-25:Hy eq. F: a = -2.207E+7, b = 2.207E+7, c = 0.00158, d = 1.628.

[k] Gemeno et al. (2003), Dictyoptera: Blattellidae, Fig. 1 (pg), males attracted to sex pheromone 2R,4R eq. L: a = -795, b = 833.9, c = 3.45, d = 56.3, e = 0.061; 2S,4R eq. J: a = 0.189, b = 94.6, c = 0.073, d = 0.107.

[l] Preiss and Priesner (1988), Lepidoptera: Tortricidae, Fig. 1 (ng), eq. B: a = 12.8, b = 55.6, c = 6.395.

[m] Schal et al. (1990), Dictyoptera: Blattellidae, Fig. 1 (ng), male wing-raising to 3,11-dimethyl-2-nonacosanone, eq. D: a = 6, b = 94.8, c = 0.205, d = 0.0025.

[n] Valeur et al. (2000), Lepidoptera: Noctuidae, Fig. 4 (ng), male orientation in wind tunnel to blend of Z5-10:OAc/Z7-12:OAc/Z9-14:OAc/Z5-12:OAc at 1:5:2.5:0.25 ratios, eq. K: a = 2.22, b = 0.46, c = 12.63, d = 0.0064.

[o] Peschke and Metzler (1987), Coleoptera: Staphylinidae, Fig. 4 (µg), male genital grasping of sex pheromone: Z7-21:Hy, eq. I: a = 54.6, b = 44.5, c = 44.6.

[p] Sakuma and Fukami (1990), Dictyoptera: Blattellidae, Fig. 1 (µg), anemotaxis of nymphs to aggregation pheromone, eq. E: a = 0.519, b = 0.069, c = 1.441.

Table S3. Logarithmic [Y = a + bln(X)] and non-linear (kinetic formation A-R) regressions describing the relationship between dosage of ethanol or pheromone (X) and trap captures for various insects (Y) in the field.

Insect species – attractant	Dosages (X)	Catches (Y)	Logarithmic adjusted R^2	Kinetic formation A-R (adjusted R^2)[a]
Pityogenes chalcographus – pheromone[b]	0.1, 1, 10	665, 1968, 2772	0.963	A (0.908); Q (0.999); O (0.987); M (0.987)
Dendroctonus brevicomis – pheromone[c]	0.43, 4.3, 43	189, 1402, 1773	0.828	A (0.994); O (0.950); M (0.950); Q (0.909)
D. brevicomis – frontalin[d]	0.015, 0.15, 1.5	110, 205, 325	0.991	A (0.500); Q (0.877)
D. brevicomis – *exo*-brevicomin[e]	0.015, 0.15, 1.5	128, 282, 325	0.809	A (0.919); O (0.999); M (0.999); Q (0.982)
I. typographus – MB[f]	0.5, 5, 50, 500, 5000	16, 27, 163, 225, 308	0.916	K (0.989); G (0.989); F (0.931); R (0.916)
I. typographus – cV[f]	0.01, 0.1, 1, 10	147, 596, 1501, 1988	0.945	E (0.996); C (0.971); B (0.954); R (0.999)
Ips typrographus – pheromone 12 m[g]	1.2, 5.796, 57	10, 80, 753	0.787	A (0.999); O (0.999); M (0.999); Q (0.999)
I. typrographus – pheromone, 1.5-12 m[g]	1.2, 5.796, 57	373, 1390, 2082	0.909	A (0.997); M (0.968); O (0.968); Q (0.944)
Hylurgops palliatus – ethanol[h]	8, 80, 800	75, 196, 411	0.949	A (0.919); Q (0.952)
Trypodendron domesticum – ethanol[h]	8, 80, 800	16, 52, 105	0.976	A (0.960); Q (0.983); O (0.975); M (0.975)
Tomicus piniperda – ethanol[h]	8, 80, 800	2, 28, 24	0.235	A (0.814); M (0.609); O (0.609); Q (0.486)
Rhizophagus ferrugineus – ethanol[h]	8, 80, 800	12, 89, 290	0.876	A (0.999); Q (0.999); O (0.999); M (0.999)
Planococcus citri – pheromone, July[i]	25, 50, 100, 200, 400, 800	117, 122, 196, 215, 278, 178	0.149	A (0.429); B (0.221); C (0.174); P (0.065)
P. citri – pheromone, May[i]	25, 50, 100, 200, 400, 800	61, 84, 101, 94, 84, 124	0.362	A (0.337); Q (0.370)

Synanthedon vespiformis – pheromone, June[j]	0.2, 0.5, 1, 2, 4	38, 84, 120, 104, 282	0.472	J (0.662); K (0.590); G (0.578); P (0.579)
S. vespiformis – pheromone, August[j]	1, 2, 4, 8, 16	70, 68, 165, 133, 284	0.547	K (0.474); G (0.466); B (0.456); P (0.456)
Etiella zinckenella – pheromone, Hungary[k]	1, 10, 100, 1000	8, 33, 61, 73	0.929	E (0.999); C (0.976); R (0.999); Q (0.999)
E. zinckenella – pheromone, Egypt[k]	1, 10, 100, 1000	2, 11, 28, 30	0.788	C (0.999); E (0.998); B (0.993); N (0.986)
Ips pini – lanierone[l]	0.0001, 0.001, 0.01, 0.1, 1	15, 38, 76, 152, 77	0.045	A (0.332); M (0.380); O (0.380); Q (0.345)
Anomala octiescostata – pheromone[m]	0.1, 1, 10, 100	90, 280, 333, 491	0.884	E (0.815); C (0.629); B (0.544); R (0.771)
Diabrotica balteata – pheromone[n]	30, 99.9, 300, 1000	5.1, 13.4, 24.8, 14.5	0.000	I (0.132); B (0.129); E (0.124); N (0.000)
Neodiprion sertifer – diprionyl acetate[o]	See footnotes	21.7, 44.6, 46.3, 80, 70.3, 103.4	0.841	E (0.700); R (0.728)
N. sertifer – diprionyl acetate – Fig. 6[o]	0.11, 1.1, 1.9, 18.3, 120.2	6, 14.8, 33.4, 40.2, 39.5	0.594	A (0.858); F (0.732); B (0.730); N (0.614)

[a] Up to three kinetic formation regressions A-L (Table 1) listed from left to right in order of best fit using adjusted R^2 > logarithmic R^2, and one or more best-fitting formulas M-R, (if R^2 of formation functions < logarithmic R^2 then only the top two formulas of each category are shown).

[b] Byers et al. (1988), Coleoptera: Curculionidae, Table 1, test 4, (x 18 µg/day methyl decadienoate or x 1 mg/day chalcogran) aggregation pheromone components; eq. Q: a = 3179, b = 2.94E-7.

[c] Tilden and Bedard (1985), Coleoptera: Curculionidae, Table 4 (mg/day each) of frontalin, exo-brevicomin, and myrcene, eq. A: a = 1782, b = 0.3463.

[d] Byers (1988), Table 1 (mg/day); varied frontalin plus 1.5 mg/day each of *exo*-brevicomin and myrcene, eq. log.: a = 301.9, b = 46.687.

[e] Byers (1988), Table 1 (mg/day); varied *exo*-brevicomin plus 1.5 mg/day each of frontalin and myrcene, eq. O: a = 328.85, b = 0.0238.

[f] Schlyter et al. (1987a), Coleoptera: Curculionidae, Table 2 (mg/day); varied 2-methyl-3-buten-2-ol (MB) plus 1 mg/day *cis*-verbenol (cV), eq. K: a = 206.38, b = 0.03, c = 127.8, d = 0.00032; or varied cV with 50 mg/day MB, eq. E: a = 2257, b = 2.445E-7, c = 3.1662 (used in Figure 6).

[g] Schlyter et al. (1987b), Tables 2 and 3 (mg/day); 2-methyl-3-buten-2-ol plus similar proportions of *cis*-verbenol (12 m trap separations) eq. A: a = 6231, b = 0.00226; (combined 1.5 to 12 m trap separations) eq. A: a = 2087, b = 0.1844.

[h] Byers (1992), Coleoptera: Curculionidae, Table 2 (mg/day); *H. palliates* eq. Q: a = 530.2, b = 3.89E-8, *T. domesticum* eq. Q: a = 135.6, b = 6.06E-7, and *T. piniperda* eq. A: a = 25.6, b = 0.0358, and (Coleoptera: Monotomidae) *R. ferrugineus* eq. A: a = 298.6, b = 0.0044.

[i] Zada et al. (2004), Hemiptera: Pseudococcidae, Fig. 5 (µg), July eq. A: a = 223.9, b = 0.021; May eq. L: a = -95.3, b = 181.97, c = 0.0769, d = 36060, e = 1.035E-6.

[j] Levi-Zada et al. (2011), Lepidoptera: Sesiidae, Table 3 (mg); June eq. J: a = 68.6, b = 22704, c = 0.0357, d = 0.0357; August eq. log.: a = 45.4, b = 71.12.

[k] Tóth et al. (1989), Lepidoptera: Phycitidae, Table 3 (µg); Hungary eq. E: a = 80.69, b = 3.82E-6, c = 3.331; Egypt eq. C: a = 30.01, b = 0.0164, c = 0.0013.

[l] Teale et al. (1991), Fig. 11 (mg), eq. A: a = 112.8, b = 138.8; varied lanierone plus constant ipsdienol.

[m] Leal et al. (1994), Coleoptera: Scarabaeidae, Fig. 3 (mg); eq. log.: a = 235.7, b = 54.55.

[n] Chuman et al. (1987), Coleoptera: Chrysomelidae, Table 3 (µg); eq. I: a = 19.4, b=0.0165, c = 0.0657.

[o] Anderbrant et al. (1992), Hymenoptera: Diprionidae, X = 0.09, 0.45, 1.44, 22.5, 96.75, 281.25; Fig. 5 (µg/day), eq. log.: a = 45.8, b = 8.74; Fig. 6 (µg/day), eq. A: a = 40.26, b = 0.648.

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