Water-repellent plant surface structure induced by gall-forming insects
for waste management

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Table S1. Galls of aphids of the tribe Eriosomatini (subfamily: Eriosomatinae)
on *Zelkova serrata* examined in this study.

Species	Collection locality[1]	Collection date
Colophina clematis	Okutama, Tokyo Shomaru, Saitama	Jun 2016 - Jun 2018
Colophina arma	Aki-Ota, Hiroshima	22 Jul, 2016
Hemipodaphis persimilis	Sapporo, Hokkaido Matsumoto, Nagano	Jul 2016 - Jun 2018
Paracolopha morrisoni	Tsukuba, Ibaraki Shomaru, Saitama	2 Jun, 2016

[1]All localities are in Japan.

Table S2. Statistical information reported in this study. Stastistical significance was analyzed using linear mixed model (lmer function in the lme4 package) with gall identity treated as a random factor followed by Tukey's post-hoc test using *glht* function in the *multcomp* package in R version 3.4.3.

(a) Trichome density among different leaf areas (no. of trichomes / mm^2)

	Mean difference (left - right)	95 % CI of the difference (lower limit, upper limit)	z score	p-value
Inner gall vs. Hairy underside	18.6	-1.8, 38.9	2.34	0.089
Inner gall vs. Normal underside	214.4	194.1, 234.8	27.06	< 0.0001
Inner gall vs. Normal upperside	213	192.6, 233.4	26.88	< 0.0001
Hairy underside vs. Normal underside	195.9	175.5, 216.3	24.72	< 0.0001
Hairy underside vs. Normal upperside	194.4	174.1, 214.8	24.54	< 0.0001
Normal upperside vs. Normal underside	1.4	-18.9, 21.8	0.18	0.998

(b) Trichome length among different leaf areas (µm)

	Mean difference (left - right)	95 % CI of the difference (lower limit, upper limit)	z score	p-value
Inner gall vs. Hairy underside	-94.0	-110.4, -77.6	-14.69	< 0.0001
Inner gall vs. Normal underside	-2.8	-19.3, 13.7	-0.43	0.973
Inner gall vs. Normal upperside	-11.4	-29.5, 6.7	-1.61	0.370
Hairy underside vs. Normal underside	91.2	75.0, 107.4	14.46	< 0.0001
Hairy underside vs. Normal upperside	82.6	64.9, 100.4	11.96	< 0.0001
Normal upperside vs. Normal underside	8.6	-9.1, 26.2	1.25	0.597

(c) Distance between trichomes (µm)

	Mean difference (left - right)	95 % CI of the difference (lower limit, upper limit)	z score	p-value
Inner gall vs. Hairy underside	4.2	-26.5, 34.9	-14.69	0.985
Inner gall vs. Normal underside	-201.8	-232.7, -171.0	-0.43	< 0.0001
Inner gall vs. Normal upperside	-244.6	-279.0, -210.1	-1.61	< 0.0001
Hairy underside vs. Normal underside	-206.0	-235.4, -176.6	14.46	< 0.0001
Hairy underside vs. Normal upperside	-248.7	-281.8, -215.7	11.96	< 0.0001
Normal upperside vs. Normal underside	42.7	9.5, 76.0	1.25	0.006

(d) Trichome length among the species (µm)

	Mean difference (left - right)	95 % CI of the difference (lower limit, upper limit)	z score	p-value
C. clematis vs. *C. arma*	16.9	-7.2, 41.0	1.637	0.227
H. persimilis vs. *C. arma*	-50.1	-77.0, -23.2	-4.35	< 0.0001
H. persimilis vs. *C. clematis*	-67.0	-87.1, -46.9	-7.778	< 0.0001

(e) Trichome density among the species (no. of trichomes / mm2)

	Mean difference (left - right)	95 % CI of the difference (lower limit, upper limit)	z score	p-value
C. clematis vs. *C. arma*	-31.4	-97.1, 34.4	-1.12	0.502
H. persimilis vs. *C. arma*	-138.7	-208.8, -68.6	-4.62	< 0.0001
H. persimilis vs. *C. clematis*	-107.3	-161.6, -53.0	-4.62	< 0.0001

(f) Contact angle among different plant surfaces

	Mean difference (left - right)	95 % CI of the difference (lower limit, upper limit)	z score	p-value
Normal underside vs. Inner gall	-68.6	-76.1, -61.2	-21.58	< 0.0001
Hairy underside vs. Inner gall	-22.1	-29.0, -15.3	-7.577	< 0.0001
Hairy underside vs. Normal underside	46.5	39.1, 53.9	14.701	< 0.0001