Table 1. Biomarkers identified from redundancy analysis (RDA) of the effect of leafhopper herbivory on natural log-transformed relative peak areas of volatile compounds detected in tea. Compounds are ordered by the absolute value of their correlation to the constrained RDA axis. For each compound, univariate tests were performed to test for a linear and step-function relationship. For the linear relationship, the slope coefficient is reported in units of ln(RPA) per unit herbivory (either density or damage) and the change point is reported in units of leafhoppers / young leaf for the density biomarkers and in units of percent leaf damage for the damage biomarkers.

Herbivory proxy	Compound	CAS	RDA axis loading	Correlation to RDA axis	Regression slope	Change point	Aroma	Chemical Family
Leafhopper Density	(E,E)-α-Farnesene	502-61-4	-0.271	-0.811***	6.4***	0.333***	woody, sweet, green, floral	Sesquiterpene hydrocarbon
	Sulcatone	110-93-0	-0.21	-0.794***	2.212*	0.625**	green, musty, pepper, mushroom, rubber	Aliphatic ketone
	β-Myrcene	123-35-3	-0.244	-0.761***	1.336**	0.682***	balsamic, must, spice	Monoterpene hydrocarbon
	(E)-β-Ocimene	3379-61-1	-0.223	-0.73***	5.227*	0.167[a]	citrus, green, terpene	Monoterpene hydrocarbon
	trans-α-Bergamotene	13474-59-4	-0.238	-0.685***	1.923**	0.5***	woody, warm, tea	Monoterpene hydrocarbon
	Indole	120-72-9	-0.157	-0.681***	1.614	0.682	concentrated = fecal, animal dilute = sweet, floral	Nitrogen containing
	(E,E)-Allo-ocimene	3016-19-1	-0.184	-0.668**	1.867*	0.167a	terpenic, sweet, fresh, floral	Monoterpene hydrocarbon
	cis-Butyric acid, 3-hexenyl ester	16491-36-4	-0.19	-0.649**	1.941*	0.579	wine, green	Fatty acid ester
	Hexanoic acid	142-62-1	0.133	0.639**	-2.236	0.579	cheesy, fatty	Fatty acid
	(Z)-β-Ocimene	3338-55-4	-0.155	-0.625**	1.713	0.167[a]	citrus, herbal, floral	Monoterpene hydrocarbon
	trans-Dehydroxylinalool oxide	54750-70-8	-0.126	-0.62**	0.751	0.625	herbal, green, terpene	Oxygenated monoterpene
	Heptanoic acid	111-14-8	0.135	0.615**	-2.037	0.25	cheesy, sour, rancid	Fatty acid
	Octanoic acid	124-07-2	0.143	0.609**	-2.367	0.25	cheesy, fatty, waxy	Fatty acid
	2-Methyl-1H-pyrrole	636-41-9	-0.177	-0.579**	0.907	0.5*	-	Nitrogen containing
	24	-	-0.141	-0.575**	0.846	0.733	-	-
	(3Z)-Hexenyl hexanoate	31501-11-8	-0.14	-0.53*	1.516	0.682	fruit, prune	Fatty acid ester
	cis-Linalool oxide (pyranoid)	14009-71-3	-0.151	-0.525*	1.494	0.429	citrus, green	Oxygenated monoterpene
	ɣ-Butyrolactone	96-48-0	0.12	0.52*	-0.749	0.625	caramel, fatty, sweet	Oxygenated heterocycle
	cis-Linalool oxide (furanoid)	5989-33-3	-0.131	-0.517*	1.761	0.682	earthy, floral, sweet, woody	Oxygenated monoterpene
	Diendiol I	13741-21-4	-0.203	-0.494*	2.011*	0.429**	-	Oxygenated monoterpene
Focal Leaf Damage	1-Hexanol	111-27-3	0.212	0.83***	0.096*	4.206[a]	resin, flower, green	Aliphatic alcohol
	(E)-2-Hexen-1-ol	928-95-0	0.23	0.783***	0.093*	2.409	green, leaf, walnut	Alkenyl alcohol
	N,N-Dibutylformamide	761-65-9	0.168	0.703***	0.078	4.206	-	Nitrogen containing
	Benzothiazole	95-16-9	0.195	0.699***	0.074	2.4	rubbery, sulfury, vegetal, gasoline	Nitrogen sulfur containing
	(3Z)-Hexenyl hexanoate	31501-11-8	0.181	0.671**	0.088	4.206	fruit, prune	Fatty acid ester
	Phenethyl alcohol	60-12-8	0.212	0.671**	0.119*	4.206	honey, spice, rose, lilac	Aromatic alcohol
	cis-3-Hexenyl isovalerate	35154-45-1	0.213	0.613**	0.08*	8.541*	green, apple, fruity, tropical, pineapple	Fatty acid ester
	(3-hydroxy-2,4,4-trimethylpentyl) 2-methylpropanoate	74367-34-3	0.153	0.609**	0.031	1.08	-	Aliphatic ester
	cis-Butyric acid, 3-hexenyl ester	16491-36-4	0.182	0.604**	0.083	1.798	wine, green	Fatty acid ester
	2-Cyclopentene-1,4-dione	930-60-9	0.19	0.575**	0.042	4.206	-	Cyclic ketone
	Benzyl alcohol	100-51-6	0.168	0.561*	0.07	2.4	fruity, floral, sweet	Cyclic alcohol
	Phenylacetaldehyde	122-78-1	0.144	0.511*	0.046	4.206	floral, honey, sweet	Cyclic aldehyde
	o-Hydroxybiphenyl	90-43-7	0.119	0.505*	0.037	0.302	-	Aromatic compound
	Dodecanoic acid	143-07-7	0.136	0.473*	0.083	2.409	mild, fatty, coconut, bay oil, metal	Fatty acid
	2,4-Di-tert-butylphenol	96-76-4	0.165	0.472*	0.029	1.798	-	Cyclic alcohol
	Tetradecanoic acid	544-63-8	0.123	0.466*	0.041	2.409	coconut, soapy, waxy	Fatty acid
	(Z)-β-Ocimene	3338-55-4	-0.172	-0.466*	-0.085	5.753	citrus, herbal, floral	Monoterpene hydrocarbon
	Mesityl oxide	141-79-7	0.049	0.459*	0.012	4.206	acrylic, earthy, sweet, chemical	Aliphatic ketone

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

[a]The step model was significant ($p < 0.05$), but the 95% confidence interval for the change point overlapped zero.