

Supplementary Table S1 Basic physical and Chemical Properties of Aeolian soil

Soil type	Organic matter content/ (g·kg ⁻¹)	Alkaline nitrogen content/ (g·kg ⁻¹)	Alkaline phosphorus content/ (g·kg ⁻¹)	Alkaline potassium content/ (g·kg ⁻¹)	pH	Percentage of each grain size/%		
						Clay	Silt	Sand
						< 0.002 mm	0.002-0.020 mm	0.020- 2.000 mm
Aeolian soil	2.74	22.35	18.64	68.44	8.2	3.45	6.11	90.44

Supplementary Table S2 Technological details of four training system

	Planting Distance(row×line)	Cluster per Vine	Cluster Weight(g)	Bunch (per cluster)	Yield(t/ha)	Pruning Weight (Kg)
Ningxia traditional vertical trunk	3m×1m	30±2	109.82±4.77	4	8.3	2.11±0.13
Gobelet	3m×1m	25±1	124.71±6.29	4	7.4	1.92±0.11
Single Guyot	3m×1m	23±1	130.29±5.67	4	7.1	1.87±0.14
Slant Trunk with Vertical Shoot Positioning	3m×1m	24±1	133.57±9.52	4	7.3	1.54±0.15

Supplementary Table S3 Primer sequences of real-time fluorescence quantitative PCR

Gene		Sequence of primer/5'→3'	Accession number
<i>Vv-Ecar</i>	Forward	CGCCACAAAGTACTCTTCAAATC	JF808010
	Reverse	AATAATGCCTGGCCTCTAGC	
<i>VvCCD1</i>	Forward	GCTGGAGAAGCTGATAGTGAAG	NM_001280915.1
	Reverse	TGGAGAGGCTGTGAAGAATCGTGC	
<i>Vvter</i>	Forward	AGACTTCGCACACAGACATC	XM_002269696.1
	Reverse	CTTGCCATTGAGGTGAAACATGCCT	
<i>VvLis</i>	Forward	CTGTCACTTCCTCTTGTCTTCTC	AM428580.2
	Reverse	TTACACGCAACCACAACAAGCAGC	
<i>VvActin</i>	Forward	TCCTTGCCTTGCGTCATCTAT	EC969944
	Reverse	CACCAATCACTCTCCTGCTACAA	

	50				65				70				90				120			
	CK	T1	T2	T3	CK	T1	T2	T3	CK	T1	T2	T3	CK	T1	T2	T3	CK	T1	T2	T3
Hundred-grain weight	67.71 ± 1.85a	68.63 ± 1.68a	58.71 ± 3.01b	68.97 ± 3.17a	89.51 ± 6.06a	75.87 ± 2.98b	64.89 ± 3.01c	76.69 ± 2.05b	92.47 ± 3.52b	90.72 ± 6.03b	107.27 ± 3.62a	91.45 ± 4.65b	146.45 ± 3.48a	109.94 ± 2.58c	132.74 ± 4.28b	137.27 ± 1.59b	144.43 ± 4.28a	124.22 ± 4.23c	132.44 ± 2.68b	123.94 ± 2.85c
Total soluble solids	4.61 ± 0.38b	4.54 ± 0.32b	4.72 ± 0.24ab	5.22 ± 0.3a	11.85 ± 1.02b	14.38 ± 1.2a	12.64 ± 0.97ab	11.55 ± 0.36b	14.91 ± 0.93a	14.83 ± 1.01a	13.06 ± 0.9b	15.59 ± 0.32a	16.88 ± 0.99b	16.96 ± 1.17b	17.4 ± 0.56b	19.41 ± 0.92a	21.46 ± 1.15b	21.59 ± 0.91b	22.92 ± 0.96ab	24.79 ± 1a
Titratable acids	18.47 ± 0.49c	28.34 ± 1.18a	24.22 ± 0.92b	25.09 ± 0.98b	14.07 ± 1.18c	16.17 ± 0.99b	19.19 ± 1a	19.47 ± 0.89a	8.61 ± 1.15b	13.7 ± 1.25a	11.68 ± 1.38a	12.03 ± 0.78a	5.7 ± 0.96a	6.54 ± 0.67a	6.88 ± 0.67a	7.22 ± 0.75a	5.9 ± 0.65a	6.5 ± 0.5a	5.57 ± 0.49ab	4.76 ± 0.48b
Total phenolics	8.65 ± 0.63b	9.69 ± 0.49a	10.34 ± 0.51a	10.57 ± 0.41a	5.09 ± 0.69c	5.19 ± 0.3c	8.89 ± 0.21b	9.79 ± 0.45a	4.09 ± 0.84c	3.66 ± 0.47c	6.18 ± 0.66b	8.69 ± 0.27a	3.96 ± 0.77b	3.07 ± 0.62b	6.45 ± 0.4a	6.69 ± 0.29a	2.37 ± 0.54c	2.44 ± 0.48c	4.14 ± 0.38b	5.51 ± 0.34a

Table 1. The effect of the concentration of the organic acids on the growth of the strains of <i>S. aureus</i> and <i>E. coli</i> in the presence of the organic acids																															
		50						65						70						90						120					
NO	Compounds	Formula	CK	T1	T2	T3	CK	T1	T2	T3	CK	T1	T2	T3	CK	T1	T2	T3	CK	T1	T2	T3									
Total acids																															
1	Acetic acid	C2H4O2	0.11±0.9c	ND	0.51±0.28a	0.17±0.09b	0.11±0.05	0.13 ±	ND	0.11 ±	0.05 ±	ND	0.19 ±	ND	ND	0.23 ±	ND	0.59 ±	ND	0.15 ±	0.1 ±	ND									
							a	0.03a		0.06a	0.04b		0.11a			0.12a		0.07b		0.02a	0.06b										
2	Nonanoic acid	C9H18O2	37.46±5.47a	30.01±3.73c	26.08±2.83d	30.49 ±	42.21 ±	57.14 ±	39.19	42.68	11.86	12.33	7.72 ±	7.19 ±	6.45	5.36 ±	5.1 ±	4.54 ±	4.45	4.35 ±	4.36 ±	4.38									
						3.77b	3.27c	8.19a	±	±	±	±	3.89c	2.81d	±	0.79b	0.58c	0.19d	±	0.69c	1.78c	±									
									5.28d	6.29b	1.73b	3.29a			1.98a				1.89a			0.48b									
Total alcohols																															

[illegible]

11	1-Heptanol	C7H16O	1.01 ± 0.54a	1.15 ± 0.39ab	ND	ND	ND	ND	2.32 ± 0.89a	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.99 ± 1.34a	ND	3.1 ± 2.02a	ND																			
12	Phenylethyl Alcohol	C8H10O	15.06 ± 2.88a	17.08 ± 3.39c	18.12 ± 6.48b	24.43 ± 5.34a	±	43.85 ± 10.09b	±	89.92 ± 9.98a	±	39.02 ± 7.01c	±	32.68 ± 6.99d	±	14.4 ± 3.77c	±	16.36 ± 7.29b	±	11.95 ± 8.39d	±	37.83 ± 7.06a	±	29.78 ± 7.56b	±	21.82 ± 4.28d	±	28.82 ± 5.66c	±	47.81 ± 7.35a	±	79.81 ± 10.92a	±	63.18 ± 28.78d	±	67.2 ± 29.47c	±	69.87 ± 11.73b			
13	2-Ethyl-1-hexanol	C8H18O	11.87 ± 3.76c	12.62 ± 4.78b	5.56 ± 5.77d	14.16 ± 4.16a	±	1.89 ± 0.77a	±	9.32 ± 4.36b	±	5.43 ± 2.18c	±	11.72 ± 4.88a	±	9.89 ± 2.1b	±	12.11 ± 3.03a	±	12.48 ± 0.93b	±	4.36 ± 4.39a	±	6.55 ± 0.93b	±	18.41 ± 4.39a	±	5.81 ± 1.7c	±	4.49 ± 1.88d	±	ND	±	ND	±	ND	±	ND	±	ND	
14	(S)-3-Ethyl-4-methylpentanol	C8H18O	3.22 ± 1.36a	ND	2.17 ± 1.18b	ND	ND	ND	ND	1.94 ± 0.54a	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
15	1,2-Dihydrolinalool	C10H20O	ND	2.57 ± 0.89a	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
16	2-Ethoxy-ethanol	C4H10O2	ND	ND	ND	ND	ND	ND	2.56 ± 0.49a	±	3.91 ± 1.32b	±	2.56 ± 0.8a	ND	ND	2.94 ± 1.02ab	±	3.26 ± 0.42a	ND	ND	3.51 ± 1.18a	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
17	4-Methyl-1-hexanol	C7H16O	ND	ND	ND	ND	2.78 ± 0.62a	±	ND	ND	2.42 ± 1.51ab	±	2.17 ± 1.27d	±	2.4 ± 0.83a	±	2.27 ± 1.38b	±	2.21 ± 0.79c	ND	2.84 ± 2.21a	±	2.61 ± 1.78a	±	ND	±	2.57 ± 0.64a	±	ND	±	2.57 ± 0.64a	±	ND	±	2.57 ± 0.64a	±	ND	±	2.57 ± 0.64a	±	2.45 ± 0.72a
18	α-Methyl-benzenemethanol	C8H10O	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.56 ± 3.28a	±	ND	±	6.3 ± 1.81b	±	5.93 ± 2.84c														
19	1-Phenyl-1-decanol	C16H26O	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.07 ± 3.22a	±	ND	ND	ND	ND	ND	3.86 ± 1.47a	±	ND	±	4.34 ± 1.38b															

	Total	carbonyl compounds																								
21	Octanal	C8H16O	0.01±0.01a	ND	ND	0.05±0.02b	0.94	±	1.46	±	ND	ND	0.21±	0.27	ND	ND	0.27	ND	ND	0.22±	ND	0.87±	0.49±	0.88		
							0.28a		0.32b				0.12a	±			±			0.11a		0.23a	0.18b	±		
													0.07a				0.08a							0.43a		
22	Acrolein	C3H4O	0.12±0.03a	ND	ND	ND	ND		0.1±0.1a	ND	ND	0.04±	0.04	ND	ND	0.04	ND	ND	ND	ND	ND	ND	0.15±	ND		
												0.02a	±			±						0.07a				
												0.02a				0.03a										
23	Trans-2-pentenal	C8H14O	ND	20.15±3.83a	ND	ND	27.5	±	46.82	±	35.33	41.4±	33.5±	45.11	36.33	40.35	34.74	31.29	27.68	32.15	19.95	57.11	28.69	39.07		
							5.33d		7.48a		±	9.02b	6.3c	±	±	±	±	±	±	±	±	±	±	±		
										4.29c			4.39a	9.25b	10.21a	5.22a	4.32c		8.33b	7.29d	22.19a	9.32c	10.06			
																							b			
24	4-Cis-decenal	C10H18O	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	0.91	ND	ND	ND	ND	ND	ND	ND	ND		
																±										
																0.65a										
25	1,3-Cyclopentadione	C5H6O2	0.16±0.06b	0.21±0.11a	0.17±0.03b	0.11±0.02c	ND		ND	0.07±	0.1	±	1.14±	ND	0.3	±	1.83±	1.03	0.87±	ND	2.12±	ND	0.14±	0.13±	0.25	
										0.04a	0.03ab	0.45b		0.1c	0.56a	±	0.19c		1.22a		0.05b	0.04b	±			
																0.28b							0.11a			
26	Artemisia ketone	C10H16O	0.17±0.08a	0.38±0.13b	0.77±0.46c	ND	0.1	±	0.2	±	0.13±	0.04±	0.06±	0.06	ND	ND	0.03	0.03±	0.08±	ND	0.03	0.02±	0.03±	0.04		
							0.06c		0.12a		0.09b	0.01d	0.02a	±			±	0.01a	0.04b		±	0.01a	0.01a	±		
													0.03a				0.02a			0.01a			0.02a			
27	Benzaldehyde	C7H6O	9.06±3.43b	ND	5.93±2.28c	9.84±4.29a	8.86	±	21.56	±	16.39	17.51	13.25	20.36	17.02	18.72	20.3	15.56	15.09	8.36±	15.79	15.23	9.71±	15.01		
							3.98d		5.3a		±	±	±	±	±	±	±	±	±	1.92d	±	±	0.91d	±		
										3.93c	4.72b	4.89d	3.19a	5.33c	2.81b	9.19a	3.29b	4.42c		4.38a	4.11b		3.16c			
28	2,6-	C9H10O	20.75	±	21.76±2.1a	20.63±3.89c	19.39	±	14.22	±	ND	16.5±	18.65	19	±	ND	21.5±	24.94	21.16	21.12	22.04	18.99	23.49	21.34	22.48	20.32

	Dimethylbenzaldehyde		4.18b			3.11d			5.22c			2.91b ±			3.21c			8.29b ±			±			±			±			±			±		
29	2-Methyl-benzaldehyde	C8H8O	84.75 ± 8.22c	96.05 ± 3.59a	79.05 ± 2.17d	85.1 ± 7.48b	96.53 ±	70.92 ±	117.86	119.97	106.39	114.06	111.86	ND	119.59	ND	115.41	90.06	121.7	110.42	121.79	114.4													
							3.13c	6.53d	±	±	±	±	±		±		±	±	7 ±	±	±	±													
									3.21b	8.43a	4.26c	3.11a	6.53b		8.74a		12.19b	8.92c	14.23	8.79d	22.17a	10.01													
																			b													c			
30	(E,E)-2,4-Hexadienal	C6H8O	17.89 ± 4.89c	20.98 ± 3.21b	23.13 ± 5.28a	23.98 ±	18.53 ±	23.87 ±	25.13	28.24	18.9 ±	28.38	27.29	42.37	19.59	37.9 ±	30.89	45.89	37.58	45.65	33.21	54.2													
						7.31a	4.28a	12.73c	±	±	4.27d	±	±	±	±	10.24b	±	±	±	±	±	±													
									3.54b	5.21a		3.19b	9.02c	6.48a	4.89a		5.18c	8.48a	6.32a	9.49b	11.28c	7.33a													
31	(E)-2-Heptenal	C7H12O	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.91	ND	ND	ND													
																			±																
																			1.07a																
32	Acetone	C3H6O	ND	2.32 ± 0.72a	3.11 ± 1.21b	ND	3.01 ±	2.61 ±	2.91 ±	2.81 ±	2.86 ±	ND	2.67 ±	2.3 ±	2.42	2.52 ±	2.59 ±	2.42 ±	1.78	2.41 ±	2.65 ±	2.82													
							2.81a	1.23d	0.75b	1.18c	0.83a		1.24b	0.92c	±	1.12b	0.89a	0.42c	±	0.28c	1.27b	±													
																1.28c			0.63d													0.95a			
33	Phenyl methyl ketone	C8H8O	ND	ND	ND	ND	ND	ND	ND	ND	ND	16.23	ND	ND	ND	23.8 ±	ND	ND	ND	25.88	ND	19.19													
												±				5.23a				±		±													
												3.82a								6.28a		3.38b													
Total benzenes																																			
34	1,4-dimethoxy-Benzene	C8H10O2	ND	9.31 ± 2.75a	7.92 ± 1.92b	9.4 ± 3.24a	10.03 ±	9.35 ±	12.02	12.59	11.61	13.97	12.54	13.31	14.33	12.49	12.61	10.77	13.3	12.03	14.34	12.77													
							4.23c	2.19d	±	±	±	±	±	±	±	±	±	±	±	±	±	±													
									5.33b	1.25a	1.74d	4.22a	1.91c	4.03b	3.37a	4.28c	2.91b	3.95d	4.26b	1.78d	2.09a	3.91c													
35	2-Methoxy-1,3,5-trimethyl-Benzene	C10H14O	ND	5.8 ± 1.02a	ND	ND	5.95 ±	6.33 ±	5.99 ±	6.61 ±	6.73 ±	8.13	7.99 ±	8.06 ±	8.47	6.13 ±	7.77 ±	ND	ND	ND	7.8 ±	ND													
							0.83c	2.71b	1.82c	4.31a	2.18c	±	2.16b	3.64a	±	2.17c	0.89b				3.38a														
												1.79a				3.93a																			

36	1,3-Dimethyl benzene	C8H10	ND	ND	2.46±2.21a	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
37	1,2,3,4-tetrahydro- 1,1,6-trimethyl- Naphthalene	C13H18	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	30.99	74.28	32.13	
																					±	±	±	
																					4.28c	8.21a	6.39b	
	Total	C6/C9																						
	Compounds																							
38	1-Hexanol	C6H14O	ND	ND	0.56±0.43a	1.5±1.1b	1.37	±	0.59	±	0.31±	0.47±	21.91	ND	ND	54.83	43.04	22.6±	98.93	100.1	69.71	63.85	126.47	280.5
							0.47a		0.33b		0.17d	0.23c	±			±	±	8.27d	±	±	±	±	±	8 ±
													10.08a			22.72b	14.72c		12.29b	21.25a	8.45c	9.92d	30.09b	29.93
																								a
39	Isohexyl alcohol	C6H14O	0.45±0.22c	0.24±0.17d	1.6±0.67a	0.83±0.32b	2.65	±	0.52	±	ND	3.75±	ND	1.51	0.73±	3.17±	0.11±	0.36±	1.85±	0.2 ±	1.97	0.89±	1.53±	1.88
							0.94b		0.17c			1.21a		±	0.17c	1.87a	0.04c	0.21b	0.71a	0.2c	±	0.72d	1.18c	±
														0.78b							0.45a			0.65b
40	4-Hexen-1-ol	C6H12O	ND	ND	1.6±0.6a	9.3±4.27b	0.47	±	0.33	±	ND	1.21±	0.21±	0.19	0.69±	ND	0.68	ND	0.36±	0.98±	ND	0.08±	ND	0.88
							0.16b		0.22c			0.48a	0.12b	±	0.24a		±		0.16c	0.27a		0.03a		±
														0.04c			0.38b							0.43b
41	2,3-Hexanediol	C6H14O2	ND	ND	0.29±0.11a	2.94±1.13b	0.13	±	0.29	±	ND	ND	ND	ND	0.61±	0.69±	ND	0.26±	ND	0.5 ±	6.3 ±	6 ±	0.55±	0.44
							0.03a		0.12b						0.32a	0.28ab		0.09a		0.27b	2.22a	1.87b	0.28c	±
																								0.12c
42	Cis-3-Hexenol	C6H14O	ND	ND	ND	ND	ND	ND	ND	ND	ND	18.46	22.84	12.07	11.91	16.15	28.15	12.99	10.51	16.46	78.15	10.37	14.18	
												±	±	±	±	±	±	±	±					
												4.92b	7.81a	2.02c	3.76d	4.02b	3.22a	3.83c	1.98d					
43	Trans-2-hexenol	C6H14O	ND	ND	ND	ND	ND	ND	ND	ND	ND	31.73	ND	ND	ND	33.18	45.28	ND	ND	32.38	ND	41.99	ND	
												±				±	±			±		±		
												10.03a				4.82a	8.92b			10.83a		2.34b		

44	Cis-2-hexenol	C6H12O	ND	ND	ND	ND	0.15	±	ND	ND	ND	ND	ND	8.2	±	ND	ND	1.5	±	0.86±	ND	10.71	8.79±	ND	6.11																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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45	Methyl formate	C9H18O2	0.35±0.17d	0.64±0.29b	1.05±0.43a	0.49±0.18c	0.21	±	0.39	±	0.3	±	0.55±	0.45±	0.44	0.11±	0.42±	0.19	0.29±	0.31±	0.25±	1.53	0.42±	1.11±	0.99																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
							0.11d		0.17b		0.21c	0.2a	0.32a	±	0.1c	0.13b	±	0.04b	0.11a	0.08c	±	0.32d	0.61b	±																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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46	Ethyl formate	C3H6O2	0.4±0.1b	0.27±0.12b	0.4±0.2b	1.03±0.34a	0.24	±	0.22	±	0.55±	0.83±	0.23±	0.48	0.88±	0.81±	0.29	0.54±	0.53±	0.35±	1.99	0.48±	0.71±	1.38																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
							0.11c		0.04d		0.17b	0.2a	0.04d	±	0.18a	0.23b	±	0.21a	0.11a	0.1b	±	0.2d	0.13c	±																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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47	Propynyl propionate	C6H8O2	0.06±0.01c	0.64±0.23a	ND	0.19±0.06b	0.13	±	0.26	±	ND	1.11±	ND	0.17	0.38±	0.24±	0.26	0.35±	1.69±	0.45±	0.21	ND	1.1	±	0.42																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
							0.02c		0.11b			0.38a		±	0.14a	0.07b	±	0.23c	0.35a	0.19b	±		0.54a	±																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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48	Melonal	C9H16O	0.4±0.13b	0.31±0.05b	0.1±0.03c	0.54±0.23a	0.39	±	0.44	±	0.35±	0.85±	0.86±	0.88	1.84±	1.9	±	1.02	1.33±	1.99±	2.67±	1.2	±	1.25±	2.49±	3.5±																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
							0.17c		0.1b		0.11d	0.09a	0.23b	±	0.42a	0.51a	±	0.41c	0.81b	1.21a	0.2c	0.41c	1.02b	1.25a																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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49	Hexanal	C6H12O	0.11±0.03d	0.44±0.12a	0.25±0.05c	0.39±0.13b	0.23	±	37.85	±	41.04	56.68	61.18	88.89	61.99	118.87	65.89	128.48	130.71	123.39	86.53	361.69	152.72	137.8																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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											3.98b	10.37a	6.67a	14.83	9.28c	21.17a	17.24	30.04b	17.16a	13.28c	7.38d	40.59a	32.19b	18.82																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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Esters																							
No.	Name	Formula	Peak 1				Peak 2				Peak 3				Peak 4				Peak 5				
			Area	Height	Retention	Area	Height	Retention	Area	Height	Retention	Area	Height	Retention	Area	Height	Retention	Area	Height	Retention	Area	Height	
52	2H-Pyran-2-methanol	C6H12O2	39.53±5.39a	31.57±2.99b	24.19±7.52d	30.54 ± 4.47c	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
53	D, L-Erythro-1-phenyl-1,2-propanediol	C9H12O2	ND	ND	ND	ND	ND	ND	ND	6.19± 2.73a	ND	ND	4.52± 1.71a	4.83± 0.95a	ND	4.78± 2.21a	3.91± 1.73b	2.5 ± 0.59c	4.15 ± 4.18a	7.3 ± 1.09c	3.78± 2.77a	ND	
Total esters																							
54	Propiolic acid ethyl ester	C5H6O2	0.14±0.06b	0.14±0.04b	ND	0.37±0.11a	ND	ND	0.4 ± 0.17a	1.03± 0.31b	0.33± 0.07c	0.35 ± 0.21b	ND	1.39± 0.72a	0.37 ± 0.11c	0.31± 0.08c	2.05± 1.12b	3 ± 0.87a	0.32 ± 0.47c	1.31± 1.43	15.43 ± 2.77b	19.89 ± 4.23a	
55	Phenylethyl phenylacetate	C16H16O2	0.83±0.23a	ND	ND	1.86±0.56b	4.12 ± 1.71c	ND	17.08 ± 4.97a	5.32± 1.31b	0.5 ± 0.2c	0.25 ± 0.13d	0.79± 0.31b	1.7 ± 0.23a	0.21 ± 0.12c	0.25± 0.21a	0.78± 0.13b	0.29± 0.13b	0.34 ± 0.45c	1.47± 1.13b	2.09± 1.13b	2.98 ± 1.51a	
56	Ethyl lactate	C5H10O3	0.84±0.12a	0.8±0.41a	0.78±0.26a	0.66±0.17b	0.36 ± 0.09a	0.15 ± 0.03c	0.23± 0.11b	ND	ND	0.44 ± 0.17a	ND	5.34± 1.73b	0.7 ± 0.26a	ND	ND	0.18± 0.04b	ND	0.51± 0.19a	ND	0.22 ± 0.07b	
57	2-Methyl butynoate	C5H6O2	ND	1.53±0.23a	1.33±0.48b	1.02±0.32c	1.54 ± 0.41b	0.26 ± 0.13d	0.36± 0.14c	2.28± 1.04a	0.6 ± 0.15b	2.25 ± 1.82a	0.69± 0.19b	0.33± 0.1c	0.2 ± 0.1c	0.23± 0.11c	0.42± 0.27b	0.77± 0.33a	0.58 ± 0.04a	0.16± 0.04a	ND ± 0.23a	0.64 ± 0.23a	
58	Methyl salicylate	C8H8O3	12.53±4.27a	12.14±3.93c	9.87±1.82d	12.23 ± 3.19b	13.98 ± 4.21d	15.54 ± 2.09c	15.87 ± 3.85b	16.61 ± 4.27a	12.32 ± 4.04d	16.48 ± 3.73a	14.41 ± 4.89b	14.09 ± 3.71c	14.67 ± 5.43a	12.27 ± 3.77c	13.37 ± 2.15b	10.43 ± 1.99d	13.29 ± 5.65a	11.71 ± 3.08c	11.85 ± 4.92b	11.52 ± 1.96d	
Total norisoprenoids																							
59	β-Damascenone	C13H18O	85.12 ± 20.12a	ND	65.11±17.43b	62.34 ± 12.88c	82.36 ± 24.25a	106.76 ± 37.81b	86.69 ± 3.85b	107.9 ± 4.27a	84.07 ± 4.04d	107.6 ± 3.73a	122.43 ± 4.89b	129.11 ± 3.71c	106.1 ± 5.43a	76.18 ± 3.77c	90.09 ± 2.15b	91.46 ± 1.99d	85.31 ± 5.65a	122.07 ± 3.08c	130.34 ± 4.92b	103.9 ± 1.96d	

Total terpenoids																							
60	β-Ionone	C13H20O	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.12 ± 2.17a	ND	2.22 ± 0.54c	4.39 ± 1.38b	5.22 ± 1.52b	3.33 ± 0.78c	5.37 ± 2.4a	ND	
61	Linalool	C10H18O	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.82 ± 0.39a	1.89 ± 0.47a	ND	ND	1.48 ± 0.36b	2.84 ± 0.78a	ND	
62	α-Terpineol	C10H18O	3.4 ± 1.23a	ND	ND	ND	ND	ND	ND	ND	3.57 ± 0.69a	ND	2.56 ± 1.54c	4.14 ± 1.31a	ND	ND	2.88 ± 1.3a	ND	8.9 ± 3.32a	5.74 ± 1.51b	5.25 ± 1.42c	5.21 ± 0.79c	
63	β-Citronellol	C10H20O	ND	ND	ND	ND	ND	ND	ND	ND	0.3 ± 0.1b	ND	0.73 ± 0.22a	0.68 ± 0.13a	0.34 ± 0.14c	0.94 ± 0.36a	0.93 ± 0.21a	0.89 ± 0.52b	0.84 ± 0.32c	0.99 ± 0.3b	1.28 ± 0.71a	1.2 ± 0.11a	
64	Geraniol	C10H18O	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.019 ± 0.01a	ND	0.29 ± 0.2a	0.19 ± 0.1b	ND	0.018 ± 0.018	0.28 ± 0.12a	0.29 ± 0.13a	ND	
65	Myrcene	C10H16	ND	ND	ND	0.019 ± 0.012a	±	ND	ND	ND	0.019 ± 0.013a	ND	ND	ND	ND	ND	0.029 ± 0.02a	0.039 ± 0.03b	0.029 ± 0.021c	0.038 ± 0.025c	0.088 ± 0.043b	0.19 ± 0.06a	
Total volatile phenols																							
66	Phenol, 3,5-bis(1,1-dimethylethyl)-	C14H22O	7.47 ± 3.21a	6.19 ± 2.87b	ND	ND	ND	8.14 ± 3.79a	±	ND	ND	ND	9.43 ± 4.27a	ND	10.31 ± 3.92b	9.69 ± 2.84a	ND	ND	8.76 ± 4.93b	ND	ND	ND	8.48 ± 4.22a

67	2,4-Di-tert-butylphenol	C14H22O	ND	ND	ND	6.25 ± 1.42a	ND	ND	ND	2.92 ± 0.79a	7.14 ± 5.48a	ND	10.52 ± 3.11b	ND	ND	ND	11.5 ± 6.29a	ND	ND	ND	6.73 ± 0.8a	ND	
Others																							
68	2-Ethylfuran	C6H8O	ND	0.48 ± 0.21a	ND	ND	ND	0.4 ± 0.11a	±	ND	ND	ND	ND	ND	1.35 ± 0.54a	ND	ND	ND	0.43 ± 0.32a	ND	ND	ND	ND
69	Cyclohexasiloxane, dodecamethyl-	C12H36O6Si6	4.72 ± 1.67b	3.56 ± 1.24c	4.98 ± 3.51a	3.03 ± 1.02d	ND	3.01 ± 1.28c	±	5.68 ± 2.74b	6.2 ± 3.27a	12.56 ± 4.38b	11.61 ± 3.29c	7.37 ± 3.81a	19.21 ± 4.29c	10.69 ± 6.33b	12.03 ± 2.95a	16.11 ± 4.74d	6.03 ± 6.35b	13.08 ± 4.74d	15.22 ± 6.35b	10.3 ± 2.14c	17.7 ± 6.46a
70	2-Propylfuran	C7H10O	1.05 ± 0.44d	3.02 ± 2.87c	3.69 ± 1.58a	3.31 ± 1.21b	3.02 ± 2.91a	±	ND	2.48 ± 1.32b	ND	ND	ND	3.27 ± 1.24a	2.85 ± 1.39b	1.94 ± 0.54a	ND	ND	ND	ND	ND	ND	ND

¹Tukey’s HSD test, different letters indicate significant differences at P < 0.05.

² ND: not detected.

