Supplementary Materials

Table S1 The concentrations of CMW or individual suspected toxicants at different dosages

Dosage (v/v, %)[a]	0.63	1.00	1.25	2.50	5.00	10.00	20.00
Group-1[b], mg COD/L	524.0	-	1040.0	2080.0	4160.0	8320.0	-
Group-2, mg/L	-	51.8	-	129.5	259.0	518.0	1036.0
Group-3, mg/L	-	-	-	71.4	142.8	285.5	571.0
Group-4, mg/L	-	-	-	103.9	207.9	415.7	831.4

[a] The dosage refers to the volume of the test solution divided by the effective working volume in reactor (200 mL).

[b] The concentrations of the test solutions used in Group-1 ~ Group-4 were CMW of 83202 mg COD/L, crotonaldehyde of 5180 mg/L, (E,E)-2,4-hexadienal of 2855 mg/L, and ethyl sorbate of 4157 mg/L, respectively.

Table S2 The concentrations of each toxicant in the mixture of toxicants at different dosages

Dosage (v/v, %) [a]	Toxicant	1.00	2.50	5.00	10.00	20.00
Group-5 [b], mg/L	Crotonaldehyde	51.8	129.5	259.0	518.0	-
	(E,E)-2,4-hexadienal	28.6	71.4	142.8	285.5	-
	Ethyl sorbate	-	-	-	-	-
Group-6, mg/L	Crotonaldehyde	51.8	129.5	259.0	518.0	-
	(E,E)-2,4-hexadienal	-	-	-	-	-
	Ethyl sorbate	41.6	103.9	207.9	415.7	-
Group-7, mg/L	Crotonaldehyde	-	-	-	-	-
	(E,E)-2,4-hexadienal	-	71.4	142.8	285.5	571.0
	Ethyl sorbate	-	103.9	207.9	415.7	831.4
Group-8, mg/L	Crotonaldehyde	51.8	129.5	259.0	518.0	-
	(E,E)-2,4-hexadienal	28.6	71.4	142.8	285.5	-
	Ethyl sorbate	41.6	103.9	207.9	415.7	-

[a] The dosage refers to the volume of the test solution divided by the effective working volume in reactor (200 mL).

b The test solution used in Group-5 contains crotonaldehyde of 5180 mg/L and (E,E)-2,4-hexadienal of 2855 mg/L; the test solution used in Group-6 contains crotonaldehyde of 5180 mg/L and ethyl sorbate of 4157 mg/L; the test solution used in Group-7 contains (E,E)-2,4-hexadienal of 2855 mg/L and ethyl sorbate of 4157 mg/L; The test solution used in Group-8 contains crotonaldehyde of 5180 mg/L, (E,E)-2,4-hexadienal of 2855 mg/L and ethyl sorbate of 4157 mg/L.

Table S3 Variations of the SAA of TVFA, Ac and n-Bu in the presence of CMW, individual suspected toxicants or the mixture of suspected toxicants at different levels

Dosage (v/v, %) [a]	SAA	0.00	1.00	1.25	2.50	5.00	10.00	20.00
Group-1 [b]	TVFA	190.14±5.24	-	136.14±7.00	49.75±2.55	19.46±0.35	14.40±0.03	-
	Ac	115.24±2.41	-	82.71±3.45	29.09±0.92	7.6±0.14	5.01±0.04	-
	n-Bu	55.15±0.95	-	44.98±4.11	14.86±1.60	7.22±0.59	5.37±0.06	-
Group-2	TVFA	190.14±5.24	178.76±0.46	-	118.24±8.98	71.41±0.89	28.77±2.41	13.79±0.17
	Ac	115.24±2.41	95.99±0.10	-	63.81±4.82	34.14±0.14	13.18±0.14	4.41±0.00
	n-Bu	55.15±0.95	67.32±0.28	-	43.37±2.82	29.46±0.31	10.77±0.29	53.61±0.10
Group-3	TVFA	190.14±5.24	-	-	191.74±0.68	140.66±0.98	60.49±0.95	20.41±3.56
	Ac	115.24±2.41	-	-	106.30±0.44	74.85±0.36	31.14±0.58	10.75±0.45
	n-Bu	55.15±0.95	-	-	71.39±0.47	57.05±0.79	23.43±0.22	5.30±3.99
Group-4	TVFA	190.14±5.24	-	-	210.07±0.94	156.65±4.36	93.76±3.58	61.27±4.61
	Ac	115.24±2.41	-	-	122.63±0.99	95.65±3.26	63.05±2.13	51.10±0.69
	n-Bu	55.15±0.95	-	-	63.15±0.60	41.73±0.64	18.31±0.70	4.23±0.21
Group-5	TVFA	213.39±4.04	186.43±1.27	-	109.89±11.81	69.23±0.83	11.92±1.82	-
	Ac	123.47±1.26	95.89±2.58	-	58.57±4.25	21.33±0.66	4.78±0.70	-
	n-Bu	50.53±0.55	75.52±2.07	-	44.24±8.64	44.01±1.37	4.28±1.08	-
Group-6	TVFA	213.39±4.04	209.20±0.53	-	150.41±15.13	74.34±9.56	15.40±0.53	-
	Ac	123.47±1.26	104.10±0.61	-	79.13±4.83	34.27±4.41	6.68±0.23	-
	n-Bu	50.53±0.55	87.53±0.92	-	61.69±9.58	33.24±4.27	4.97±0.17	-
Group-7	TVFA	213.39±4.04	-	-	220.76±2.66	171.49±7.38	70.58±1.08	26.52±2.04
	Ac	123.47±1.26	-	-	118.86±4.10	89.38±5.27	37.10±2.19	11.87±1.83
	n-Bu	50.53±0.55	-	-	83.14±4.90	68.72±4.58	27.59±3.22	10.22±1.08
Group-8	TVFA	213.39±4.04	183.85±6.48	-	83.07±3.85	25.08±4.24	10.79±1.21	-

	Ac	123.47±1.26	93.56±4.80	-	43.10±1.24	10.04±0.41	3.68±0.08	-
	n-Bu	50.53±0.55	77.01±1.10	-	33.25±2.22	9.26±2.74	3.92±0.83	-

[a] The dosage refers to the volume of the test solution divided by the effective working volume in reactor (200 mL).

[b] The concentrations of the test solutions used in Group-1 ~ Group-4 were CMW of 83202 mg COD/L, crotonaldehyde of 5180 mg/L, (E,E)-2,4-hexadienal of 2855 mg/L, and ethyl sorbate of 4157 mg/L, respectively. The test solution used in Group-5 was the mixture of crotonaldehyde (5180 mg/L) and (E,E)-2,4-hexadienal (2855 mg/L); the test solution used in Group-6 was the mixture of crotonaldehyde (5180 mg/L) and ethyl sorbate (4157 mg/L); the test solution used in Group-7 was the mixture of (E,E)-2,4-hexadienal (2855 mg/L) and ethyl sorbate (4157 mg/L); the test solution used in Group-8 was the mixture of crotonaldehyde (5180 mg/L), (E,E)-2,4-hexadienal (2855 mg/L) and ethyl sorbate (4157 mg/L).

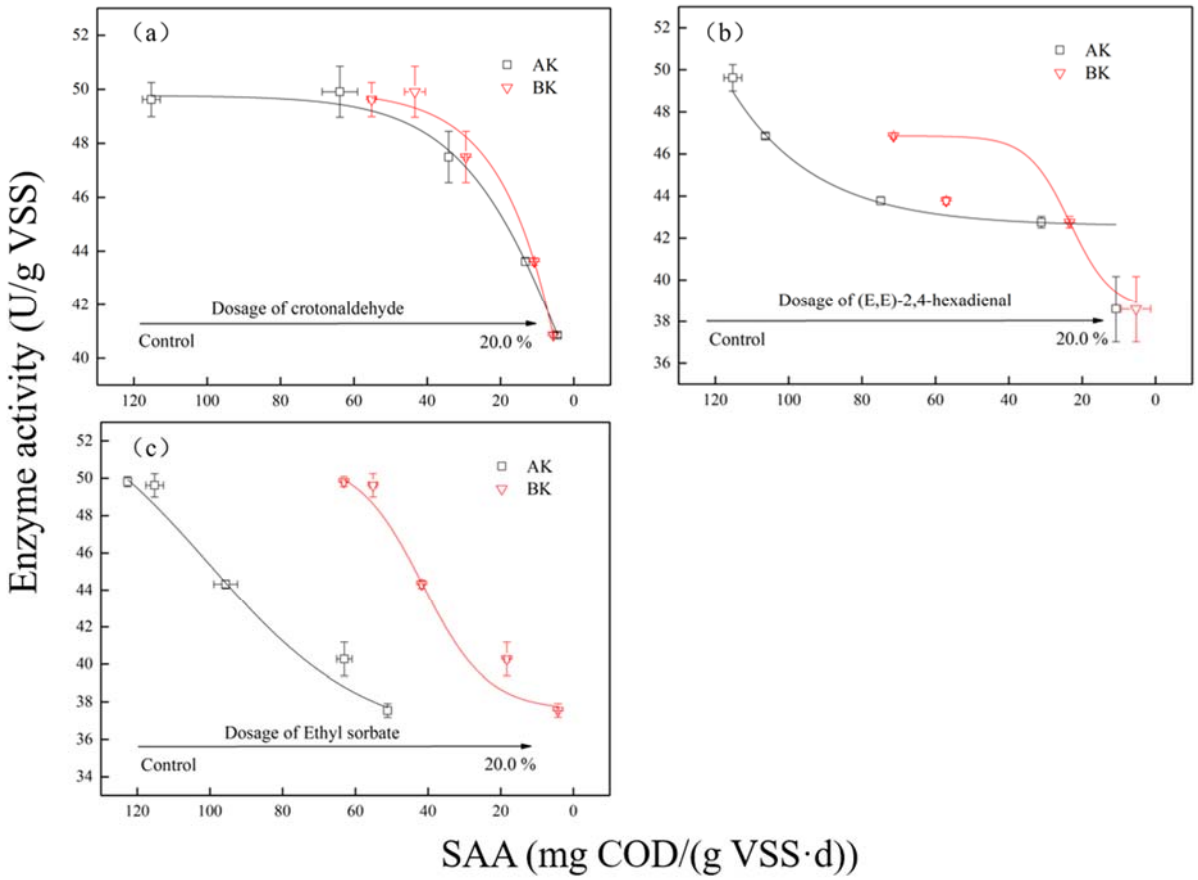

Fig S1 Relationship between the activitiers of AK and BK and the SAA of Ac and n-Bu: (a) Crotonaldehyde; (b) (E,E)-2,4-hexadienal; (c) Ethyl sorbate