

## Appendix A

**Table S1** GC-MS identification results of rhizodepositions according to National Institute of Standards and Technology database

No.	RT	Name	Molecular formula	MW	CAS	Area%					
						W	WB	WP	B	P	
GC1	6.79	2,4,6-Trimethyldecane	C <sub>13</sub> H <sub>28</sub>	184	62108-27-4	0.95	0.52	0.54	0.47	0.55	
GC11	12.17	2,6,10-Trimethyldecane	C <sub>13</sub> H <sub>28</sub>	184	17301-23-4	-	0.19	0.18	0.18	-	
GC15	14.11	Pentadecane	C <sub>15</sub> H <sub>32</sub>	212	629-62-9	1.24	1.33	1.15	1.11	1.11	
GC22	17.34	Heptadecane	C <sub>17</sub> H <sub>36</sub>	240	629-78-7	-	0.46	0.54	0.56	0.50	
GC25	17.89	4-Methyltetradecane	C <sub>15</sub> H <sub>32</sub>	212	25117-24-2	0.47	0.70	0.64	0.57	0.67	
GC27	18.89	2,6,10,14-Tetramethylpentadecane	C <sub>19</sub> H <sub>40</sub>	268	1921-70-6	0.77	1.53	1.45	1.01	1.15	
GC28	19.18	10-methylnonadecane	C <sub>20</sub> H <sub>42</sub>	282	56862-62-5	-	-	0.19	-	-	
GC31	19.69	Hexadecane,2,6,11,15-tetramethyl-	C <sub>20</sub> H <sub>42</sub>	283	504-44-9	2.63	2.98	3.29	2.83	2.69	
GC34	20.76	Octadecane	C <sub>18</sub> H <sub>38</sub>	254	593-45-3	1.06	1.57	1.32	1.16	1.07	
Alkane	GC35	22.13	Hexadecane	C <sub>16</sub> H <sub>34</sub>	226	544-76-3	1.17	1.75	1.62	1.49	1.45
GC37	23.22	2,6,10-Trimethyltetradecane	C <sub>17</sub> H <sub>36</sub>	240	14905-56-7	1.19	2.23	2.66	2.62	2.27	
GC38	23.42	Heptacosane	C <sub>27</sub> H <sub>56</sub>	380	593-49-7	-	-	0.79	-	0.40	
GC45	24.50	2,6,10,14-Tetramethylhexadecane	C <sub>20</sub> H <sub>42</sub>	282	638-36-8	3.50	4.88	4.91	4.73	4.64	
GC46	24.70	Nonacosane	C <sub>29</sub> H <sub>60</sub>	408	630-03-5	0.56	1.11	0.91	0.87	0.85	
GC47	25.08	Octadecane,3-ethyl-5-(2-ethylbutyl)-	C <sub>26</sub> H <sub>54</sub>	366	55282-12-7	-	0.76	0.73	-	-	
GC49	25.45	3-Methyloctadecane	C <sub>19</sub> H <sub>40</sub>	268	6561-44-0	1.08	1.60	1.46	1.42	1.49	
GC50	25.71	9-Hexylheptadecane	C <sub>23</sub> H <sub>48</sub>	324	55124-79-3	-	0.51	-	-	-	
GC53	27.65	8-Hexylpentadecane	C <sub>21</sub> H <sub>44</sub>	296	13475-75-7	0.58	1.03	1.30	1.06	0.88	
GC57	29.53	2-Methyltriacontane	C <sub>31</sub> H <sub>64</sub>	436	1560-72-1	1.91	2.78	2.57	1.57	2.00	
GC62	35.05	9-Octylheptadecane	C <sub>25</sub> H <sub>52</sub>	352	7225-64-1	0.82	1.32	1.31	0.82	0.79	

	GC64	36.18	Pentacosane	C <sub>25</sub> H <sub>52</sub>	352	629-99-2	-	0.39	0.57	0.65	-
	GC67	40.61	Tetratetracontane	C <sub>44</sub> H <sub>90</sub>	618	7098-22-8	-	0.74	-	0.25	0.32
Arene	GC5	8.92	1,2,3,4-Tetramethylbenzene	C <sub>10</sub> H <sub>14</sub>	134	488-23-3	1.54	0.63	0.6	1.52	0.89
	GC6	9.95	1,2,4,5-Tetramethylbenzene	C <sub>10</sub> H <sub>14</sub>	134	95-93-2	1.10	0.57	0.54	1.43	0.65
	GC8	10.88	Naphthalene	C <sub>10</sub> H <sub>8</sub>	128	91-20-3	3.21	1.94	2.87	6.14	2.60
	GC9	11.50	3,5-Dimethylcumene	C <sub>11</sub> H <sub>16</sub>	148	4706-90-5	-	0.29	0.36	1.07	-
	GC10	11.87	Pentamethylbenzene	C <sub>11</sub> H <sub>16</sub>	148	700-12-9	-	0.27	0.26	0.70	-
	GC12	13.00	4,7-Dimethylindane	C <sub>11</sub> H <sub>14</sub>	146	6682-71-9	-	-	-	0.4	-
	GC16	14.18	2-Methylnaphthalene	C <sub>11</sub> H <sub>10</sub>	142	91-57-6	2.13	1.88	2.00	4.19	2.36
	GC19	14.64	Methylnaphthalene	C <sub>11</sub> H <sub>10</sub>	142	91-57-6	2.94	1.74	-	5.77	3.64
	GC21	17.14	1,8-Dimethylnaphthalene	C <sub>12</sub> H <sub>12</sub>	156	573-98-8	-	0.74	0.62	0.71	0.75
	GC23	17.51	1,7-Dimethylnaphthalene	C <sub>12</sub> H <sub>12</sub>	156	575-37-1	0.73	0.68	0.62	0.80	0.87
Alcohol	GC3	8.45	2-Methyloctanol	C <sub>9</sub> H <sub>20</sub> O	144	818-81-5	-	0.29	-	-	-
	GC14	13.86	6-methyl-4-indanol	C <sub>10</sub> H <sub>12</sub> O	148	20294-32-0	0.74	0.51	0.42	1.09	-
Phenol	GC18	14.58	3-tert-Butylphenol	C <sub>10</sub> H <sub>14</sub> O	150	585-34-2	-	2.41	3.78	2.65	-
	GC33	20.16	2,4-Di-tert-butylphenol	C <sub>14</sub> H <sub>22</sub> O	206	96-76-4	12.4	23.9	17.3	21.6	26.91
	GC63	35.99	2,2-Bis-4-hydroxyphenylpropane	C <sub>15</sub> H <sub>16</sub> O <sub>2</sub>	228	80-05-7	8	6	4	-	1.01
	GC68	42.25	2,2'-Methylenebis(6-tert-butyl-4-methylphenol)	C <sub>23</sub> H <sub>32</sub> O <sub>2</sub>	340	119-47-1	5.73	1.19	0.34	-	0.54
Aldehyde	GC24	17.59	Dodecyl aldehyde	C <sub>12</sub> H <sub>24</sub> O	184	112-54-9	-	-	-	0.54	-
Ester	GC26	18.65	Dimethyl phthalate	C <sub>10</sub> H <sub>10</sub> O <sub>4</sub>	194	131-11-3	-	0.75	0.59	1.88	0.65
	GC54	28.17	1,2-Benzenedicarboxylic acid, dihexyl ester	C <sub>20</sub> H <sub>30</sub> O <sub>4</sub>	334	84-75-3	-	6.72	10.2	4.96	6.68
	GC58	30.05	Methyl 3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate	C <sub>18</sub> H <sub>28</sub> O <sub>3</sub>	292	6386-38-5	-	0.37	0.53	-	0.35

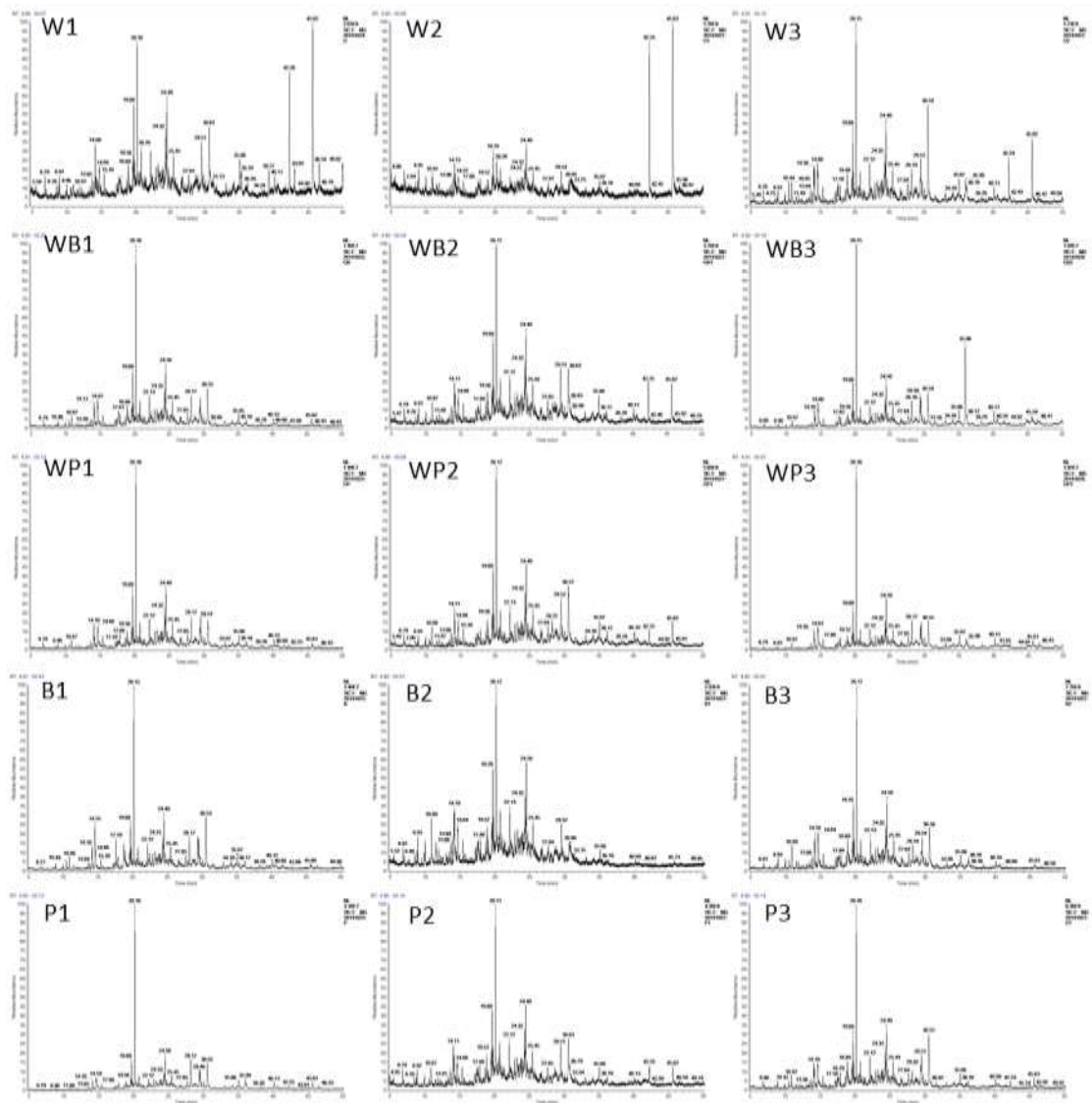
	GC59	30.55	1,2-Benzenedicarboxylicacid, 1-undecyl ester	C <sub>19</sub> H <sub>28</sub> O <sub>4</sub>	320	51622-03-8	14.5 3	10.9	16.2	8.99	16.59
	GC65	38.31	3-Methoxy-4-(methoxycarbonyl)-5-methylphenyl 4-[(2,4-dimethoxy-6-methylbenzoyl)oxy]-2-methoxy-6-methylbenzoate	C <sub>29</sub> H <sub>30</sub> O <sub>10</sub>	538	19314-74-0	-	0.35	0.35	0.20	0.22
	GC69	45.61	1,2-Benzenedicarboxylicacid, 1,2-bis(2-propylhexyl) ester	C <sub>26</sub> H <sub>42</sub> O <sub>4</sub>	418	85851-84-9	28.7 4	2.55	2.40	0.43	2.50
Acid	GC56	29.38	2-Propenoic acid,3-[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]-	C <sub>17</sub> H <sub>24</sub> O <sub>3</sub>	276	22014-01-3	-	-	-	0.32	0.50
Others	GC2	7.00	Hydroxylamine, O-decyl-	C <sub>10</sub> H <sub>23</sub> NO	173	29812-79-1	-	0.20	-	-	0.20
	GC66	40.12	Benzonitrile,4,4'-(3-methyl-1-triazene-1,3-diyl)bis- (9CI)	C <sub>15</sub> H <sub>11</sub> N <sub>5</sub>	261	30091-19-1	0.65	1.37	1.31	0.64	0.83

Note: No., the number of chemical substance identified by GC-MS; RT, retention time; MW, molecular weight of identified substance; CAS, CAS (Chemical Abstracts Service) number, Area%, the relative abundance mean value of three replicates. W, un-grafted watermelon; WB, watermelon grafted onto bottle gourd; WP, watermelon grafted onto pumpkin; B, bottle gourd rootstock; P, pumpkin rootstock.

**Table S2** Disease incidence of the W, WB and WP and pathogen population in their rhizosphere soil

Treatment	Disease incidence/%	Number of FON (lg)
W	65 ±5 a	7.67 ±0.03 a
WB	30 ±6 b	6.67 ±0.28 b
WP	12 ±3 c	5.41 ±0.18 c

Note: All values are the arithmetic means ( $n = 3$ ) ±SDs. Different letters following the SDs represent a significant difference at the 5% level for comparison between pairs of mean values. W, un-grafted watermelon; WB, watermelon grafted onto bottle gourd; WP, watermelon grafted onto pumpkin.



**Fig. S1** GC-MS spectra of rhizosphere-soil extract. W, un-grafted watermelon; WB, watermelon grafted onto bottle gourd; WP, watermelon grafted onto pumpkin; B, bottle gourd rootstock; P, pumpkin rootstock. The number after treatment indicates the replicates.