

Article

Supplementary materials: Improvement of Nutraceutical Value of Parsley Leaves (*Petroselinum crispum*) upon Field Applications of Beneficial Microorganisms

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TableS1. Metabolites obtained from LC-MS data (positive mode), that are differentially accumulated in plants treated with *Streptomyces* (S), *Trichoderma* (T) or a mix of those two (S+T) compared to control group (C) plants and the microbial consortium (S+T) compared to *Streptomyces* (S), *Trichoderma* (T) single culture.

Compound	Mass (Da)	Ln (Fold Change)				
		S vs. C	T vs. C	S+T vs. C	S+T vs S	S+T vs T
Styrene	104.0627	21,233128	21,28731	-0,074560165	-21,307688	-21,36187
C ₁₁ H ₂₃ O	185.1782	-20,871048	-10,715798	-20,77758	0,09346771	-10,061782
Bergaptol/ Xanthotoxol*	202.0272	20,277876	19,712917	20,48061	0,20273292	0,76769114
Xanthotoxin/Bergapthen*	216.0427	20,23557	20,004814	20,39623	0,1606602	0,3914169
Rotundine B	233.1789	20,003548	20,18695	20,114727	0,11117959	-0,0722242
C ₁₀ H ₁₉ NO ₇	265.1172	-3,6536846	0,057913303	-3,7408605	-0,087175846	-3,7987738
C ₁₆ H ₃₅ NO ₂	273.2676	20,174923	20,127983	20,177908	0,002984881	0,04992515
Petroselinic acid	282.257	0,6994004	0,8276119	-1,1479632	-1,8473636	-1,9755751
C ₂₀ H ₃₅ NO ₂	321.2681	-4,3183737	-0,006582439	-1,0713919	3,2469816	-1,0648096
Hyperjovinol B	332.198	-19,221182	-0,99390304	-0,743564	18,477617	0,25033903
C ₂₂ H ₄₃ NO	337.3358	19,672241	19,617838	19,652145	-0,020095706	0,034308046
Piperochromanoic acid	356.198	18,248592	18,527262	-0,074560165	-18,323153	-18,601822
C ₁₇ H ₃₉ N ₄ O ₃ S	379.274	19,704937	19,600945	19,81222	0,10728264	0,2112735
C ₁₉ H ₂₅ N ₅ O ₆	419.1808	18,70136	18,571812	18,785557	0,08419633	0,21374518
C ₂₅ H ₃₄ N ₄ O ₂	422.2688	-1,0106063	-0,5555207	-0,5077439	0,50286233	0,04777682
C ₂₃ H ₃₅ N ₅ O ₃	429.2746	-0,821465	-1,3801929	-1,2259859	-0,40452087	0,15420699
C ₂₆ H ₄₉ N ₂ O ₃	437.3739	-3,9967847	-0,4573155	-0,22560757	3,771177	0,23170793
C ₂₄ H ₄₂ O ₇	442.2926	19,269941	19,148727	19,439392	0,16945037	0,29066512
C ₂₅ H ₄₉ N ₅ O ₂	451.3895	18,932167	19,004044	18,864655	-0,06751266	-0,13938913
C ₂₇ H ₄₁ N ₂ O ₄	457.306	-2,0492868	2,9139493	-2,982212	-0,9329252	-5,896161
C ₂₅ H ₃₂ N ₇ O ₂	462.2614	-0,16802788	17,894062	-0,074560165	0,09346771	-17,968622
C ₂₅ H ₄₉ N ₅ O ₃	467.3844	-0,06121111	5,6531143	2,6398673	2,7010784	-3,013247
495.3346	495.3346	0,34400874	-0,8140577	-0,6760938	-1,0201025	0,13796389
C ₂₇ H ₅₃ N ₅ O ₃	495.4159	-1,4102228	-1,3853886	-1,4837484	-0,07352567	-0,09835982
C ₂₈ H ₄₉ N ₉	511.411	-1,1269317	-0,7952111	-1,2407053	-0,113773584	-0,44549417
C ₃₀ H ₅₇ N ₂ O ₅	525.4262	-14,094639	3,4324927	-2,1690602	11,925578	-5,601553
C ₃₁ H ₅₉ N ₂ O ₅	539.4424	14,300248	12,014479	16,880615	2,5803668	4,8661366
C ₂₃ H ₂₈ N ₁₀ O ₆	540.2202	-0,16802788	16,675978	14,77404	14,942068	-1,9019375
C ₃₀ H ₅₃ N ₉ O	555.4371	-0,16802788	-0,30589485	20,052979	20,221006	20,358873

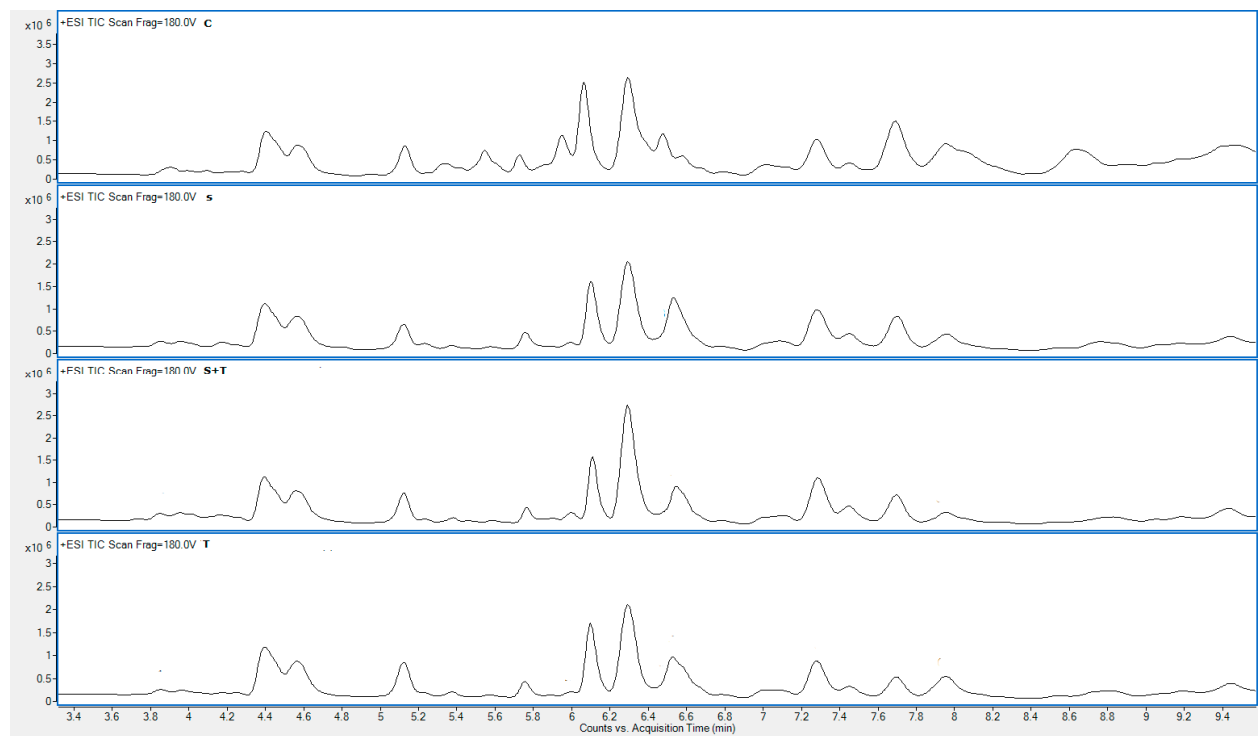
Capsanthone	582.4098	-0,16802788	-0,30589485	18,509792	18,67782	18,815687
C ₃₃ H ₆₃ N ₂ O ₇	599.4639	-0,16802788	-0,30589485	18,49334	18,661367	18,799234
C ₃₃ H ₅₉ N ₉ O ₂	613.4796	17,773788	-0,30589485	17,48442	-0,28936672	17,790316
C ₃₃ H ₅₁ N ₂ O ₉	619.3597	-18,611687	-18,749554	-4,055524	14,556163	14,69403
C ₃₇ H ₄₈ N ₄ O ₅	628.3615	-17,749094	-17,886961	-0,40953028	17,339563	17,47743
Isorhamnetin 3,7-di-O-beta-glucopyranoside	640.1663	-0,47018123	-17,639072	-0,5747576	-0,10457635	17,064314
C ₃₂ H ₂₈ NO ₁₄	650.1525	9,430138	-0,30589485	2,0435104	-7,386627	2,3494053

* Stereoisomers for which it was not possible to make a distinction in the chromatogram.

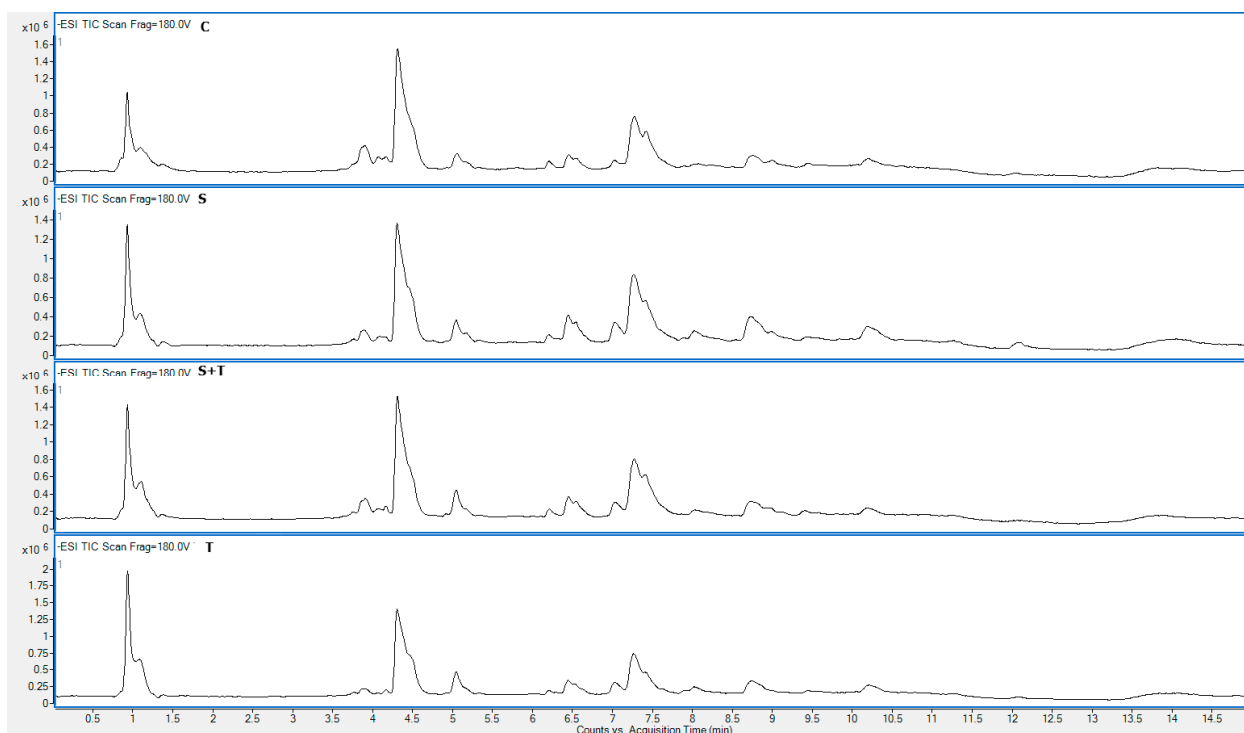
TableS2. Metabolites obtained from LC-MS data (negative mode), that are differentially accumulated in plants treated with *Streptomyces* (S), *Trichoderma* (T) or a mix of those two (S+T) compared to control group (C) plants and the microbial consortium (S+T) compared to *Streptomyces* (S), *Trichoderma* (T) single culture.

Compound	Mass (Da)	Ln (Fold Change)				
		S vs. C	T vs. C	S+T vs. C	S+T vs S	S+T vs T
Quinic acid	192.0642	19.887115	20.968676	20.24096	0.35384262	-0.72771645
(Z,Z,Z)-Octadeca-9,12,15-trienoic acid	278.2252	-0.08422239	-19.020306	-19.298847	-19.214624	-0.27854156
Nordihydrocapsiate	294.1834	18.09749	0.2026043	-0.07593727	-18.173428	-0.27854156
Colneleic acid	294.2201	19.09545	0.2026043	18.635998	-0.45945194	18.433393
Sucrose	342.1182	-21.005697	-20.720173	-0.5616127	20.444084	20.15856
C ₂₆ H ₂₀ NO ₂	378.1503	0.082920074	18.693682	-0.07593727	0.006982803	-18.769619
C ₁₂ H ₁₈ N ₃ O ₁₁	380.0935	3.77224	6.3687778	6.334033	2.561793	-0.03474465
C ₁₁ H ₁₂ N ₁₀ O ₆	380.0954	13.355883	-2.281044	-3.8360806	-17.191963	-1.5550365
C ₁₂ H ₁₈ N ₇ O ₈	388.1225	-2.89076	0.17742908	-0.07747638	2.8132834	-0.25490546
C ₁₂ H ₃₄ N ₈ O ₁₀	450.2387	0.082920074	18.759348	-0.07593727	0.006982803	-18.835285
Cilistol a	456.2852	0.066390194	-19.038605	-19.317146	-19.383537	-0.27854156
C ₂₃ H ₄₀ O ₉	460.2677	18.33072	0.2026043	18.438322	0.107599616	18.235718
C ₂₃ H ₄₆ O ₉	466.3147	19.192417	0.2026043	-0.07593727	-19.268354	-0.27854156
C ₂₈ H ₃₄ N ₃ O ₄	476.254	-6.595832	-6.3103075	12.653781	19.249613	18.964088
C ₂₈ H ₃₆ N ₃ O ₄	478.2696	18.70491	18.73321	-0.07593727	-18.780848	-18.809147
C ₁₉ H ₂₈ N ₁₆	480.2688	0.082920074	19.755817	-0.07593727	0.006982803	-19.831755
C ₂₅ H ₄₂ O ₉	486.2836	0.082920074	0.2026043	-0.07593727	0.006982803	-0.27854156
C ₂₆ H ₄₀ N ₄ O ₅	488.2988	18.616465	18.807993	18.677116	0.06065011	-0.13087809
C ₁₈ H ₄₃ N ₅ O ₁₀	489.3026	18.68542	0.2026043	19.84922	1.1638017	19.646616
C ₂₆ H ₃₉ N ₈ O ₄	527.3091	2.832656	4.009903	3.584489	0.7518332	-0.42541403
C ₁₉ H ₃₄ O ₁₇	534.1816	-19.257658	-18.972134	-19.250675	0.006982803	-0.27854156
C ₂₅ H ₃₆ N ₁₀ O ₅	556.2872	-0.75310814	0.20781177	-0.25587013	0.49723804	-0.4636819
565.152	565.152	0.082920074	19.403019	19.307016	19.389936	-0.09600169
C ₃₂ H ₄₀ N ₇ O ₄	586.3147	0.08443248	0.45108438	0.009214163	-0.07521832	-0.4418702
606.1595	606.1595	18.048233	18.294506	17.79564	-0.25259352	-0.4988656
C ₂₄ H ₁₇ N ₁₅ O ₇	627.1443	-18.992393	0.46386808	0.08813183	19.080526	-0.37573624
C ₃₀ H ₁₈ N ₁₀ O ₇	630.1358	-18.92042	0.53584146	-18.913437	0.006982803	-19.44928
Kaempferol 3-(6"-acetylgalactoside)-7-rhamnoside	636.1695	0.082920074	17.88488	-0.07593727	0.006982803	-17.960817

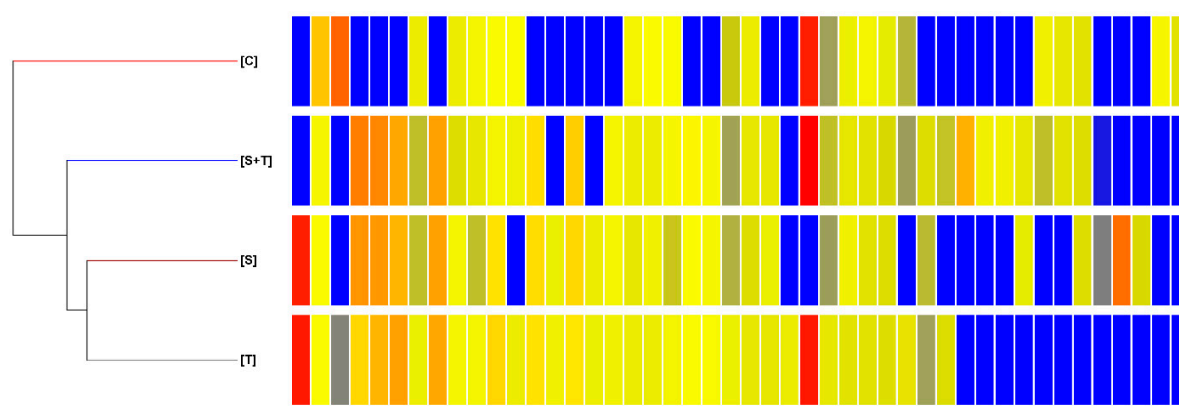
$C_{30}H_{30}O_{18}$	678.1471	-6.8933015	-1.3959728	-1.2626923	5.6306095	0.13328058
$C_{31}H_{28}N_4O_{14}$	680.1591	-0.16431296	-18.937742	-0.00396993	0.16034304	18.933771
$C_{29}H_{30}N_3O_{18}$	708.152	-18.679964	-18.39444	-18.672981	0.006982803	-0.27854156



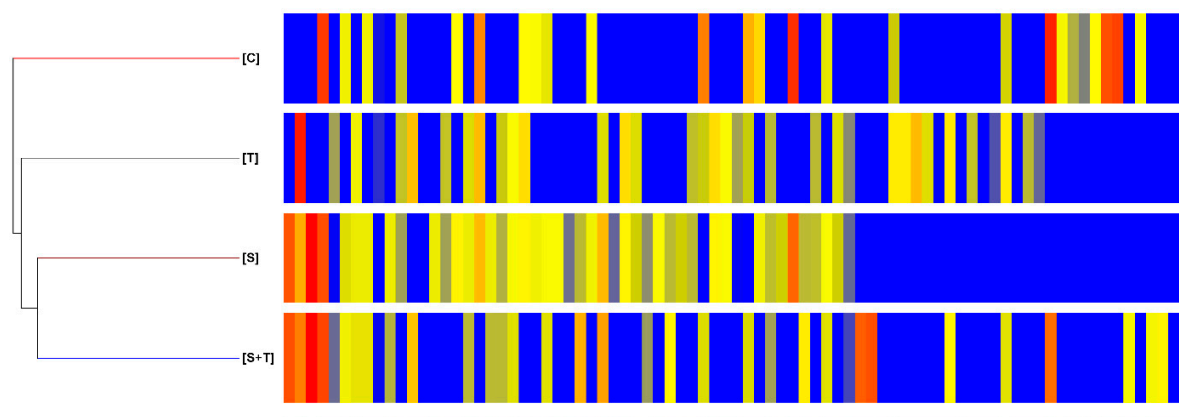
FigureS1. Magnified total ion chromatogram of parsley extracts recorded in positive mode. From the top to the bottom: C is control group; S is *Streptomyces* group; S+T is the microbial consortium *Streptomyces* + *Trichoderma*; T is *Trichoderma* group.



FigureS2. Total ion chromatogram of parsley extracts recorded in negative mode. From the top to the bottom: C is control group; S is *Streptomyces* group; S+T is the microbial consortium *Streptomyces* + *Trichoderma*; T is *Trichoderma* group.



FigureS3. Hierarchical clustering heatmap of statistically different metabolites in control (C) group; microbial consortium of *Streptomyces* and *Trichoderma* (S+T) group; *Streptomyces* (S) group and *Trichoderma* (T) group. This result is obtained starting from LC-MS data recorded in positive mode and subjected to statistical analysis (one-way ANOVA $p < 0.05$ and fold change > 2.0).



FigureS4. Hierarchical clustering heatmap of statistically different metabolites in control (C) group; microbial consortium of *Streptomyces* and *Trichoderma* (S+T) group; *Streptomyces* (S) group and *Trichoderma* (T) group. This result is obtained starting from LC-MS data recorded in negative mode and subjected to statistical analysis (one-way ANOVA $p < 0.05$ and fold change > 2.0).