

Supplementary material

Biochemical approaches on Commercial Strains of *Agaricus subrufescens* Growing under two Environmental Cultivation Conditions

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Table S1. Detailed fatty acid composition of *Agaricus subrufescens* samples produced in the field and in controlled environment crops.

	Field						Controlled environment					
	AS 98/11	AS 18/01	AS CS7	AS 19/01	AS 16/01	AS 04/49	AS 98/11	AS 18/01	AS CS7	AS 19/01	AS 16/01	AS 04/49
	Fatty acids (%)											
C6:0	0.187±0.004	0.15±0.01	1.6±0.1	0.50±0.01	0.180±0.005	0.21±0.01	0.190±0.004	0.26±0.02	0.57±0.01	0.40±0.04	0.37±0.01	0.29±0.02
C14:0	0.32±0.02	0.42±0.01	0.8±0.1	0.5±0.1	0.31±0.02	0.25±0.02	0.29±0.01	0.41±0.01	0.44±0.01	0.42±0.03	0.25±0.02	0.36±0.01
C15:0	0.9±0.1	0.94±0.05	1.75±0.02	1.1±0.1	0.75±0.04	0.828±0.001	0.85±0.02	0.93±0.01	1.02±0.01	1.1±0.1	0.92±0.05	0.9±0.1
C16:0	12.7±0.2	15±1	14.3±0.1	17.6±0.03	13.5±0.1	13.4±0.3	12.31±0.01	15.0±0.01	17±1	16.5±0.2	15±1	14±1
C16:1	0.173±0.005	0.25±0.02	0.35±0.01	0.37±0.01	0.32±0.03	0.19±0.01	0.108±0.005	0.18±0.02	0.157±0.001	0.11±0.01	0.13±0.01	0.17±0.01
C17:0	0.73±0.01	0.93±0.04	0.98±0.01	1.0±0.1	0.98±0.02	0.81±0.01	0.77±0.01	1.12±0.03	1.21±0.04	1.0±0.1	1.37±0.02	1.07±0.04
C18:0	3.8±0.1	4.9±0.3	4.42±0.07	4.97±0.02	5.0±0.1	4.4±0.2	4.250±0.001	4.6±0.3	5.23±0.01	5.15±0.05	4.9±0.3	4.9±0.3
C18:1n9c	1.2±0.1	2.1±0.2	1.54±0.03	1.5±0.1	1.6±0.1	1.28±0.03	1.19±0.03	1.5±0.1	1.9±0.1	2.0±0.1	1.6±0.1	1.4±0.1
C18:2n6c	73.44±0.16	68±1	66.2±0.2	64±1	70.0±0.3	71±1	72.8±0.1	68.1±0.1	64±1	64±1	67±2	67.5±0.4
C20:0	1.48±0.01	1.69±0.03	1.38±0.01	1.69±0.01	1.7±0.1	1.7±0.1	1.50±0.01	1.34±0.04	1.83±0.03	1.7±0.2	1.6±0.1	1.6±0.1
C20:1	0.33±0.02	0.38±0.04	0.55±0.01	0.35±0.02	0.23±0.01	0.38±0.04	0.32±0.01	0.32±0.03	0.14±0.01	0.474±0.004	0.37±0.01	0.37±0.03
C20:2	0.15±0.01	0.16±0.01	0.16±0.01	0.16±0.01	0.14±0.01	0.18±0.02	0.19±0.01	0.17±0.02	0.155±0.001	0.20±0.01	0.13±0.01	0.20±0.01
C21:0	0.37±0.02	0.41±0.01	0.78±0.02	0.45±0.04	0.34±0.03	0.42±0.02	0.39±0.01	0.43±0.03	0.55±0.01	0.44±0.02	0.46±0.03	0.49±0.02
C22:0	2.83±0.03	3.1±0.1	3.06±0.04	3.1±0.1	3.08±0.05	3.04±0.02	3.19±0.03	3.3±0.1	3.3±0.1	3.5±0.3	3.06±0.03	3.5±0.3
C23:0	0.54±0.03	0.66±0.01	1.04±0.03	1.4±0.1	0.7±0.02	1.29±0.04	0.55±0.02	1.1±0.1	1.2±0.1	1.4±0.1	1.3±0.1	1.42±0.04
C24:0	0.89±0.01	1.3±0.1	1.07±0.03	0.8±0.1	1.18±0.02	1.1±0.1	1.05±0.01	1.22±0.03	1.18±0.03	1.4±0.1	1.2±0.1	1.5±0.1
SFA	24.7±0.3	29±1	31.2±0.2	33±1	27.8±0.2	27±1	25.3±0.1	29.7±0.2	33±1	33±1	30±2	30.4±0.4
MUFA	1.7±0.1	2.8±0.2	2.44±0.01	2.2±0.1	2.1±0.1	1.8±0.1	1.62±0.04	2.0±0.2	2.2±0.1	2.6±0.1	2.1±0.1	1.94±0.03
PUFA	73.6±0.2	68±1	66.3±0.2	65±1	70.1±0.3	71±1	73.0±0.1	68.3±0.1	65±1	64±1	67±2	67.7±0.4

SFA - Saturated fatty acids; MUFA - Monounsaturated fatty acids; PUFA - Polyunsaturated fatty acids.

Table S2. Detailed tocopherols, phenolic acids and related compounds composition of *Agaricus subrufescens* samples produced in the field and in controlled environment crops.

	Field						Controlled environment						
	AS 98/11	AS 18/01	AS CS7	AS 19/01	AS 16/01	AS 04/49	AS 98/11	AS 18/01	AS CS7	AS 19/01	AS 16/01	AS 04/49	
Tocopherols (µg/100 g dw)													
<i>α</i> -Tocopherol	26.8±0.2c	20.5±0.6e	13.91±0.03 i	16.7±0.1g	26.7±0.4c	47.5±0.6a	23.5±0.1d	17.1±0.7f	13.2±0.2j	14.5±0.7h	14.4±0.3h	40.4±0.3b	
<i>β</i> -Tocopherol	76.0±0.3a	64.7±0.3b	57.6±0.1e	64.5±0.3b	60±1d	76.5±0.3a	65.0±0.6b	56.8±0.8f	50.72±0.03 g	59.8±0.8d	36.6±0.1h	63±1c	
<i>δ</i> -Tocopherol	44.1±0.6d	54.6±0.3c	35.5±0.2h	31.4±0.1i	42.7±0.8e	74.5±0.3a	36±1g	43.7±0.7d	20.6±0.1k	24.5±0.1j	40.3±0.1f	62.2±0.1b	
Sum	146.9±0.1c	140±1d	107.0±0.1i	112.6±0.1h	130±1e	198.6±0.6a	124.6±0.6f	117.6±0.6g	84.4±0.4l	98.8±0.3j	91.2±0.4k	166±1b	
Phenolic acids and related compounds (µg/g dw)													
Protocatechuic acid	16.43±0.03 e	11.62±0.01 k	20.1±0.1a	19.73±0.08 b	15.6±0.1g	15.9±0.1f	13.4±0.5j	11.2±0.2l	17.41±0.06 d	18.5±0.2c	14.39±0.06 h	13.89±0.04 i	
<i>p</i> -hydroxybenzoic acid	235.5±0.7b	189.1±0.7d	150.8±0.4j	194.3±0.4c	171.8±0.4 g	167.0±0.2i	234±1a	184.3±0.2e	140±1k	173.71±0.08 f	168.1±0.8h	138.7±0.4l	
<i>p</i> -coumaric acid	69.5±0.7f	64.6±0.1i	74.3±0.5e	136.8±0.6c	171.7±0.8 a	68.5±0.3g	57.6±0.1l	62.6±0.2j	66.61±0.06 h	123.5±0.9d	162.8±0.3b	56.7±0.8k	
Sum	321.4±0.1d	265.4±0.6g	245.2±0.1j	351±1b	359.0±0.5 a	251.4±0.6i	305±1f	258.1±0.3h	224±1k	316±1e	345±1c	209.3±0.3l	
Cinnamic acid	10.6±0.1j	16.6±0.2c	14.8±0.3e	14.08±0.03f	23.7±0.1a	13.12±0.07 g	9.86±0.09 k	15.66±0.04 d	12.01±0.07 h	13.2±0.1g	21.3±0.1b	11.1±0.1i	

Tocopherols calibration curves: α-tocopherol ($y = 1.295x$; $R^2 = 0.991$; LOD = 18.06 ng/mL; LOQ = 60.20 ng/mL), β-tocopherol ($y = 0.396x$; $R^2 = 0.992$; LOD 25.82 ng/mL; LOQ = 86.07 ng/mL), and δ-tocopherol ($y = 0.678x$; $R^2 = 0.992$; LOD = 20.09 ng/mL; LOQ = 66.95 ng/mL). Phenolic acids and related compounds calibration curves: protocatechuic acid ($y = 166966x + 251225$; $R^2 = 0.9978$); *p* hydroxybenzoic acid ($y = 21.680x + 9264.2$; $R^2 = 0.9983$); *p*-coumaric acid ($y = 93234x + 56858$; $R^2 = 0.9936$) and cinnamic acid ($y = 135559x + 222170$; $R^2 = 0.9955$).