Supplementary documents

Enhancing the Biochemical Potential of Holy Basil through Methyl Jasmonate Elicitation with Insights into Physiological Responses in a Plant Factory

Panita Chutimanukul[1], Akira Thongtip[1], Atikorn Panya[2], Natthaporn Phonsatta[2], Sujichon Thangvichien[2], Kriengkrai Mosaleeyanon[1], Praderm Wanichananan[1], Wannida Sae-Tang[3] and Preuk Chutimanukul[4*]

*Corresponding author: Preuk Chutimanukul

Email: preuk59@tu.ac.th

Figure S1 a photograph of cultivation bed configuration in a plant factory with artificial lighting (PFAL) during the experiment

Figure S2. Chromatogram of targeted standard VOC and internal standard

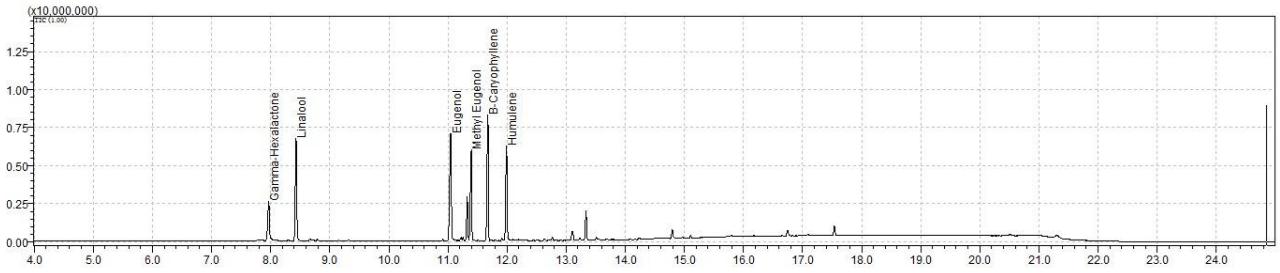

Table S1. Calibration parameters for the quantification of five target volatile organic compounds. The table includes the regression equations, coefficients of determination (R^2), slopes, linearity ranges (µg per 100 mg dry weight), limits of detection (LOD), limits of quantification (LOQ), and method precision expressed as the relative standard deviation (%RSD) at the mid-range concentration (61.25 µg/mL, n = 3).

Compound	Equation	R^2	Slope	linearity range	LOD	LOQ	%RSD
Linalool	y = 0.0042x - 0.0004	0.9999	0.0042	3.90-250	0.1520	3.1053	2.6916
Eugenol	y = 0.0034x + 0.0178	0.9981	0.0034	3.90-250	2.3815	3.9692	5.7558
Methyl eugenol	y = 0.0041x + 0.0166	0.9983	0.0041	15.625-250	10.8894	15.5563	5.2303
B-Caryophyllene	y = 0.0023x + 0.0046	0.9994	0.0023	3.90-250	1.0851	3.5002	0.8362
Humulene	y = 0.0060x + 0.0043	0.9998	0.0060	3.90-125	1.2834	3.8891	6.4603

Table S2. Selected quantifier (QT) and qualifier (QL) ions (m/z) for the identification and quantification of target volatile organic compounds by GC-MS analysis.

Compound	QT	QL1	QL2	QL3
Linalool	71	55	93	121
Eugenol	164	121	131	149
Methyl eugenol	178	107	147	163
B-Caryophyllene	93	69	133	161

Humulene	93	80	105	121

Table S3. Summary of F-values from ANOVA for all measured parameters.

Parameters	Day after treatment (day)		
	4	8	12
Fresh weight	7.010	4.054	5.229
Dry weight	13.225	4.483	25.072
Total Phenolic content	12.173	25.698	12.028
Flavonoid content	21.690	13.331	3.766
DPPH Radical Scavenging	2.541	5.021	2.565
Anthocyanin	21.324	18.563	7.808
Terpenoids	12.155	13.745	0.529
Methyl eugenol content	36.731	17.312	25.787
Eugenol content	14.471	36.398	49.622
β-Caryophyllene	19.832	7.938	12.463
Alpha humulene	14.239	0.797	4.716
Linalool	15.916	10.730	823.703
Net photosynthetic rate	65.335	15.590	1.089
Stomatal Conductance	18.365	2.022	4.412
Internal CO_2 concentration	1.230	1.581	2.595
Transpiration rate	1.057	2.259	5.827
Vapour pressure deficit	2.462	1.894	2.095
Water use efficiency	7.872	22.706	3.073

Table S4. Summary of P- value from ANOVA for all measured parameters.

Parameters	Day after treatment (day)		
	4	8	12
Fresh weight	0.006	0.033	0.016
Dry weight	0.001	0.025	0.000
Total Phenolic content	0.001	0.000	0.001
Flavonoid content	0.000	0.001	0.040
DPPH Radical Scavenging	0.106	0.018	0.103
Anthocyanin	0.000	0.000	0.004
Terpenoids	0.001	0.000	0.717
Methyl eugenol content	0.000	0.000	0.000
Eugenol content	0.000	0.000	0.000
β-Caryophyllene	0.000	0.004	0.001
Alpha humulene	0.000	0.554	0.021
Linalool	0.000	0.001	0.000
Net photosynthetic rate	0.000	0.000	0.413
Stomatal Conductance	0.000	0.167	0.026
Internal CO_2 concentration	0.358	0.253	0.101
Transpiration rate	0.426	0.135	0.011
Vapour pressure deficit	0.113	0.188	0.156
Water use efficiency	0.004	0.000	0.068