

Supplementary Materials

Table S1. List of the metabolites analysed in this study. Metabolites in bold were below the limit of detection under our experimental conditions.

<i>Phytohormone group</i>	<i>Abbreviations</i>	<i>Name</i>
Auxins	IAA	indole-3-acetic acid
	oxIAA	2-oxindole-3-acetic acid
	IAAsp	indole-3-acetyl-L-aspartic acid
	IAGlu	indole-3-acetyl-glutamic acid
Isoprenoid cytokinins	<i>tZ</i>	<i>trans</i> -zeatin
	<i>tZR</i>	<i>trans</i> -zeatin riboside
	<i>tZRMP</i>	<i>trans</i> -zeatin riboside-5'-monophosphate
	<i>tZ9G</i>	<i>trans</i>-zeatin-9-glucoside
	<i>tZ7G</i>	<i>trans</i>-zeatin-7-glucoside
	<i>tZOG</i>	<i>trans</i> -zeatin- <i>O</i> -glucoside
	<i>tZROG</i>	<i>trans</i> -zeatin riboside- <i>O</i> -glucoside
	DHZ	dihydrozeatin
	DHZR	dihydrozeatin riboside
	DHZRMP	dihydrozeatin riboside-5'-monophosphate
	DHZ9G	dihydrozeatin-9-glucoside
	DHZ7G	dihydrozeatin-7-glucoside
	DHZOG	dihydrozeatin- <i>O</i> -glucoside
	DHZROG	dihydrozeatin riboside-<i>O</i>-glucoside
	<i>cZ</i>	<i>cis</i> -zeatin
	<i>cZR</i>	<i>cis</i>-zeatin riboside
	<i>cZRMP</i>	<i>cis</i>-zeatin riboside-5'-monophosphate
	<i>cZ7G</i>	<i>cis</i>-zeatin-7-glucoside
	<i>cZ9G</i>	<i>cis</i>-zeatin-9-glucoside
	<i>cZOG</i>	<i>cis</i> -zeatin- <i>O</i> -glucoside
	<i>cZROG</i>	<i>cis</i>-zeatin riboside-<i>O</i>-glucoside
	iP	isopentenyladenine
	iPR	isopentenyladenenosine
	iPRMP	isopentenyladenosine-5'-monophosphate
	iP9G	isopentenyladenine-9-glucoside
	iP7G	isopentenyladenine-7-glucoside

Table S2. Levels of endogenous auxin metabolites (pmol g⁻¹ FW) in the hypocotyl and developmental root sections of cacao seedlings harvested at 4, 7 and 10 DAI. A, B, and C indicate the biological replicates. Mz = meristematic zone; Ez = elongation zone; Dz = differentiation zone bearing protrusions of lateral roots; mDz = mature differentiation zone; H = hypocotyl segment. A dash (-) indicates the absence of values as the mDz segment was not formed at day 4. FW = fresh weight.

<i>DAI</i>		<i>Content of IAA (pmol g⁻¹ FW) in different tissues</i>					<i>Content of IAAsp (pmol g⁻¹ FW) in different tissues</i>				
		Mz	Ez	Dz	mDz	H	Mz	Ez	Dz	mDz	H
4	A	310.96	378.47	116.81	-	38.91	1505,88	1208,06	1935,43	-	764,28
	B	339.33	134.72	106.88	-	79.30	1289,25	646,05	570,05	-	285,47
	C	159.92	88.24	66.61	-	25.34	1202,31	700,56	1373,12	-	181,71
	Mean values	270,07	200,48	96,77	-	47,85	1332,48	851,56	1292,86	-	410,48
7	A	224.55	75.93	67.963	52.317	34.261	1112,34	1405,85	1153,35	562,88	783,08
	B	204.19	152.43	117.506	72.051	100.062	357,33	300,05	449,54	732,35	36,06
	C	206.60	89.45	99.831	34.703	45.686	702,107	859,52	903,77	769,38	514,56
	Mean values	211,78	105,94	95,09	53,02	60,00	723,93	855,14	835,55	688,20	444,57
10	A	18.39	36.46	90.07	19.45	8.77	1309,87	2616,56	614,59	2386,31	703,50
	B	20.87	29.37	77.84	37.93	29.95	2249,92	1053,08	1515,12	102,22	145,18
	C	19.38	14.69	32.77	21.40	18.32	2030,387	1255,11	1195,28	337,36	187,63
	Mean values	19,54	26,84	66,89	26,26	19,01	1863,39	1641,59	1108,33	941,96	345,44
		<i>Content of free IAGlu (pmol g⁻¹ FW) in different tissues</i>					<i>Content of oxIAA (pmol g⁻¹ FW) in different tissues</i>				
		Mz	Ez	Dz	mDz	H	Mz	Ez	Dz	mDz	H
4	A	10.20	14.17	32.18	-	5.39	13.42	16.01	1.86	-	1.14
	B	6.60	4.05	14.17	-	1.56	8.20	6.74	5.62	-	4.34
	C	7.17	5.49	34.69	-	1.46	6.85	12.39	10.80	-	8.48
	Mean values	7.99	7.90	27.01	-	2.80	9.49	11.71	6.09	-	4.65
7	A	29.84	37.76	27.76	42.57	6.96	3.00	1.78	3.18	1.70	1.22
	B	2.79	6.24	6.22	15.45	6.31	9.38	8.79	7.59	3.22	7.46
	C	7.24	12.17	13.09	14.77	5.36	8.74	4.63	2.95	3.22	1.66
	Mean values	13.29	18.72	15.69	24.26	6.21	7.04	5.07	4.58	2.71	3.45
10	A	15.62	38.46	18.07	48.97	7.47	16.75	23.05	54.83	16.74	8.69
	B	48.67	20.59	39.22	12.63	9.10	21.23	21.34	53.60	21.05	12.21
	C	72.87	51.80	25.46	13.77	7.72	20.20	19.94	29.13	24.65	12.98
	Mean values	45.72	36.95	27.58	25.12	8.10	19.39	21.44	45.85	20.81	11.30

Table S3. Levels of endogenous cytokinins (pmol/g fresh weight) in the hypocotyl and developmental root sections of cacao seedlings harvested at 4, 7 and 10 DAI. A, B, and C indicate the biological replicates. “<LOD” indicates values below the limit of detection of UHPLC-MS/MS method used. Mz = meristematic zone; Ez = elongation zone; Dz = differentiation zone bearing protrusions of lateral roots; mDz = mature differentiation zone; H = hypocotyl segment. A dash (-) indicates the absence of values as the mDz segment was not formed at day 4. FW = fresh weight.

<i>DAI</i>	<i>Plant tissue</i>		<i>iP</i>	<i>iPR</i>	<i>iP7G</i>	<i>iPRMP</i>	<i>tZ</i>	<i>tZR</i>	<i>tZOG</i>	<i>tZROG</i>	<i>tZR5'MP</i>	<i>DHZOG</i>	<i>cZ</i>	<i>cZOG</i>
4	Mz	A	1.652	4.351	0.930	1.612	0.044	0.206	<LOD	0.040	0.708	0.006	0.011	<LOD
		B	1.680	4.599	0.230	2.062	0.091	0.641	0.071	0.065	1.796	<LOD	0.011	<LOD
		C	0.735	2.383	0.089	0.807	0.082	0.371	0.150	0.051	1.230	0.002	<LOD	<LOD
		Mean values	1.355	3.778	0.416	1.493	0.073	0.406	0.110	0.052	1.245	0.004	0.011	<LOD
	Ez	A	1.059	2.411	0.377	1.429	0.288	1.688	0.257	0.077	5.170	0.008	0.015	<LOD
		B	0.332	2.887	0.223	0.636	0.109	1.475	0.078	0.019	1.867	0.003	0.012	<LOD
		C	0.623	2.321	0.230	0.423	0.145	0.913	0.421	0.065	1.368	0.004	<LOD	<LOD
		Mean values	0.671	2.539	0.277	0.830	0.181	1.359	0.252	0.054	2.802	0.005	0.014	<LOD
	Dz	A	<LOD	<LOD	0.510	0.297	0.399	1.212	0.720	0.086	1.721	0.097	0.014	<LOD
		B	0.505	1.651	0.088	0.604	0.296	1.392	0.438	0.059	2.378	0.012	0.005	<LOD
		C	0.707	2.964	0.143	0.915	0.257	0.825	0.435	0.066	1.945	0.024	<LOD	<LOD
		Mean values	0.606	2.308	0.247	0.605	0.318	1.143	0.531	0.070	2.014	0.045	0.010	<LOD
	H	A	0.322	0.690	0.155	0.196	0.809	1.471	0.881	0.082	4.094	0.056	<LOD	<LOD
		B	0.299	1.729	0.133	0.416	0.612	2.055	0.357	0.059	4.731	0.009	<LOD	<LOD
		C	0.141	1.116	<LOD	0.162	0.561	1.470	0.646	0.072	3.202	0.022	<LOD	<LOD
		Mean values	0.254	1.178	0.144	0.258	0.661	1.665	0.628	0.071	4.009	0.029	<LOD	<LOD
7	Mz	A	0.454	1.817	0.097	0.548	0.116	1.361	0.296	0.033	2.364	0.005	<LOD	<LOD
		B	0.905	1.954	0.149	0.627	0.244	0.726	0.199	0.029	1.856	0.007	<LOD	<LOD
		C	0.915	2.838	0.063	0.406	0.226	0.850	0.363	0.026	2.279	0.006	0.002	<LOD
		Mean values	0.758	2.203	0.103	0.527	0.196	0.979	0.286	0.029	2.167	0.006	0.002	<LOD
	Ez	A	0.265	1.237	0.102	0.143	0.183	1.562	1.707	0.067	1.878	0.015	<LOD	<LOD
		B	0.759	1.567	1.236	0.331	0.295	1.802	1.286	0.066	2.801	0.010	0.086	<LOD
		C	0.724	2.721	0.095	0.444	0.357	2.812	0.943	0.049	2.938	0.012	0.047	<LOD
		Mean values	0.583	1.841	0.478	0.306	0.278	2.058	1.312	0.061	2.539	0.013	0.067	<LOD

Table S3 Continued

<i>DAI</i>	<i>Plant tissue</i>		iP	iPR	iP7G	iPRMP	<i>t</i> Z	<i>t</i> ZR	<i>t</i> ZOG	<i>t</i> ZROG	<i>t</i> ZR5'MP	DHZOG	<i>c</i> Z	<i>c</i> ZOG
7	Dz	A	0.453	0.927	0.075	0.169	0.114	1.347	0.988	0.076	1.027	0.032	0.018	<LOD
		B	0.492	1.462	0.067	0.259	0.371	1.819	0.640	0.071	1.216	0.019	<LOD	<LOD
		C	0.002	<LOD	0.104	0.212	0.223	0.978	0.392	0.037	1.199	0.009	0.001	<LOD
		Mean values	0.316	1.195	0.082	0.213	0.236	1.381	0.674	0.061	1.148	0.020	0.009	<LOD
	mDz	A	0.390	1.811	0.281	0.208	0.122	3.229	1.597	0.100	1.657	0.035	0.008	<LOD
		B	1.057	2.881	0.312	0.416	0.328	2.969	1.224	0.100	1.908	0.028	<LOD	<LOD
		C	0.995	2.212	0.417	0.344	0.374	2.529	1.458	0.054	2.468	0.030	<LOD	<LOD
		Mean values	0.814	2.301	0.337	0.323	0.275	2.909	1.426	0.084	2.011	0.031	0.008	<LOD
	H	A	0.356	0.911	0.060	0.335	0.312	0.892	0.489	0.060	2.193	0.015	<LOD	<LOD
		B	0.250	0.475	0.011	0.307	0.725	2.567	0.955	0.069	4.765	0.016	0.188	<LOD
		C	0.226	1.167	0.312	0.307	0.604	1.677	0.482	0.058	4.223	0.007	0.111	<LOD
		Mean values	0.277	0.851	0.128	0.317	0.547	1.712	0.642	0.062	3.727	0.013	0.150	<LOD
10	Mz	A	<LOD	3.746	<LOD	0.047	0.039	0.272	0.462	<LOD	<LOD	0.011	0.034	0.0000
		B	0.423	1.419	0.216	0.193	0.068	0.282	3.064	0.206	0.889	0.025	0.043	0.0044
		C	0.192	1.039	0.322	0.220	0.058	0.294	1.094	0.074	1.266	0.008	<LOD	0.1164
		Mean values	0.308	2.068	0.269	0.127	0.055	0.283	1.540	0.140	1.077	0.015	0.038	0.040
	Ez	A	0.497	1.864	0.232	0.160	0.232	1.756	3.871	0.280	5.862	0.043	0.022	0.0000
		B	0.389	0.645	0.174	0.047	0.044	0.252	1.419	0.080	0.568	0.009	0.051	0.0170
		C	0.160	1.077	0.477	0.174	0.121	0.588	2.500	0.120	1.864	0.019	0.011	0.6060
		Mean values	0.349	1.195	0.294	0.127	0.132	0.865	2.597	0.160	2.765	0.024	0.028	0.208
	Dz	A	0.686	0.940	0.173	0.044	0.197	1.394	1.876	0.106	2.565	0.031	0.022	0.0000
		B	1.369	1.550	0.299	0.148	0.086	0.247	1.375	0.123	<LOD	0.019	0.141	0.0575
		C	0.243	0.797	0.156	0.076	0.089	0.407	1.481	0.105	1.206	0.023	0.015	0.9674
		Mean values	0.766	1.095	0.209	0.089	0.124	0.683	1.577	0.111	1.886	0.024	0.059	0.342
	mDz	A	1.622	2.243	0.528	0.174	0.088	0.294	2.876	0.147	0.379	0.018	0.116	0.0000
		B	0.202	1.197	0.539	0.106	0.102	0.539	3.370	0.232	2.013	0.026	0.045	0.0377
		C	0.506	1.094	0.177	0.054	0.145	1.256	3.290	0.142	2.083	0.028	0.030	0.5942
		Mean values	0.777	1.511	0.415	0.111	0.111	0.696	3.179	0.173	2.765	0.024	0.063	0.211
	H	A	0.186	1.197	0.040	0.155	0.015	0.067	0.368	0.057	<LOD	0.005	0.008	0.0000
		B	0.554	1.580	0.264	0.130	0.313	1.519	2.362	0.189	3.273	0.053	0.019	0.0046
		C	0.184	1.555	0.163	0.263	0.128	0.857	0.930	0.156	2.945	0.008	0.012	0.3500
		Mean values	0.308	1.444	0.156	0.183	0.152	0.815	1.220	0.134	3.109	0.022	0.013	0.118