

Supplementary material

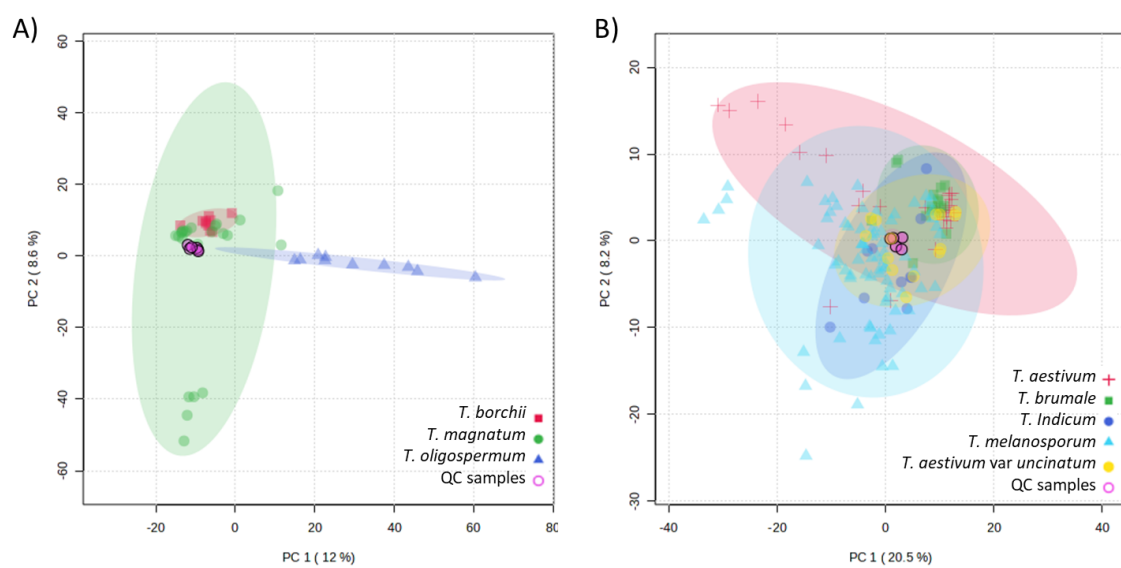


Figure S1. PCA scores plot of all measurements including QC samples: A) white truffle samples; B) black truffle samples.

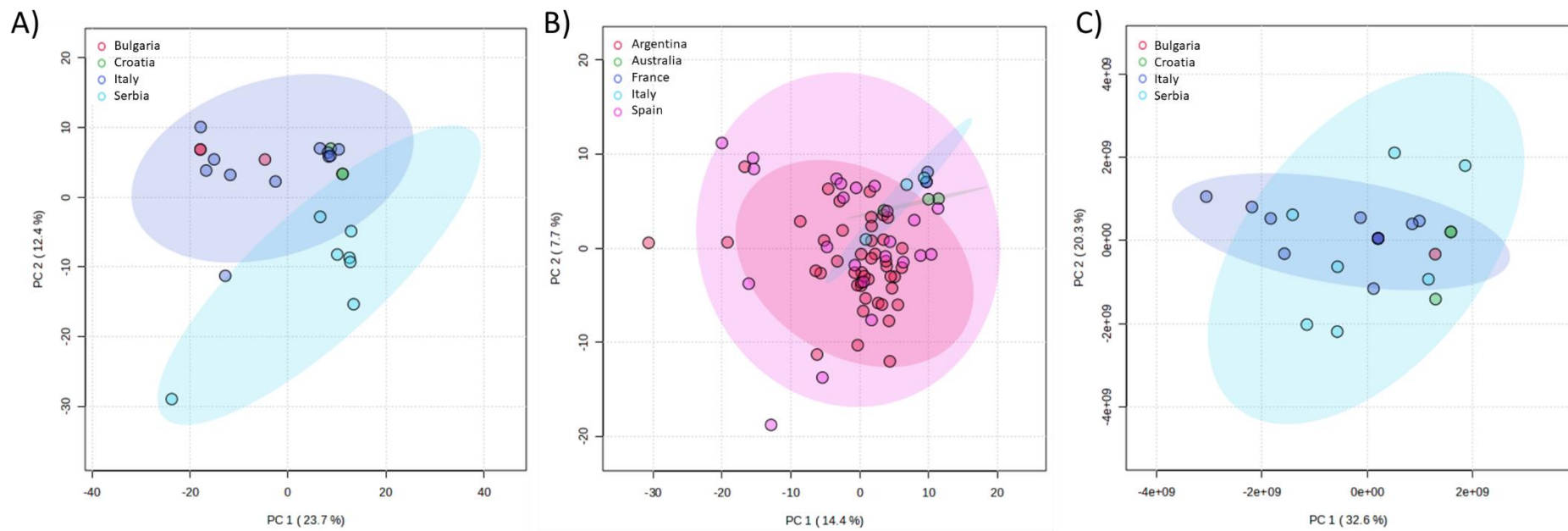


Figure S2. A) *T. magnatum* geographical origin samples PCA score plot with marker compounds; B) *T. melanosporum* geographical origin samples PCA score plot with marker compounds; C) *T. magnatum* geographical origin samples PCA score plot with five marker compounds. Marker compounds from A and B are listed in Table 2 and 3 respectively.

Table S1. List of identified key metabolites in the present manuscript and their comparison with a previous study (Creydt & Fischer 2022) in white and black truffles.

Compounds	Proposed formula	Adduct	Manuscript results			Comparison with previous paper			Correlation*
			RT [min]	m/z experimental	CCS valued measured [Å ²]	RT [min]	m/z experimental	CCS valued measured [Å ²]	
<i>White truffles</i>									
Diacylglyceryltrimethylhomoserines									
DGTS (36:3)	C46H83NO7	[M+H] ⁺	10.02	762.6243	289.36	8.6	762.6242	288.7	Same compound
Glycerolipids									
DG (36:3)	C39H70O5	[M+NH ₄] ⁺	11.71	636.5561	262.18	10.4	636.5562	261.4	Same compound
TG (50:2)	C53H98O6	[M+NH ₄] ⁺	19.41	848.7709	315.74	17.9	848.7707	315.0	Same compound
Phospholipids									
PC (34:1)	C42H82NO8P	[M+H] ⁺	5.69	760.5825	286.97	9.2	760.5851	287.1	Same compound
PC (34:1).1	C42H82NO8P	[M+H] ⁺	6.56	760.5838	287.32	9.2	760.5851	287.1	Same compound
PC (34:2)	C42H80NO8P	[M+H] ⁺	5.31	758.5689	284.92	8.3	758.5694	284.6	Same compound
PC (36:5)	C44H78NO8P	[M+H] ⁺	17.72	780.5526	287.91	8.1	780.5538	288.0	Isomers
<i>Black truffles</i>									
Ceramides									
Cer (34:1;O2)	C34H67NO3	[M+H] ⁺	10.20	538.5206	254.03	9.4	538.5194	254.1	Same compound
Cer (34:2;O2)	C34H65NO3	[M+H] ⁺	9.61	536.5050	255.30	8.9	536.5037	255.7	Same compound
Diacylglyceryltrimethylhomoserines									
DGTS (34:1)	C44H83NO7	[M+H] ⁺	10.72	738.6238	286.20	9.5	738.6242	286.2	Same compound
DGTS (36:3)	C46H83NO7	[M+H] ⁺	9.94	762.6243	288.28	8.5	762.6242	288.6	Same compound
DGTS (36:4)	C46H81NO7	[M+H] ⁺	9.19	760.6065	285.51	8.0	760.6086	286.6	Same compound
DGTS (36:4)	C46H81NO7	[M+H] ⁺	9.19	760.6065	285.51	9.3	760.6086	287.5	Isomers

* Same compounds were considered when RT, m/z experimental and CCS values were the same.