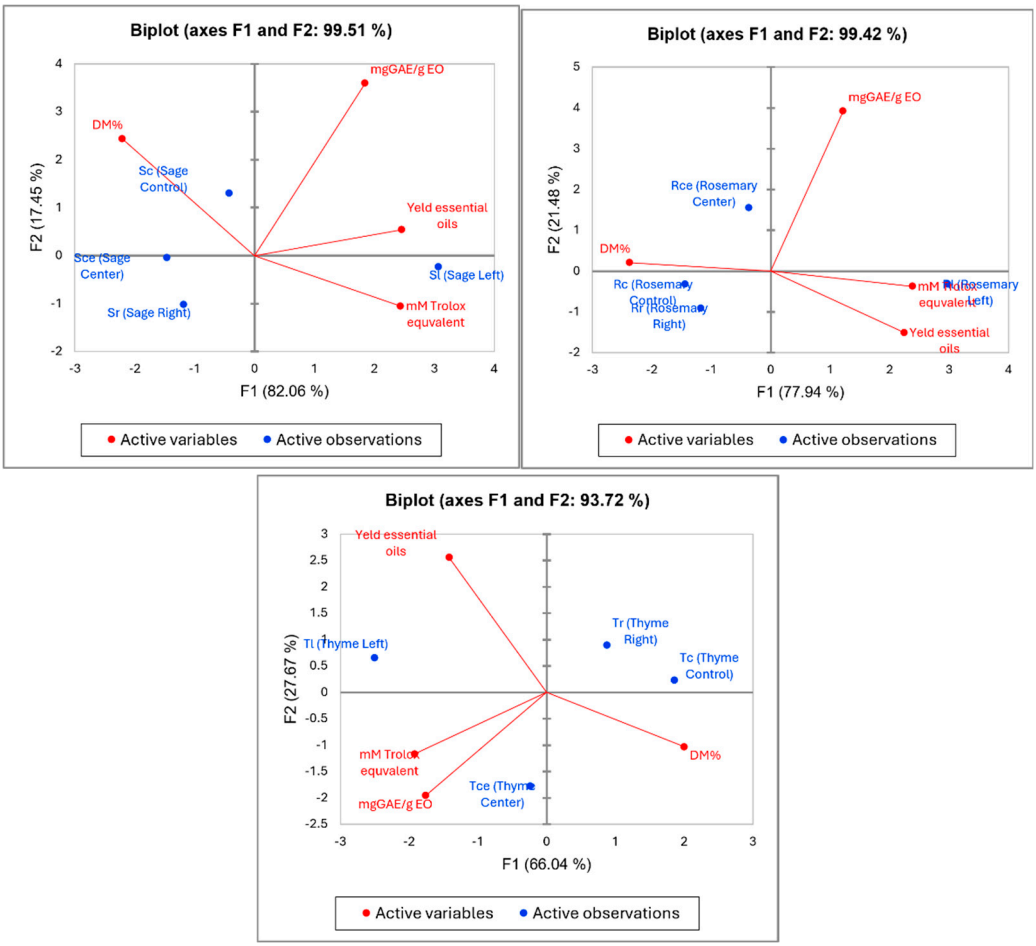
Supplementary Materials

Figure S1 - Principal component analysis of dry matter, essential oil yield, TPC and FRAP



The PCA is exploratory and is based on one pooled sample per species and position.

Table S1 - Complete GC-MS profile of *Thymus vulgaris* essential oil according to plant position. LRI_{EXP}: experimental linear retention indices calculated relative to a homologous series of n-alkanes (C7–C25); LRI_{LIT}: reference retention indices reported by Adams (2007).

				Thymus vulgaris **(area/10)**			
		LRI^{exp}	LRI^{lit}	Row 3	Row 2	Row 1	Control
1	Tricyclene	919	921	277	282	227	349
2	α-Thujene	970	973	270	295	211	216
3	α-Pinene	982	984	291	281	214	302
4	Camphene	993	994	276	237	169	273
5	Sabinene	964	969	259	297	263	277
6	β-Pinene	971	974	283	284	248	284
7	1-Octen-3-ol	1109	1112	309	258	216	231
8	Myrcene	985	988	299	288	240	283
9	α-Phellandrene	1000	1002	239	280	211	386
10	p-Cymene	1020	1024	17850	19809	16091	18593
11	Limonene	1021	1024	275	287	216	280
12	β-Phellandrene	1001	1002	256	273	245	296
13	1,8-Cineole	1024	1026	409	492	420	549

14	cis-Ocimene	1035	1037	268	268	205	271
15	trans-Ocimene	1048	1050	253	289	221	279
16	γ-Terpinene	1053	1059	11206	12127	10908	12137
17	cis-Sabinene hydrate	1095	1098	265	264	209	283
18	Terpinolene	1084	1086	259	273	235	304
19	Linalool	1092	1095	3332	2936	2642	3717
20	Camphor	1139	1141	1104	1169	905	1074
21	cis-Chrysanthenol	1157	1160	298	198	200	285
22	Neomenthol	1159	1161	323	288	181	296
23	Borneol	1162	1165	589	517	396	554
24	Terpinen-4-ol	1170	1174	270	272	242	291
25	α-Terpineol	1138	1140	2425	2065	1772	2611
26	Thymol methyl ether	1230	1232	255	307	230	306
27	Bornyl acetate	1250	1254	276	221	240	306
28	Thymol	1282	1289	44435	46945	47174	60731
29	Carvacrol	1295	1298	6779	7119	5089	7702
30	β-Elemene	1337	1338	265	275	245	288
31	Thymol acetate	1348	1352	261	278	184	283
32	Carvacrol acetate	1369	1372	280	278	189	319
33	β-Caryophyllene	1402	1408	959	1287	943	1031
34	Aromadendrene	1439	1441	268	242	226	281
35	α-Humulene	1453	1454	269	262	247	316
36	Germacrene D	1478	1481	279	290	228	293
37	Bicyclogermacrene	1497	1500	288	328	239	307
38	α-Muurolene	1498	1500	281	270	210	291
39	β-Bisabolene	1500	1505	283	290	229	309
40	γ-Cadinene	1510	1513	313	273	218	331
41	δ-Cadinene	1518	1522	327	258	252	312
42	trans-Bisabolene	1526	1529	270	227	242	320
43	α-Cadinene	1535	1538	256	258	219	208
44	Spathulenol	1574	1577	295	277	198	262
45	Caryophyllene oxide	1580	1582	314	275	214	242
46	Guaiol	1596	1600	239	239	228	298
47	epi-α-Cadinol	1636	1638	315	254	263	310
48	α-Eudesmol	1650	1652	310	270	206	277
49	Eudesm-7(11)-en-4-ol	1695	1700	295	247	199	259

Supplementary Table S2 - Complete GC-MS profile of *Salvia officinalis* essential oil according to plant position. LRI_{EXP}: experimental linear retention indices calculated relative to a homologous series of n-alkanes (C7–C25); LRI_{LIT}: reference retention indices reported by Adams (2007).

				***Salvia officinalis* (area/10)**			
		LRI^{exp}	LRI^{lit}	Row 3	Row 2	Row 1	Control
1	(Z)-Salvene	852	856	368	379	332	719
2	(E)-Salvene	862	866	363	388	321	250
3	Tricyclene	919	921	378	379	322	553

4	α-Thujene	970	973	368	348	289	453
5	α-Pinene	982	984	356	389	359	464
6	Camphene	993	994	373	381	348	488
7	Sabinene	964	969	390	363	324	304
8	β-Pinene	971	974	383	383	342	487
9	1-Octen-3-ol	1109	1112	353	379	334	422
10	Myrcene	985	988	343	378	320	850
11	α-Phellandrene	1000	1002	354	373	345	534
12	α-Terpinene	1014	1017	367	383	324	474
13	p-Cymene	1020	1024	323	359	324	482
14	Limonene	1021	1024	2019	2062	1764	2467
15	1,8-Cineole	1024	1026	19141	20284	18789	22469
16	(Z)-β-Ocimene	1034	1037	352	384	328	471
17	α-Maaliene	1036	*nd*	380	355	312	401
18	γ-Terpinene	1053	1059	356	373	338	560
19	cis-Sabinene hydrate	1095	1098	391	367	332	668
20	Terpinolene	1084	1086	373	358	331	608
21	p-Cymenene	1089	1091	385	368	315	490
22	Linalool	1092	1095	1014	1040	957	1431
23	trans-Sabinene hydrate	1096	1098	360	367	319	486
24	α-Thujone	1100	1102	24667	27663	23344	39480
25	β-Thujone	1112	1114	5193	5458	4687	6400
26	3-iso-Thujanol	1135	1138	368	337	342	566
27	Camphor	1139	1141	17689	18543	18234	35551
28	trans-Pinocamphone	1159	1162	358	377	301	486
29	cis-Chrysanthenol	1157	1160	382	322	313	492
30	δ-Terpineol	1163	1166	362	352	331	481
31	3-Thujanol	1162	1168	370	377	305	613
32	Borneol	1162	1165	1454	1724	1436	1757
33	Terpinen-4-ol	1170	1174	1013	1020	968	1675
34	α-Terpineol	1138	1140	376	411	341	570
35	Ascaridole	1232	1237	370	385	333	520
36	Linalol acetate	1252	1257	372	385	334	579
37	neo-iso-3-Thujanol	1269	1273	349	365	302	483
38	Isobornyl acetate	1280	1285	393	373	325	654
39	Bornyl acetate (cis)	1278	1284	391	371	317	465
40	Bornyl acetate	1282	1285	354	363	327	222
41	trans-Sabinyl acetate	1285	1289	364	342	344	615
42	2,3-Pinanediol	1314	1318	380	376	311	413
43	α-Terpinyl acetate	1298	1300	393	375	322	340
44	α-Copaene	1370	1374	343	350	333	539
45	Myrtanol acetate	1382	1386	360	374	345	505
46	β-Caryophyllene	1402	1408	3843	3513	3505	5682
47	Aromadendrene	1439	1441	371	371	320	513
48	α-Humulene	1453	1454	4483	4052	3918	6547
49	allo-Aromadendrene	1455	1460	399	384	298	530
50	9-epi-β-Caryophyllene	1462	1466	390	389	348	624
51	trans-Cadina-1(6)-4-diene	1465	*nd*	372	379	346	489

52	Germacrene D	1478	1481	344	357	306	416
53	Viridiflorene	1490	1496	378	363	349	570
54	Bicyclogermacrene	1497	1500	342	389	331	489
55	δ-Amorphene	1510	1512	373	353	346	431
56	δ-Cadinene	1510	1513	374	390	368	534
57	Spathulenol	1574	1577	379	372	334	256
58	Caryophyllene oxide	1580	1582	344	349	325	581
59	Viridiflorol	1589	1592	354	367	317	561
60	Humulene epoxide II	1602	1608	358	374	340	343
61	Caryophylla-4(12),8(13)-dien-5α-ol	1637	1640	344	378	326	517
62	Guaia-3,9-dien-11-ol	1640	1649	366	386	332	570
63	Manool	2052	2056	398	354	326	412

Supplementary Table S3 - Complete GC-MS profile of *Salvia rosmarinus* essential oil according to plant position. LRI_{EXP}: experimental linear retention indices calculated relative to a homologous series of n-alkanes (C7–C25); LRI_{LIT}: reference retention indices reported by Adams (2007).

				Salvia rosmarinus (area/10)			
		RI^{exp}	RI^{lit}	Row 3	Row 2	Row 1	Control
1	Tricyclene	919	921	175	187	169	679
2	α-Pinene	982	984	9680	10721	9110	5494
3	Camphene	993	994	3419	3559	3115	9010
4	β-Pinene	971	974	1077	1059	903	2149
5	1-Octen-3-ol	1109	1112	168	183	185	666
6	Myrcene	985	988	1422	1615	1529	3052
7	α-Phellandrene	1000	1002	166	204	174	309
8	α-Terpinene	1014	1017	169	185	176	450
9	p-Cymene	1020	1024	2282	2421	2275	5066
10	Limonene	1021	1024	2491	2405	2209	2227
11	β-Phellandrene	1001	1002	175	167	174	490
12	1,8-Cineole	1024	1026	61232	63586	58300	131452
13	cis-Ocimene	1035	1037	173	174	168	384
14	(Z)-β-Ocimene	1029	1032	173	181	176	533
15	(E)-β-Ocimene	1040	1044	179	203	173	495
16	γ-Terpinene	1053	1059	168	188	170	312
17	cis-Sabinene hydrate	1095	1098	175	189	165	377
18	Terpinolene	1084	1086	163	187	163	841
19	p-Cymenene	1089	1091	176	190	169	433
20	Linalool	1092	1095	154	178	165	386
21	Thujones	1110	1112	170	186	153	391
22	α-Thujone	1100	1102	190	190	152	446
23	β-Thujone	1112	1114	186	192	177	562
24	Camphor	1139	1141	5391	5847	4981	12553
25	trans-Pinocamphone	1159	1162	169	180	166	64
26	Chrysanthenone	1120	1124	170	185	172	482
27	Pinocarvone	1158	1160	173	169	175	550
28	neomenthol	1159	1161	191	180	178	516

29	δ-Terpineol	1163	1166	172	182	162	391
30	Borneol	1162	1165	3759	3984	3504	7343
31	Terpinen-4-ol	1170	1174	178	177	168	542
32	α-Terpineol	1138	1140	2376	2613	2488	4184
33	Linalyl acetate	1250	1254	187	185	164	210
34	neo-iso-3-Thujanol	1269	1273	177	190	170	506
35	Bornyl acetate	1282	1285	188	212	186	416
36	α-Terpinyl acetate	1298	1300	181	186	158	300
37	α-Copaene	1370	1374	182	159	159	398
38	β-Caryophyllene	1402	1408	183	182	160	396
39	β-Humulene	1430	1436	163	173	169	456
40	Aromadendrene	1439	1441	177	194	171	358
41	α-Humulene	1453	1454	186	182	169	617
42	trans-Cadina-1(6)-4-diene	1465	*nd*	181	176	158	285
43	Germacrene D	1478	1481	173	184	174	424
44	Bicyclogermacrene	1497	1500	169	196	170	490
45	δ-Cadinene	1510	1513	186	184	161	365
46	Spathulenol	1574	1577	177	183	163	425
47	Caryophyllene oxide	1580	1582	188	178	182	510
48	Viridiflorene	1589	1592	172	185	176	415
49	Manool	2052	2056	187	185	165	599

Table S4 - Soil properties in the APV and open-field control areas. Physical, chemical and biological soil properties in the APV and open-field control areas (composite samples, 0–20 cm, May 2024)

Parameter	**Unit**	**APV**	**Control**
Texture (USDA)	–	Sandy loam	Sandy loam
pH	–	7.9–8.1	7.9–8.1
Organic matter	%	3.3	3.1
Total N	%	0.26	0.24
Total P	mg kg^{-1}	300	290
Total K	mg kg^{-1}	1800	1750
Available P (Olsen)	mg kg^{-1}	23	21
Exchangeable K	mg kg^{-1}	260	250
$N–NO_3^-$	mg L^{-1}	< 0.23	< 0.23
Microbial abundance	CFU g^{-1}	~52,000	~48,000

Values refer to one composite sample (0–20 cm) per area.