



Article

Determination of Weeds and Their Floristic Investigation in Vineyards in Some Districts of Şanlıurfa (Turkey)

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Abstract: In this study, it was aimed to determine the weeds and their flora in the vineyards of Şanlıurfa (Turkey) between the years 2020-2023. Vineyards in the districts of Birecik, Halfeti, Bozova, Hilvan, Suruç and Karaköprü, where pistachio and vineyards are common in the region, were chosen as the study area. As a result of the study, a total of 184 weed taxa belonging to 37 genera belonging to 36 families were determined. The top 10 families with the most weed taxa are Asteraceae 20.11% (37 taxa), Apiaceae 8.7% (16 taxa), Poaceae 8.15% (15 taxa), Lamiaceae 7.61% (14 taxa), Fabaceae 7.61% (14 taxa), Brassicaceae 6.52% (12 taxa), Boraginaceae 3.8% (7 taxa), Papaveraceae 3.26% (6 taxa), Euphorbiaceae 3.26% (6 taxa) and Amaryllidaceae (6 taxa). Among the determined weeds, the genus containing the most taxa; *Euphorbia*, *Centaurea* and *Allium* are represented by 5 taxa each, *Astragalus* and *Salvia* by 4, *Aegilops*, *Amaranthus*, *Phlomis* and *Vicia* by 3 each. When we look at the phytogeographic elements of the determined weeds, Irano-Turanian come first with 34% (62 taxa) in terms of phytogeographic elements of the determined weeds. Others are represented by Mediterranean 8% (16 taxa), East-Mediterranean 4% (7 taxa), Euro-Siberian 1% (2 taxa), and indetermined or widespread 53% (97 taxa). *Astragalus aintabicus*, *Centaurea stapfiana*, *Hypocotylis trullatum* and *Tordylium cappadocicum* taxa are endemic. The endemism rate is 2%. Distribution of weeds determined in the study area according to Raunkiaer life forms therophytes are 58% (106 taxa), hemicryptophytes are 33% (60 taxa), geophytes are 7% (14 taxa), and kamephytes are 2% (4 taxa). The first and most important step in the fight against weeds is the correct diagnosis of weeds.

Keywords: Vineyard; Flora; Şanlıurfa; Turkey; Weeds

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1. Introduction

The term weed is a word of German origin and was first used by British farmer Jethro Tull, who pioneered the start of the agricultural revolution in Britain (Buchholtz, 1967). The weed plants known as “**yabancı otlar**” in Turkish. Weeds compete with plants for nutrients, water and light and are also home to pests and pathogens. Weeds can also complicate harvesting grown crops and make the harvesting process more expensive. In the Integrated Control of weed control against diseases and pests, it is necessary to control weeds to combat diseases and pests (FAO, 1994).

Pistachio and vineyards are plants with important economic value for Şanlıurfa. For this reason, especially pistachio growing areas in Şanlıurfa are increasing day by day. While pistachio and vineyards were established together in the past, there has been a decrease in vineyards recently, instead an increase in the production of pistachio vineyards has occurred. The increase in production and production areas has brought some agricultural problems. Dry farming is generally practiced in vineyard areas. Weeds, especially in the seedling period of the trees by competing for water and nutrients, prevent the development of the seedlings and reduce the resistance of the trees against diseases and pests and cause them to dry out. In addition, it can cause significant decreases in yield and quality by entering competition during the stuffing period of fruits. Therefore, weed control is important in pistachio orchards as in other cultivated plants (Özcan, 2012; Sırrı, 2019). For a successful production in viticulture in terms of yield and quality, besides cultural processes such as fertilization, irrigation, soil cultivation, disease, pest and weed control are among the indispensable practices (Walker, 1983; Özcan et al., 2014).

Pistacia L. genus is a dioecious tree or shrub in the Anacardiaceae family (Yaltırık, 1967). This genus is represented by 11 taxa distributed from Mexico to Central America, the Mediterranean to Central Asia, and the Philippines, NE & E Tropical Africa (WCVP, 2022). The gene center is Central Asia and the Near East. In the world, countries such as Turkey, Syria, USA, Iran, China and Greece are cultivated in places suitable for Mediterranean climate zones (Naseri, 2008). 95.6% of pistachio production is provided from the Southeastern Anatolia Region. Şanlıurfa, Gaziantep and Siirt provinces take the first three places in pistachio production (TÜİK, 2023).

Vitis L. is a fruit belonging to the Vitaceae family. Grapevine (*Vitis vinifera* L.) is a humid taxa that has a very old historical background and is widely cultivated economically in the world (Johnson and Robinson, 2013). Viticulture in the world is mostly done in China, USA, Italy, France, Spain and Turkey (FAO, 2014). In our country, the Southeastern Anatolia Region has an important place in terms of its vineyard area and grape production (Pala et al., 2018). In order to be able to control weeds, it is important to know the weed taxa that are a problem in that region (Günçan, 2013, Özer et al., 2001). The first and most important step in the fight against weeds is the identification of weeds (Özcan, 2016). The aim of this study is to determine the weed taxa that cause problems in the vineyards in Şanlıurfa.

2. Materials and Methods

The main material of the study consists of pistachios and weeds growing in vineyards. Periodic field and observation studies were carried out between 2020-2023 in the vineyards of Birecik, Halfeti, Bozova, Hilvan, Suruç and Karaköprü districts, where pistachio and vineyards are common in Şanlıurfa. The reason for choosing these districts is that pistachio and vineyard cultivation is more common in these districts. Viticulture activities are an important source of income in the region. Photos of the plants were taken (see appendix, Fig. 6-10). Flora of Turkey (Davis, 1965-1985, 1965-1988, Güner et al., 2000) was used as the main source for the identification of weeds. Floristic studies carried out in the region were also used (Adıgüzel and Aytaç, 2001; Akan et al., 2005; Aydoğdu and Akan, 2005; Parmaksız et al., 2006; Atamov et al., 2007a, 2007b; Balos and Akan, 2008; Eker et al., 2008; Korkut et al., 2008; Kaya and Ertekin, 2009; Akil and Kaya, 2013; Abak and Akan, 2014; Kaya and Karataş, 2019). The family, taxa name, Turkish name, phytogeographic region, life form and distribution of the plants are given. The study area where the field studies were carried out is given in Figure 1. Plants are preserved in the herbarium of Harran University (HARRAN).

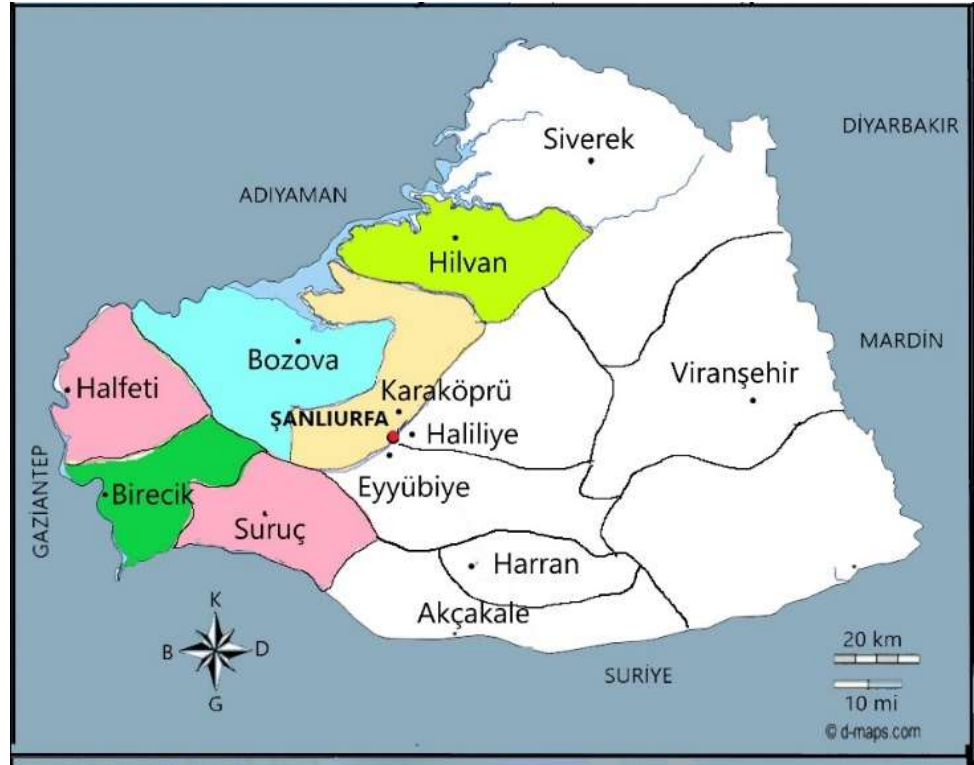


Figure 1. Study area map (Dmaps, 2023).

3. Results

The list of weed taxa determined as a result of the study is given in Table 1.

Table 1: Weed taxa obtained from the study area

No	Family	Taxa name	Turkish name	*Phytogeographic element	**Life form	***Distribution
1	Acanthaceae	<i>Acanthus hirsutus</i> subsp. <i>syriacus</i> (Boiss.) Brummitt	arap ayıpençesi	EM	H	2, 5
2	Amaranthaceae	<i>Amaranthus albus</i> L.	kömüş mancarı	I/W	Th	1,2,3,4,5,6
3		<i>Amaranthus palmeri</i> S.Watson	-	I/W	Th	1,2,3,4,5,6
4		<i>Amaranthus retroflexus</i> L.	tilkikuyruğu	I/W	Th	1,2,3,4,5,6
5	Amaryllidaceae	<i>Allium ampeloprasum</i> L.	pirasa	M	G	3,5,6
6		<i>Allium dictyoprasum</i> C.A.Mey. ex Kunth	top soğan	IRT	G	1,2,5,6
7		<i>Allium kharputense</i> Freyn & Sint.	harput soğanı	IRT	G	4,5
8		<i>Allium noeanum</i> Reut. ex Regel	ekin soğanı	IRT	G	4,5
9		<i>Allium pallens</i> L.	nur soğanı	M	G	1,5,6
10		<i>Ixiolirion tataricum</i> (Pall.) Schult. & Schult.f.	köpekotu	IRT	G	1,5
11	Apiaceae	<i>Artemisia squamata</i> L.	karabenek	I/W	Th	1,2,3,4,5,6
12		<i>Bupleurum croceum</i> Fenzl	çiğdemşeytanı	IRT	Th	3,4,5,6

13		<i>Coriandrum tordylium</i> (Fenzl) Borm.	kuzbere	IRT	Th	5,6
14		<i>Eryngium campestre</i> L.	kirsenet	I/W	H	2,4,5,6
15		<i>Eryngium creticum</i> Lam.	gözdikeni	EM	H	2,4,5,6
16		<i>Lagoecia cuminooides</i> L.	pülüskün	M	Th	3,4,5
17		<i>Lisaea strigosa</i> (Banks & Sol.) Eig	dik gelinpitrağı	IRT	Th	3,4,5
18		<i>Malabaila secacul</i> (Mill.) Boiss.	davarotu	I/W	H	1,5,6
19		<i>Orlaya daucooides</i> (L.) Greuter	dilkanatan	M	Th	3,4,5
20		<i>Torilis tenella</i> (Delile) Rchb.f.	zarif dercikotu	I/W	H	4,5,6
21		<i>Scandix australis</i> subsp. <i>grandiflora</i> (L.) Thell.	kişkiş	I/W	Th	4,5,6
22		<i>Scandix iberica</i> M.Bieb.	atkişnekotu	I/W	Th	5,6
23		**** <i>Tordylium cappadocicum</i> Boiss.	peri davulotu	IRT	Th	5
24		<i>Tordylium trachycarpum</i> (Boiss.) Al-Eisawi	bozkafkalida	EM	Th	5,6
25		<i>Pimpinella corymbosa</i> Boiss.	salkım anason	IRT	H	1,2,4,5
26		<i>Trachyspermum ammi</i> (L.) Sprague	nanahan	I/W	Th	1,2,3,4
27	Araceae	<i>Eminium intortum</i> (Banks & Sol.) Kuntze	çarpıkılanbacağı	IRT	G	3,4,5
28		<i>Eminium spiculatum</i> (Blume) Schott	zilikeraba	IRT	G	4,5
29	Aristolochiaceae	<i>Aristolochia bottae</i> Jaub. & Spach	köpekteşağı	IRT	H	2,3,4,5
30	Asparagaceae	<i>Bellevalia longipes</i> Post	saçaksümbül	IRT	G	5
31		<i>Muscari comosum</i> (L.) Mill.	morbaş	M	G	3,5,6
32		<i>Muscari neglectum</i> Guss. ex Ten.	arapüzümü	I/W	G	1,3,6
33		<i>Ornithogalum narbonense</i> L.	akbaldır	M	G	3,4,5,6
34		<i>Ornithogalum sphaerocarpum</i> A.Kern.	salkımsakarca	I/W	G	3,4,5,6
35	Asteraceae	<i>Anthemis hyalina</i> DC.	dermanpapatyası	I/W	Th	4,5,6
36		<i>Anthemis pseudocotula</i> Boiss.	acem papatyası	I/W	Th	4,5,6
37		<i>Carduus pycnocephalus</i> subsp. <i>albidus</i> (M.Bieb.) Kazmi	eşeksoymacı	I/W	Th	1,2,3,4,5
38		<i>Carlina lanata</i> L.	keygana	EM	H	1,2,3,4,5
39		<i>Carthamus dentatus</i> (Forssk.) Vahl	kınadikeni	I/W	Th	4,5
40		<i>Carthamus persicus</i> Desf. ex Willd.	ıhrız	IRT	Th	4,5
41		<i>Centaurea rigida</i> Banks & Sol.	gürbüzdiken	IRT	H	1,2,3,4,5
42		<i>Centaurea hyalolepis</i> Boiss.	belhok	IRT	H	1,2,3,4,5
43		<i>Centaurea solstitialis</i> L.	çakırdikeni	I/W	H	1,2,3,4,5
44		**** <i>Centaurea stapfiana</i> (Hand.-Mazz.) Wagenitz,	maraldikeni	IRT	H	5
45		<i>Centaurea virgata</i> Lam.	acısüpürge	IRT	H	1,2,3,4,5
46		<i>Chardinia orientalis</i> (L.) Kuntze	çağlaotu	IRT	Th	1,2,3,4,5
47		<i>Cichorium glandulosum</i> Boiss. & A.Huet	akkanak	IRT	Th	1,2,3,4,5
48		<i>Conyza bonariensis</i> (L.) Cronquist	çakalotu	I/W	Th	3,4
49		<i>Cota altissima</i> (L.) J.Gay	köpekpatyası	I/W	Th	3,4,5
50		<i>Cousinia stenocephala</i> Boiss.	telkızan	IRT	H	2,5
51		<i>Crupina crupinastrum</i> (Moris) Vis.	gelindöndüren	I/W	Th	1,2,3,4,5
52		<i>Cyanus depressus</i> (M.Bieb.) Soják	gökbaş	I/W	Th	4

53		<i>Echinops orientalis</i> Trautv.	dağşekeri	IRT	Th	1,4,5
54		<i>Echinops spinosissimus</i> Turra	eşekköftesi	I/W	Th	1,4,5
55		<i>Filago pyramidata</i> L.	ateşpamuğu	I/W	Th	3,4,5,6
56		<i>Hedypnois rhagadioloides</i> (L.) F.W.Schmidt	sünnetlice	M	Th	3,5
57		<i>Lactuca aculeata</i> Boiss. & Kotschy ex Boiss.	mikirge	IRT	H	2,4,5,6
58		<i>Lactuca serriola</i> L.	eşekhelvası	ES	H	2,4,5,6
59		<i>Notobasis syriaca</i> (L.) Cass.	yavankenger	M	Th	1,2,3,4,5
60		<i>Picnomon acarna</i> (L.) Cass.	kılıçk diken	M	Th	1,2,3,4,5
61		<i>Garhadiolus hamosus</i> Boiss. & Hausskn.	sarıkısıks	IRT	Th	1,2,3
62		<i>Rhagadiolus stellatus</i> (L.) Gaertn.	çatlakçanak	M	Th	4,5
63		<i>Siebera nana</i> (DC.) Bomm.	bodur fezaçiçeği	IRT	H	2,4,5,6
64		<i>Senecio vernalis</i> Waldst. & Kit.	kanaryaotu	I/W	Th	1,2,3,4,5
65		<i>Klasea cerinthifolia</i> (Sm.) Greuter & Wagenitz	topbaş	I/W	H	2,4,5,6
66		<i>Sonchus oleraceus</i> L.	zoko	I/W	H	1,2,3,4,5
67		<i>Stizolophus balsamita</i> (Lam.) Cass. ex Takht.	süslü sarıbaş	IRT	Th	3,4,5
68		<i>Tragopogon coelesyriacus</i> Boiss.	yemlik	I/W	H	3,4
69		<i>Xanthium spinosum</i> L.	pıtrak	I/W	Th	1,2,3,4,5
70		<i>Xanthium strumarium</i> L.	koca pıtrak	I/W	Th	1,2,3,4,5
71		<i>Zoegea leptaura</i> L.	sarıdüğme	IRT	Th	4,5
72	Berberidaceae	<i>Bongardia chrysogonum</i> (L.) Spach	çatlakotu	IRT	H	1,6
73		<i>Leontice ewersmanni</i> Bunge	aslankulağı	I/W	H	1,6
74	Boraginaceae	<i>Alkanna hirsutissima</i> (Bertol.) A.DC.	tüylühavaciva	IRT	H	1
75		<i>Alkanna strigosa</i> Boiss. & Hohen.	Urfa havacivası	I/W	H	4,5
76		<i>Anchusa azurea</i> Mill.	siğirdili	I/W	H	4,5,6
77		<i>Anchusa strigosa</i> Banks & Sol.	gelezan	I/W	H	5,6
78		<i>Heliotropium circinatum</i> Griseb.	deli bambulotu	IRT	Th	2,4,5
79		<i>Heliotropium europaeum</i> L.	akrepotu	M	Th	2,4,5
80		<i>Onosma gigantea</i> Lam.	koca emcek	EM	H	5,6
81	Brassicaceae	<i>Crambe orientalis</i> L.	akyumak	IRT	H	4,5,6
82		<i>Eruca vesicaria</i> (L.) Cav.	roka	I/W	Th	1,6
83		<i>Glastaria glastifolia</i> (DC.) Kuntze	Üzümhardalı	IRT	Th	2,4,5,6
84		<i>Isatis lusitanica</i> L.	sülün çivitotu	I/W	Th	2,4,5,6
85		<i>Lepidium draba</i> L.	diğnik	I/W	H	2,4,5
86		<i>Neslia paniculata</i> subsp. <i>thracica</i> (Velen.) Bomm.	göçmenhardalı	I/W	Th	2,4,5,6
87		<i>Raphanus raphanistrum</i> L.	eşek turpu	I/W	Th	2,4,5,6
88		<i>Sinapis arvensis</i> L.	hardal	I/W	Th	5,6
89		<i>Sisymbrium irio</i> L.	çalgıciotu	I/W	Th	5,6
90		<i>Sisymbrium officinale</i> (L.) Scop.	ergelenhardalı	I/W	Th	4,5,6
91		<i>Microthlaspi perfoliatum</i> (L.) F.K.Mey.	giyle	I/W	Th	5,6
92		<i>Neotorularia torulosa</i> (Desf.) Hedge & J.Léonard	yenibülbülotu	I/W	Th	5,6

93	Capparaceae	<i>Capparis sicula</i> subsp. <i>sicula</i> Veill.	delikarpuzu	I/W	H	1,2,3,4,5,6
94	Caryophyllaceae	<i>Cerastium dubium</i> (Bastard) O.Schwarz	mızrak boynuzotu	I/W	Th	4,5,6
95		<i>Gypsophila pilosa</i> Hudson	tarla çöveni	IRT	Th	2,5
96		<i>Silene dichotoma</i> Ehrh.	çatal nakil	I/W	H	5
97		<i>Vaccaria hispanica</i> (Mill.) Rauschert	ekinebesi	I/W	Th	2,5
98	Chenopodiaceae	<i>Chenopodium album</i> L.	ak sirken	I/W	Th	1,2,3,4,5,6
99		<i>Salsola tragus</i> L.	kum dönelesi	I/W	Th	1,5
100	Cistaceae	<i>Helianthemum salicifolium</i> (L.) Mill.	söğüt güngülü	I/W	Th	1,2,3,4,5,6
101	Convolvulaceae	<i>Convolvulus arvensis</i> L.	tarlasarmaşığı	I/W	H	2,3,4,5,6
102		<i>Convolvulus stachydifolius</i> Choisy	leksiotu	IRT	H	5,6
103	Dipsacaceae	<i>Cephalaria syriaca</i> (L.) Schrad.	pelemir	I/W	Th	5
104	Euphorbiaceae	<i>Chrozophora tinctoria</i> (L.) A.Juss.	siğilotu	I/W	Th	1,2,3,4,5,6
105		<i>Euphorbia aleppica</i> L.	haşul	I/W	Th	4,5
106		<i>Euphorbia cheiradenia</i> Boiss. & Hohen.	şirker	IRT	H	3,4,5
107		<i>Euphorbia petiolata</i> Banks & Sol.	ayaklı sütleğen	IRT	Th	5
108		<i>Euphorbia sintenisii</i> Boiss. ex Freyn	kadim sütleğen	I/W	Th	5
109		<i>Euphorbia szovitsii</i> Fisch. & C.A.Mey.	urus sütleğeni	IRT	Th	5
110	Fabaceae	<i>Astragalus guttatus</i> Banks & Sol.	benli geven	IRT	Th	3,5
111		<i>Astragalus hamosus</i> L.	koçboynuzu	I/W	Th	1,2,3,4,5
112		<i>Astragalus caprinus</i> subsp. <i>caprinus</i> L.	teke geveni	IRT	Ch	5
113		**** <i>Astragalus aintabicus</i> Boiss.	antep geveni	I/W	Ch	1,5
114		<i>Cullen jaubertianum</i> (Fenzl) C.H.Stirt.	köpektırnağı	IRT	H	5
115		<i>Glycyrrhiza glabra</i> L.	meyan	I/W	H	1,2,3,4,5,6
116		<i>Hymenocarpos circinnatus</i> (L.) Savi	pulluot	M	Th	1,2,3,4,5,6
117		<i>Lathyrus oleraceus</i> Lam.	yembezeyesi	I/W	Th	5,6
118		<i>Medicago orbicularis</i> (L.) Bartal.	paralık	I/W	Th	1,2,3,4,5,6
119		<i>Onobrychis crista-galli</i> (L.) Lam.	tez korunga	M	Th	5
120		<i>Prosopis farcta</i> (Banks & Sol.) J.F.Macbr.	çediotu	I/W	H	1,2,3,4,5,6
121		<i>Trigonella caelesyriaca</i> Boiss.	handekok	IRT	Th	2,4,5
122		<i>Vicia ervilla</i> (L.) Willd.	küşne	I/W	Th	4,5,6
123		<i>Vicia narbonensis</i> L.	koca fiğ	I/W	Th	1,2,3,4,5,6
124	Geraniaceae	<i>Erodium cicutarium</i> (L.) L Hér.	iğnelik	I/W	Th	4,5,6
125		<i>Geranium tuberosum</i> L.	çakmuz	IRT	H	1,2,3,4,5,6
126	Guttiferae	<i>Hypericum triquetrifolium</i> Turra	pırpırotu	I/W	H	2,3,4,5
127	Iridaceae	<i>Gladiolus atroviolaceus</i> Boiss.	kıraçsüseni	IRT	G	1,3,4
128	Lamiaceae	<i>Ajuga chamaepitys</i> subsp. <i>laevigata</i> (Banks & Sol.) P.H.Davis	kelmayasıl	I/W	H	1,5
129		<i>Lallemantia iberica</i> (M.Bieb.) Fisch. & C.A.Mey.	ajdarbaşı	IRT	Th	3,5
130		<i>Lamium amplexicaule</i> L.	baltutan	ES	Th	1,2,3,4,5,6
131		<i>Moluccella laevis</i> L.	çanakçiçeği	IRT	Th	2,3,4,5,6
132		<i>Origanum syriacum</i> subsp. <i>bevanii</i>	hababa	EM	Ch	5

		(Holmes) Greuter & Burdet				
133		<i>Phlomis bruguieri</i> Desf.	kaba çalba	IRT	H	2,5
134		<i>Phlomis kurdica</i> Rech.f.	gubel	IRT	H	5
135		<i>Phlomis pungens</i> var. <i>pungens</i> Willd.	silvanok	I/W	H	5
136		<i>Salvia ceratophylla</i> L.	tarak şalba	IRT	H	2,5
137		<i>Salvia spinosa</i> L.	yabani adaçayı	IRT	H	1
138		<i>Salvia suffruticosa</i> Montbret & Aucher ex Benth.	kalın şalba	IRT	H	5
139		<i>Salvia syriaca</i> L.	çevlikotu	IRT	H	1,3,5,6
140		<i>Sideritis libanotica</i> subsp. <i>microchlamys</i> (Hand.-Mazz.) Hub.-Mor.	zühreçayı	IRT	H	1,2,5
141		<i>Thymus syriacus</i> Boiss.	harrankekiği	I/W	Ch	2,5
142	Malvaceae	<i>Alcea acaulis</i> (Cav.) Alef.	hiro	IRT	H	5
143		<i>Alcea hohenackeri</i> (Boiss. & Huet) Boiss.	hevur	I/W	H	5
144		<i>Alcea guestii</i> Zohary	zap hatmisi	IRT	H	1,5
145		<i>Malva neglecta</i> Wallr.	çobançöreği	I/W	Th	1,2,3,4,5,6
146		<i>Malvella sherardiana</i> (L.) Jaub. & Spach	hubazi	I/W	H	1,2,3,4,5,6
147	Orobanchaceae	<i>Orobanche cumana</i> Wallr.	canavarotu	I/W	Th	5
148	Papaveraceae	<i>Fumaria officinalis</i> L.	şahtere	I/W	Th	1,2,3,4,5,6
149		<i>Fumaria parviflora</i> Lam.	tarla şahteresi	I/W	Th	1,2,3,4,5,6
150		<i>Hypecoum dimidiatum</i> Delile	boynuzlukimyon	I/W	Th	1,2,3,4,5,6
151		**** <i>Hypecoum trullatum</i> Å.E.Dahl	has hıdrellezotu	EM	Th	1,6
152		<i>Papaver glaucum</i> Boiss. & Hausskn. ex Boiss.	şekşekik	IRT	Th	1,5,6
153		<i>Roemeria hybrida</i> (L.) DC.	piptototu	I/W	Th	1,2,3,4,5,6
154	Poaceae	<i>Aegilops biuncialis</i> Vis.	iki kılçık	I/W	Th	5,6
155		<i>Aegilops columnaris</i> Zhukovsky	kılbuğday	IRT	Th	5,6
156		<i>Aegilops triuncialis</i> subsp. <i>triuncialis</i> L.	üç kılçık	I/W	Th	5
157		<i>Avena sterilis</i> L.	şifan	I/W	Th	1,2,3,4,5,6
158		<i>Bromus squarrosus</i> L.	kirpiklidamiye	I/W	Th	1,2,3,4,5,6
159		<i>Bromus tectorum</i> L.	kır bromu	I/W	Th	4,5,6
160		<i>Crithopsis delileana</i> (Schult.) Roshev.	süslüarpa	IRT	Th	5,6
161		<i>Cynodon dactylon</i> (L.) Pers.	köpekdişi	I/W	H	1,2,3,4,5,6
162		<i>Eremopoa persica</i> (Trin.) Roshev.	acemsalkımı	IRT	Th	5,6
163		<i>Hordeum murinum</i> L.	pisipisiotu	I/W	Th	5,6
164		<i>Lolium persicum</i> Boiss. & Hohen.	eres çimi	IRT	H	1,2,3,4,5,6
165		<i>Lolium rigidum</i> Gaudin	sert çim	I/W	Th	1,2,3,4,5,6
166		<i>Phalaris brachystachys</i> Link	dallı kanyaş	M	Th	1,2,3,4,5,6
167		<i>Phalaris paradoxa</i> L.	topuzlu kanyaş	M	Th	1,2,3,4,5,6
168		<i>Sorghum halepense</i> (L.) Pers.	ekinsüpürgesi	I/W	H	1,2,3,4,5,6
169	Polygonaceae	<i>Polygonum aviculare</i> L.	köyotu	I/W	Th	4,5
170		<i>Polygonum patulum</i> Bieb.	atmercimeleği	I/W	Th	4,5

171	Portulacaceae	<i>Portulaca oleracea</i> L.	semizotu	I/W	Th	1,2,3,4,5,6
172	Ranunculaceae	<i>Adonis aleppica</i> Boiss.	taççiçeği	IRT	H	4,5
173		<i>Adonis annua</i> L.	kanavcıotu	M	Th	4,5
174		<i>Consolida scleroclada</i> (Boiss.) Schrödinger	sertmahmuz	I/W	Th	5
175		<i>Delphinium peregrinum</i> L.	tel hezaren	I/W	Th	5
176		<i>Ranunculus macrorrhynchus</i> subsp. <i>trigonocarpus</i> (Boiss.) P.H.Davis	üç yağıotu	I/W	H	1,5,6
177	Resedaceae	<i>Reseda lutea</i> L.	muhabetçiçeği	I/W	H	1,5,6
178	Rubiaceae	<i>Galium setaceum</i> Lam.	seyrek iplikçik	I/W	Th	1,2,3,4,5,6
179	Rutaceae	<i>Ruta buxbaumii</i> Poir.	sedefotu	IRT	H	4,5
180	Scrophulariaceae	<i>Parentucellia latifolia</i> (L.) Caruel	üçdilotu	I/W	Th	1,5,6
181	Solanaceae	<i>Hyoscyamus reticulatus</i> L.	kumacıkotu	IRT	Th	1,4,5
182		<i>Physalis alkekengi</i> L.	güveyfeneri	I/W	H	1,2,3,4,5,6
183		<i>Solanum alatum</i> Moench	karagöğündürme	I/W	Th	4,5
184	Zygophyllaceae	<i>Tribulus terrestris</i> L.	çobançökerten	I/W	Th	1,2,3,4,5,6

*Phytogeographic element; EM: Eastern Mediterranean, M: Mediterranean, ES: Europe-Siberia, IRT: Irano-Turanian, I/W: Indeterminate/widespread; **Life form; Th-Therophytes, G-Geophytes, Ch-Camephytes, H-Hemicryptophytes; ***Distribution; 1-Birecik, 2-Bozova, 3-Suruç, 4-Hilvan, 5-Karaköprü, 6-Halfeti; ****Endemic

4. Discussion and Conclusions

As a result of the study, a total of 184 weed taxa belonging to 37 genera belonging to 36 families were determined. The top 10 families with the most weed taxa are Asteraceae 20.11% (37 taxa), Apiaceae 8.7% (16 taxa), Poaceae 8.15% (15 taxa), Lamiaceae 7.61% (14 taxa), Fabaceae 7.61% (14 taxa), Brassicaceae It belongs to the families of 6.52% (12 taxa), Boraginaceae 3.8% (7 taxa), Papaveraceae 3.26% (6 taxa), Euphorbiaceae 3.26% (6 taxa) and Amaryllidaceae (6 taxa) (Figure 2). In study area, *Astragalus aintabicus*, *Centaurea stapfiana*, *Hypocoum trullatum* and *Tordylium cappadocicum* taxa are endemic. The endemism rate is 2%.

Among the determined weeds, the genera containing the most taxa; *Euphorbia*, *Centaurea* and *Allium* are represented by 5 taxa each, *Astragalus* and *Salvia* by 4, *Aegylops*, *Amaranthus*, *Phlomis* and *Vicia* by 3 each (Figure 3).

When we look at the phytogeographic elements of the determined weeds, Irano-Turanian come first with 34% (62 taxa) in terms of phytogeographic elements of the determined weeds. Others are represented by Mediterranean 8% (16 taxa), East-Mediterranean 4% (7 taxa), Euro-Siberian 1% (2 taxa), and indetermined or widespread 53% (97 taxa) (Figure 4).

Distribution of weeds determined in the study area according to Raunkiaer (1934) life forms; Therophytes are 58% (106 taxa), Hemicryptophytes are 33% (60 taxa), Geophytes are 7% (14 taxa), and Kamephytes are 2% (4 taxa) (Figure 5).

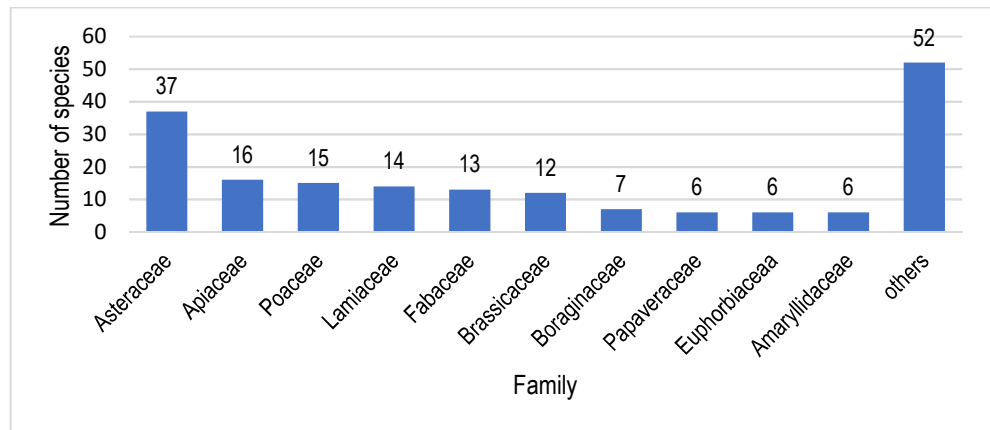


Figure 2. Top ten families containing the most weed taxa from the study area.

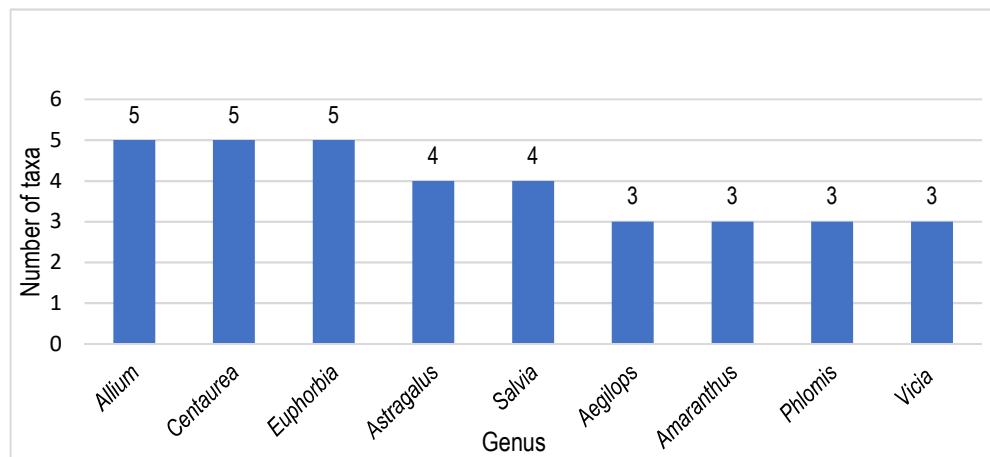


Figure 3. Number of genera containing the highest number of weed taxa from the study area.

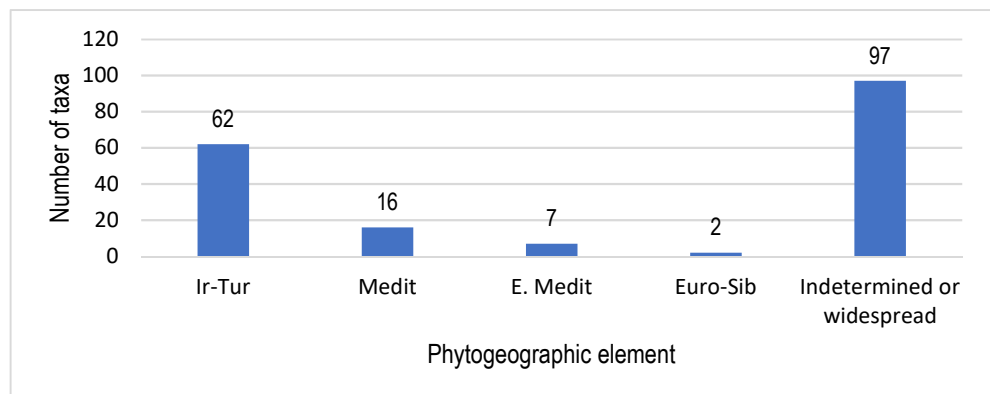


Figure 4. Distribution of weeds determined in the study area according to phytogeographic elements.

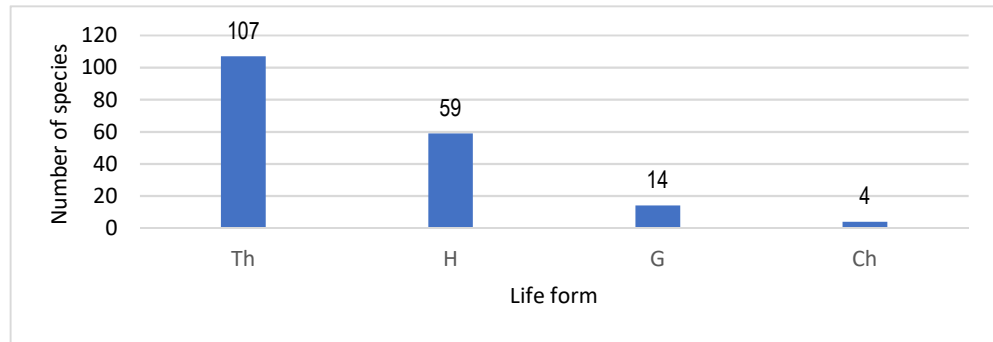


Figure 5. Distribution of weeds determined in the study area according to life forms.

Families with the highest number of taxa were compared with studies in the immediate region (Table 2). In general, Asteraceae family, which is in the first place, is in the first place in the studies except Arat (Akan et al., 2008), Kaşmer (Akan et al., 2005) and Kalecik (Aydoğdu and Akan 2005). This is an expected result according to Davis (1965-1985).

The distribution ratio of phytogeographic elements in the study area was compared with the results of other studies conducted in the immediate area. Irano-Turanian is the most populous of all research areas. This can be explained by the fact that all of these areas are located in the Irano-Turanian region (Table 3).

Table 2. Families containing the most taxa in studies conducted in the research area and its close regions

Study area	Asteraceae	Apiaceae	Poaceae	Lamiaceae	Fabaceae	Brassicaceae
This area	37	16	15	14	13	12
Arat (Akan et al., 2008)	38	16	17	16	49	18
Kaşmer (Akan et al., 2005)	31	14	26	17	57	10
Z.bahçe (Balos and Akan, 2008)	68	20	40	23	52	24
Kalecik (Aydoğdu and Akan, 2005)	25	14	13	19	56	14
Flora of Turkey (Davis, 1965-1985)	1348	455	623	725	1145	591

Table 3. Distribution rates of taxa in the study area and close regions according to phytogeographic regions

Study area	Ir-Tur %	Medit %	Eur-Sib. %	Widespread %
This area	34	12	1	53
Arat (Akan et al., 2008)	31.1	12	1.7	52.5
Kaşmer (Akan et al., 2005)	35.87	11.83	1.9	50.4
Z.bahçe (Balos and Akan, 2008)	30.79	11.46	2.92	54.6
Kalecik (Aydoğdu and Akan, 2005)	38.2	8.4	1.68	51.8

In studies conducted in nearby regions, it has been determined that *Avena fatua*, *Cynodon dactylon*, *Sorghum halepense*, *Heliotroium europeaeum*, *Chenopodium album*, *Convolvulus arvensis*, *Lactuca serriola*, *Amaranthus blitoides*, *Tribulus terrestris*, *Chorozophora tinctoria* taxa are common (Göksu, 2018; Muslu and Tepe, 2016; Özcan, 2012; Özcan, 2016; Özcan et al., 2014; Sirri, 2019).

In the study conducted by Özcan (2016) in Şanlıurfa, Adıyaman and Kahramanmaraş provinces, Poaceae, Asteraceae, Brassicaceae and Fabaceae families members *Sorghum halepense*, *Convolvulus arvensis*, *Cynodon dactylon*,

Lactuca serriola, *Heliotropium europaeum*, *Tribulus terrestris*, *Sinapis arvensis*, *Thlaspi arvense*, *Lamium amplexicaule*, *Trifolium repens*, *Capsella bursa-pastoris*, *Galium aparine*, *Anthemis tinctoria*, *Taraxacum officinale*, *Malva neglecta*, *Fumaria officinalis*, *Senecio vulgaris*, *Veronica hederifolia* ve *Stellaria media* were determined as the most common weeds (Özcan, 2016).

Weeds significantly affect yield and product quality. Plants also host many other diseases and pests (Özer et al., 2001). As a result of the survey studies, it was determined that the weed densities in the pistachio orchards are at a significant level and that the weeds can cause serious damage especially in the newly established orchards. In this sense, weed competition is one of the factors affecting the development of seedlings in newly established pistachio vineyards (Hosseini et al., 2007). For this reason, weeds must be recognized and controlled within an integrated struggle.

According to Özcan et al. (2015); He states that intensive and excessive tillage in weed control in vineyards causes soil compaction and an increase in erosion, therefore, alternative methods that suppress weeds, preserve soil structure by preserving its moisture and especially prevent erosion should be used. As a result of the field studies carried out by Özcan et al. (2015), it was determined that mulch textile could be an important alternative control method. With the mulch textile technique, more than 95% success has been achieved in the fight against perennial weeds such as *Sorghum halepense*, *Convolvulus arvensis* and *Cynodon dactylon*.

In study area *Amaranthus albus*, *Centaurea balsamita*, *Fumaria officinalis*, *F. parviflora*, *Carduus pycnocephalus*, *Bromus squarrosus*, *B. tectorum* *Sinapis arvensis*, *Papaver rhoeas*, *Lactuca serriola*, *Lamium amplexicaule*, *Vicia sativa*, *Heliotropium europaeum*, *Chenopodium album*, *Isatis lusitanica*, *Sisymbrium irio*, *Cephalaria syriaca*, *Trigonella caelesyriaca* and *Picnemon acarna*, *Tribulus terrestris*, *Chorozophora tinctoria*, were determined as the most common annual weeds. *Eryngium campestre*, *Carlina lanata*, *Lactuca aculeata*, *L. serriola*, *Anchusa azurea*, *A. strigosa*, *Capparis sicula*, *Convolvulus arvensis*, *Sorghum halepense*, *Cynodon dactylon*, *Phlomis bruguieri*, *P. kurdica* and *Prosopis farcta* were determined as the most common perennial weeds. The plants detected extensively in the study show similarities with similar studies.

In this study, the weeds seen in the vineyards of Birecik, Halfeti, Bozova, Hilvan, Suruç and Karaköprü districts of Şanlıurfa (Turkey) province were determined and examined in terms of floristics. It is expected that this study will contribute to future studies.

Conflict of Interest

The author have no conflict of interest to declare.

Financial Disclosure

Author declare no financial support.

Authors' Contributions

This study's experimentation, analysis and writing, etc. all steps were made by the authors.

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Appendix: Photographs of some weeds determined in field studies.

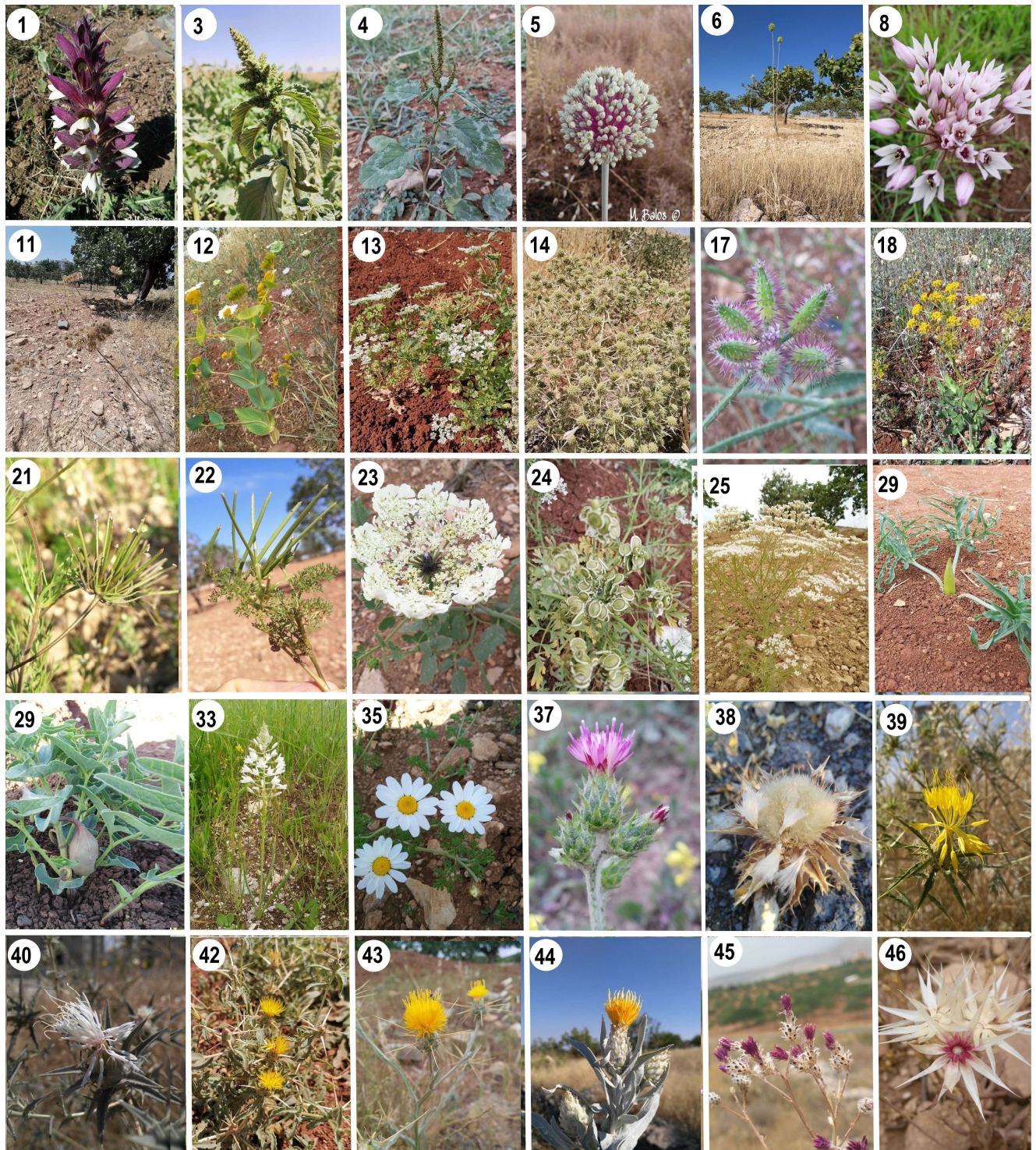


Figure 6. Weeds between 1-46 according to the floristic list (All photos are taken by M. Balos): 1- *Acanthus hirsutus* subsp. *syriacus*, 3- *Amaranthus palmeri*, 4- *A. retroflexus*, 5- *Allium ampeloprasum*, 6- *A. dictyoprasum*, 8- *A. noeanum*, 11- *Artemisia squamata*, 12- *Bupleurum croceum*, 13- *Coriandrum tordylium*, 14- *Eryngium campestre*, 17- *Lisaea strigosa*, 18- *Malabaila secacul*, 21- *Scandix australis* subsp. *grandiflora*, 22- *S. iberica*, 23- *Tordylium cappadocicum*, 24- *T. trachycarpum*, 25- *Pimpinella corymbosa*, 28- *Eminium spiculatum*, 29- *Aristolochia bottae*, 33- *Ornithogalum narbonense*, 35- *Anthemis hyalina*, 37- *Carduus pycnocephalus* subsp. *albidus*, 38- *Carlina lanata*, 39- *Carthamus dentatus*, 40- *C. persicus*, 42- *Centaurea hyalolepis*, 43- *C. solstitialis*, 44- *C. stapfiana*, 45- *C. virgata*, 46- *Chardinia orientalis*.

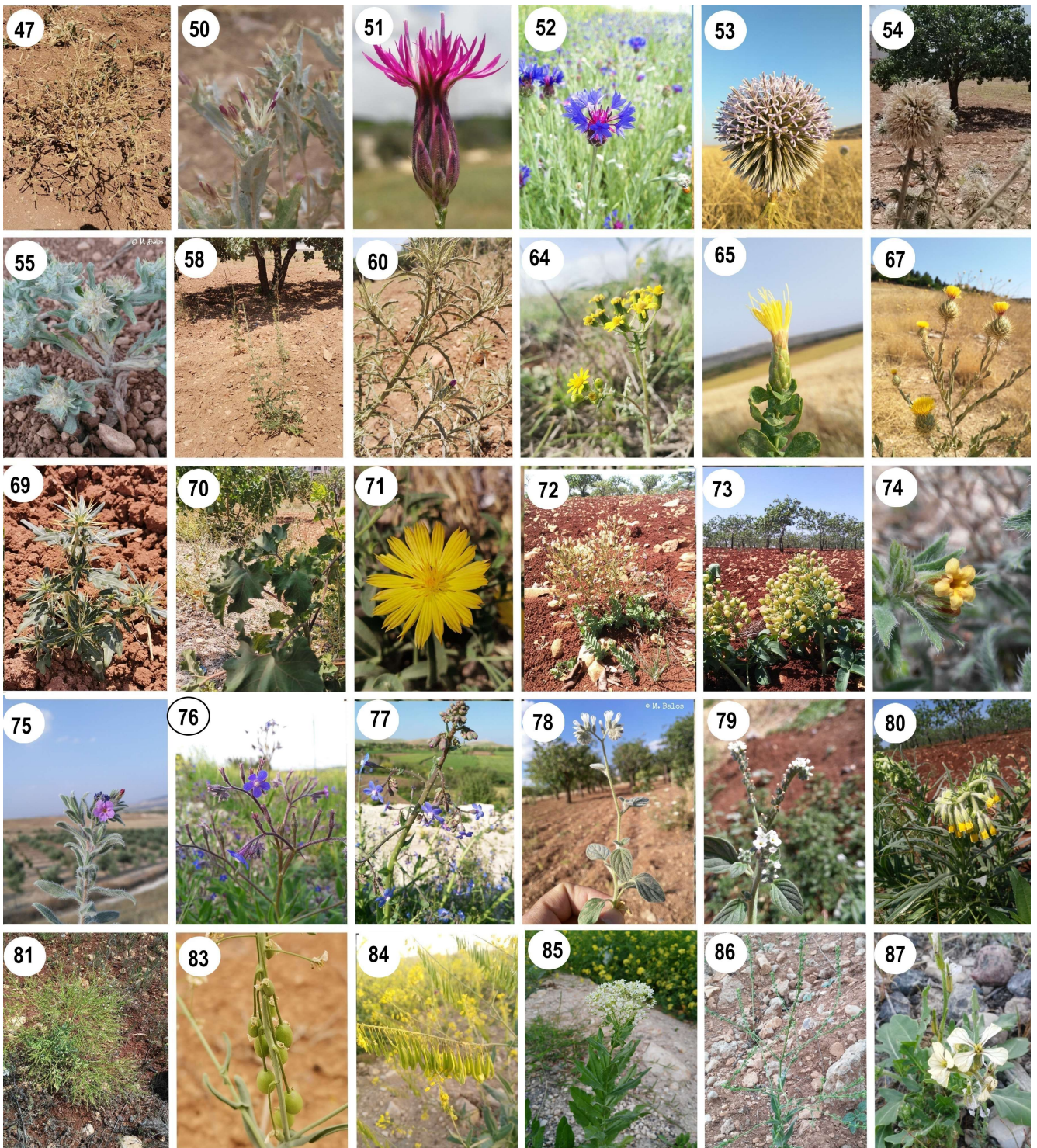


Figure 7. Weeds between 47-87 according to the floristic list (All photos are taken by M. Balos); 47- *Cichorium glandulosum*, 50- *Cousinia stenocephala*, 51- *Crupina crupinastrum*, 52- *Cyanus depressus*, 53- *Echinops orientalis*, 54- *Echinops spinosissimus*, 55- *Filago pyramidata*, 58- *Lactuca serriola*, 60- *Picnoman acarna*, 64- *Senecio vernalis*, 65- *Klasea cerinthifolia*, 67- *Stizolophus balsamita*, 69- *Xanthium spinosum*, 70- *X. strumarium*, 71- *Zoegea lepturea*, 72- *Bongardia chrysogonum*, 73- *Leontice ewersmanni*, 74- *Alkanna hirsutissima*, 75- *A. strigosa*, 76- *Anchusa azurea*, 77- *A. strigosa*, 78- *Heliotropium circinatum*, 79- *H. europaeum*, 80- *Onosma gigantea*, 81- *Crambe orientalis*, 83- *Glastaria glastifolia*, 84- *Isatis lusitanica*, 85- *Lepidium draba*, 86- *Neslia paniculata* subsp. *thracica*, 87- *Raphanus raphanistrum*.

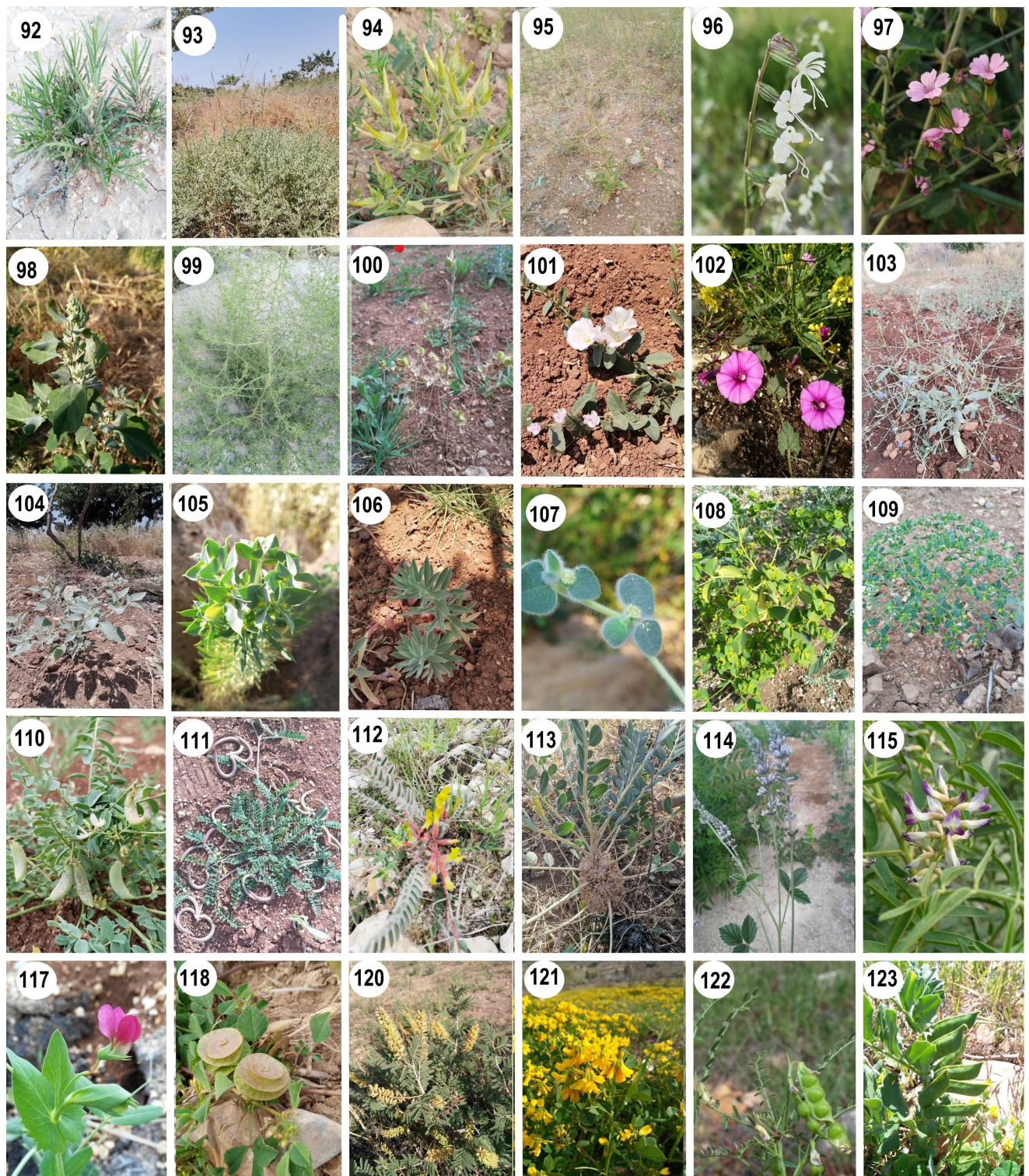


Figure 8. Weeds between 92-122 according to the floristic list (All photos are taken by M. Balos); 92- *Neotorularia torulosa*, 93- *Capparis sicula* subsp. *sicula*, 94- *Cerastium dubium*, 95- *Gypsophila pilosa*, 96- *Silene dichotoma*, 97- *Vaccaria hispanica*, 98- *Chenopodium album*, 99- *Salsola tragus*, 100- *Helianthemum salicifolium*, 101- *Convolvulus arvensis*, 102- *C. stachydifolius*, 103- *Cephalaria syriaca*, 104- *Chrozophora tinctoria*, 105- *Euphorbia aleppica*, 106- *E. cheiradenia*, 107- *E. petiolata*, 108- *E. sintenisii*, 109- *E. szovitsii*, 110- *Astragalus guttatus*, 111- *A. hamosus*, 112- *A. caprinus*, 113- *A. aintabicus*, 114- *Cullen jaubertianum*, 115- *Glycyrrhiza glabra*, 117- *Lathyrus oleraceus*, 118- *Medicago orbicularis*, 120- *Prosopis farcta*, 121- *Trigonella caelesyriaca*, 122- *Vicia ervilla*, 123- *V. narbonensis*

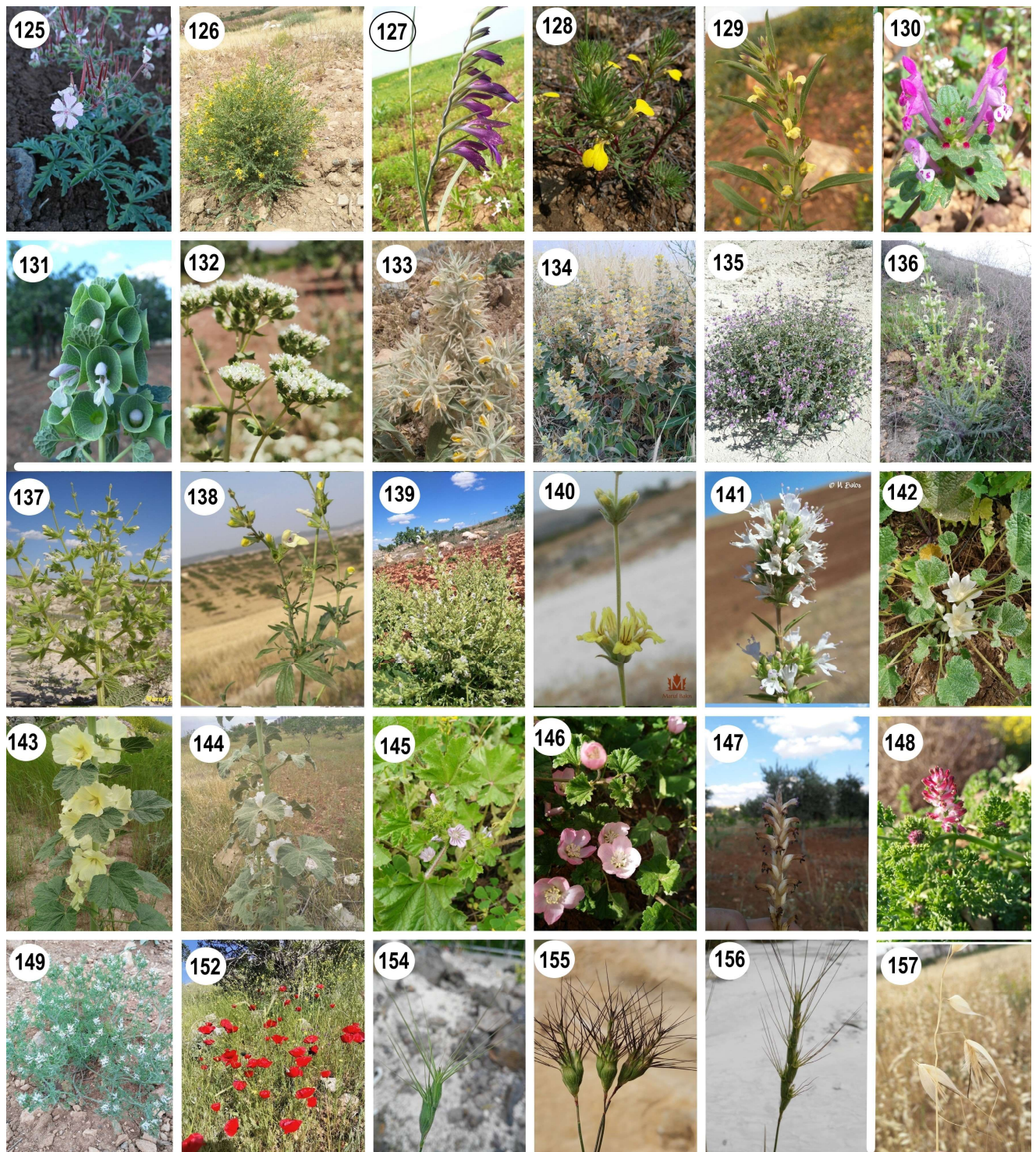


Figure 9. Weeds between 125-157 according to the floristic list (All photos are taken by M. Balos); **125-** *Geranium tuberosum*, **126-** *Hypericum triquetrifolium*, **127-** *Gladiolus atrovioleaceus*, **128-** *Ajuga chamaepitys* subsp. *laevigata*, **129-** *Lallemantia iberica*, **130-** *Lamium amplexicaule*, **131-** *Moluccella laevis*, **132-** *Origanum syriacum* subsp. *bevani*, **133-** *Phlomis bruguieri*, **134-** *P. kurdica*, **135-** *P. pungens* var. *pungens*, **136-** *Salvia ceratophylla*, **137-** *S. spinosa*, **138-** *S. suffruticosa*, **139-** *S. syriaca*, **140-** *Sideritis libanotica* subsp. *microchlamys*, **141-** *Thymus syriacus*, **142-** *Alcea acaulis*, **143-** *Alcea hohenackeri*, **144-** *Alcea guestii*, **145-** *Malva neglecta*, **146-** *Malvella sherardiana*, **147-** *Orobanche cumana*, **148-** *Fumaria officinalis*, **149-** *F. parviflora*, **152-** *Papaver glaucum*, **154-** *Aegilops biuncialis*, **155-** *A. columnaris*, **156-** *A. triuncialis*, **157-** *Avena sterilis*.

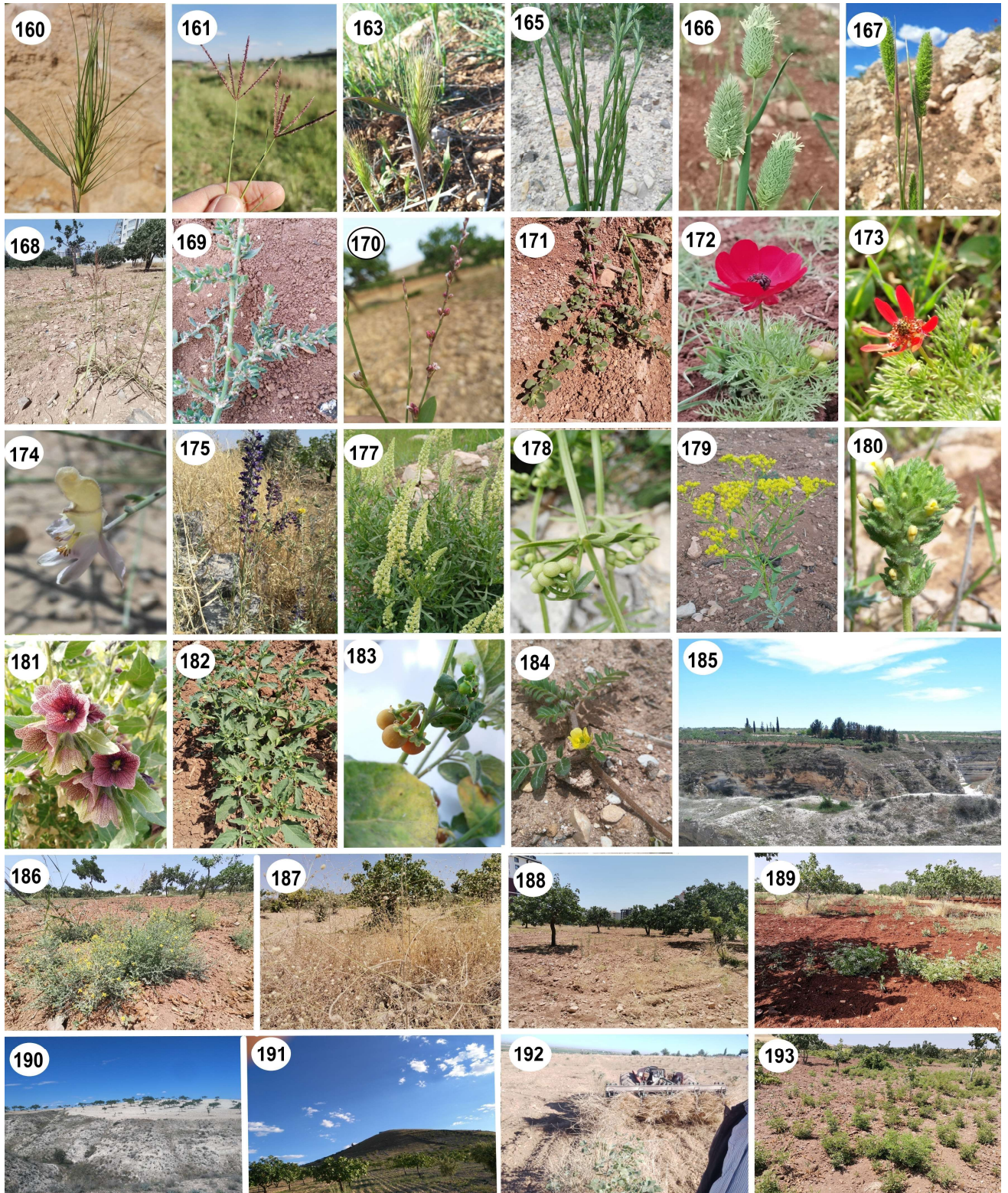


Figure 10. Weeds between 160-184 according to the floristic list and between 185-193 general patterns from different habitats (All photos are taken by M. Balos); 160- *Crithopsis delileana*, 161- *Cynodon dactylon*, 163- *Hordeum murinum*, 165- *Lolium rigidum*, 166- *Phalaris brachystachys*, 167- *Phalaris paradoxa*, 168- *Sorghum halepense*, 169- *Polygonum aviculare*, 170- *P. patulum*, 171- *Portulaca oleracea*, 172- *Adonis aleppica*, 173- *A. annua*, 174- *Consolida scleroclada*, 175- *Delphinium peregrinum*, 177- *Reseda lutea*, 178- *Galium setaceum*, 179- *Ruta buxbaumii*, 180- *Parentucellia latifolia*, 181- *Hyoscyamus reticulatus*, 182- *Physalis alkekengi*, 183- *Solanum alatum*, 184- *Tribulus terrestris*, 185-193- General patterns from different habitats.