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Study of Phytosociology of Plants in Surif, Palestine

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Article

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The plant in Palestine is an important part of the biology in the West Asia region in particular, and the world in general. Palestine's geographical and strategic location gives it an important advantage as it mediates the three continents of the world (Jehad et al., 2021a). The region of southern Palestine, including the heights, plains, and valleys of Hebron, is of unique vitality due to its geographical location overlooking the Dead Sea from the east, the Sinai desert, the Negev, and the Red Sea to the south, and the Palestinian coastal region and the Mediterranean Sea from the west and north. The region of southern Palestine, including the heights, plains, and valleys of Hebron, is of unique vitality due to its geographical location overlooking the Dead Sea from the east, the Sinai desert, the Negev, and the Red Sea to the south, and the Palestinian coastal region and the Mediterranean Sea from the west and north (Jehad et al., 2021a). This region combines many varieties of plants, including the plants of the Mediterranean basin, the African desert, and North Africa, and other plants that have settled in this region through different eras. For these and other reasons, it was necessary to study the diversity, phytosociology, flora, and assemblages of these plants. The Surif region in the northwest of Hebron Governorate is an important model for conducting this study, as it includes many different plant varieties with a suitable geographical location. Surif climate is moderately Mediterranean, it is hot and dry in the summer and cold and rainy in the winter. Spring begins in late March and early April. July and August are the hottest months of the year, with average temperatures reaching 28.9 °C. January is the coldest month, and it usually rains. Between October and April, the average precipitation is 560 mm, at its highest rate in January and February. The average temperature is 18 degrees Celsius and the average relative humidity is about 16% (MOA, 2006; Palestinian Central Bureau of Statistics, 2009).

However, many studies have been conducted in the neighboring areas of the Hebron region, including Idna, Beit Jibrin (Ighbareyeh et al., 2022), Al-Dawaimah (Ighbareyeh et al., 2022a), Wadi Al-Qaf (Jehad et al., 2021), and other regions in Hebron (Ighbareyeh & Carmona, 2018; Ighbareyeh et al., 2014b, c; Ighbareyeh et al., 2017; Ighbareyeh et al., 2021a).

There are more than 2780 plant species, 872 genera, and 144 families, of which 162 are indigenous to Palestine (Zohary 1962, 1966, 1972, 1973, 1986, 1987; Dothan, 1978b; Dothan 1986a; Dothan, 1978b, Danin & Feinbrun-Dothan, 1991; Danin, 2004; Ighbareyeh et al., 2014c). Some scholars have also studied the biodiversity and phytosociological plant community (Ighbareyeh et al., 2014b; Ighbareyeh et al., 2017; Jehad et al., 2021; Ighbareyeh et al., 2021a) and bioclimatology & climatology (Jehad et al., 2015; Ighbareyeh et al., 2015a, b, c, d; Ighbareyeh et al., 2016a, Ighbareyeh M.H., 2019; Jehad et al., 2021a) in Palestine and the Mediterranean region. The study aims to determine the phytosociology of plants in the Surif area.

2.1. Study Area

Surif is a Palestinian town located in the northwest of Hebron Governorate, 20 km northwest of Hebron, and 32 km south of Jerusalem. The village of Surif is located on a mountain range that forms walls, which made its location strategic since the days of the Romans when it was inhabited for the first time, and the Roman currency was minted in it, which made it economically important since ancient times (Al-Dabbagh, 1991). The town is located to the northwest of the city of Hebron, 25 km away from it. Over a mountainous area 600 meters above sea level. Surif land area is about 31,600 dunums, of which 13,500 dunums are arable land, 400 dunums are forests, and 9,700 dunums are open lands and pastures, with coordinates (31.6495695°N 35.0734668°E) (MOA, 2006; ARIJ, 2006-2009). It is bordered to the north by the village of Al-Jabaa Bethlehem, to the south by the village of Kharas and the city of Halhul, to the east by the town of Beit Ummar, and to the west by Beit Netif and Beit Shemesh, as in the (Figure 1& 2) (Al-Dabbagh, 1991).



Figure 1. Surif site in Palestine by the satellite.

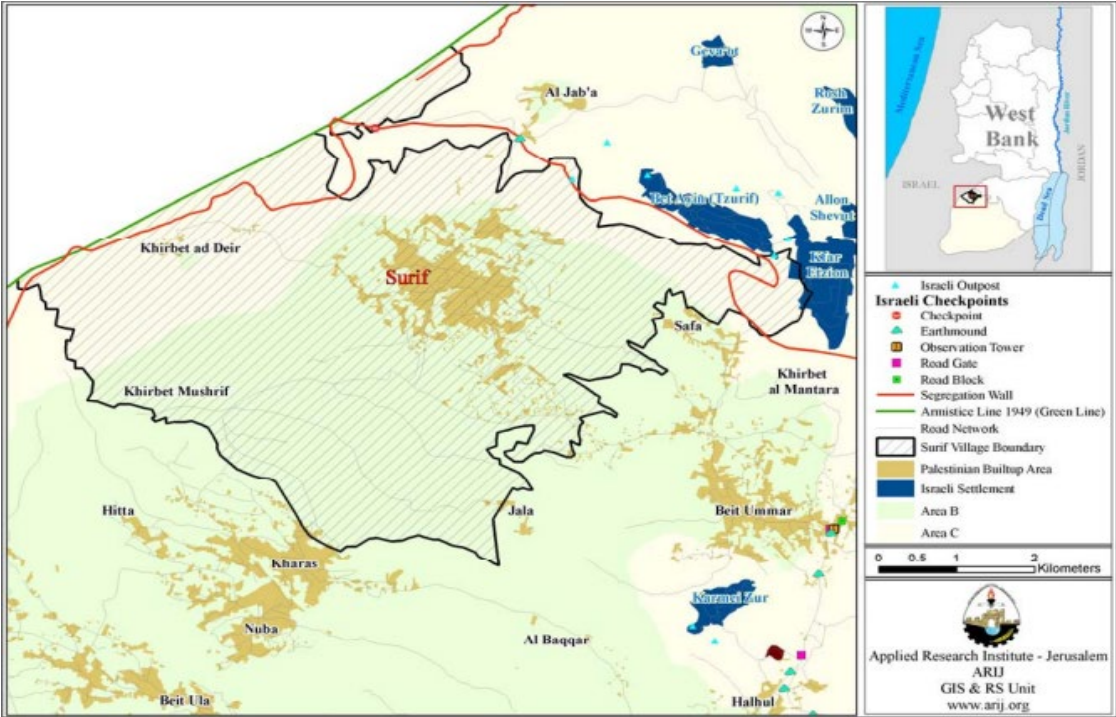


Figure 2. Surif site and its borders in Hebron Governorate, Palestine (ARIJ, 2006-2009).

2.2. Vegetation Data Collection

The data of 210 woody plants were chosen and collected from Surif woodlands or its hills and mountains, where the study and sampling were conducted at Al-Dair Village, Jabla village, Khirbet Jamreen (where the shrine of the companion Abu Ubaidah Amer bin Al-Jarrah is located and many old houses that are estimated to be more than 350 years old), Khirbet Mishrif, Khirbet Deir Musa, Ali Ghoneim’s Khalet, Khirbet Abu Shouk, Khirbet Mishrif, Khirbet Alin, Krabin and areas others as in (Figure 3).

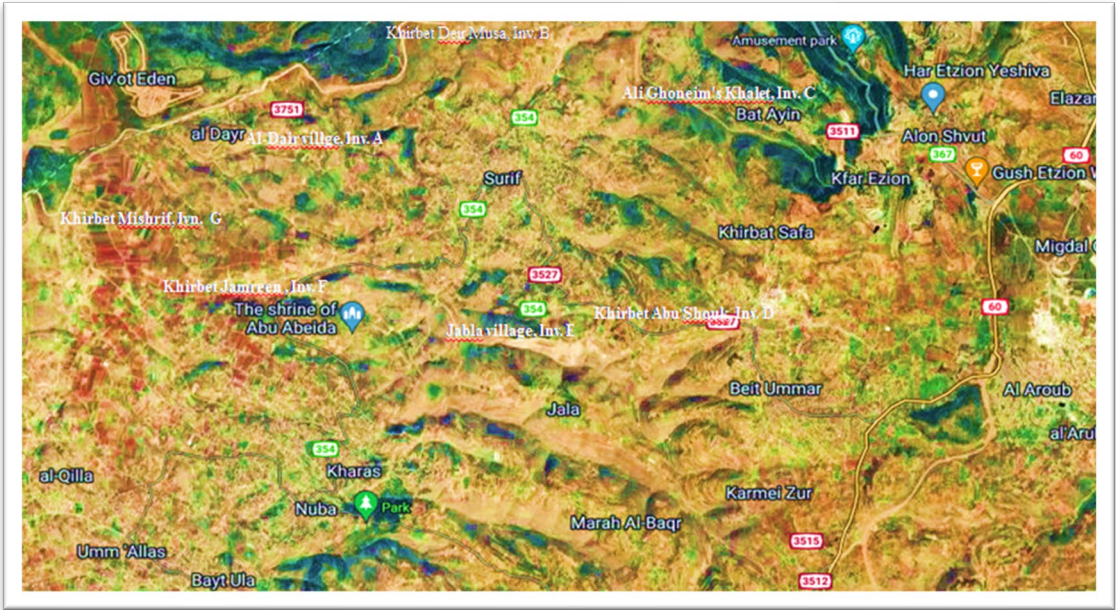


Figure 3. The research area, where some samples were obtained, is located in the Surif region and includes “Al-Dair Village, Jabla Village, Khirbet Jamreen, Khirbet Mishrif, Khirbet Dair Musa, Ali Ghoneim’s Khalet, Khirbet Abu Shouk” by satellite.

Additionally, some scrubland was used as locations to gather biological, as well as plants for the conventional and thermal pattern (Table 1). The Braun-Blanquet approach (1979) was used to collect

the data, and Van der Maarel (1979) was used to transform the Braun-Blanquet plant phytosociological markers. To further explain and translate the phytosociological markers of the Braun-Blanquet plant “(+=2, 1=3, 2=5, 4=6, 5=7) to those of Van der Maarel (1979), we created a matrix of 194 x 7 linked columns “(5: covering more than 3/4 of the area; 4: any number of species covering 1/2 to 3/4 of the area; 3: any number of individuals or species covering 1/4 to 1/2 of the area; 2: covering at least 5% of the area; 1: abundant but with low cover value; and + is very little cover)”.

In addition to using the phytosociological nomenclature code to characterize the new syntaxes in the study, we also employed Euclidean distances, cluster, and Detrended correspondence analysis to fill in any data gaps on whole plant analysis (Bols, 1958; Braun-Blanquet & Bols, 1950; Weber et al., 2000; Theurillat et al., 2020). The application XLSTAT Statistical Software for Excel was used to do the analysis.

Table 1. Sampling procedures.

Inventories	Coordinates	Site	Altitude	Biogeographic unit
Inv. A	31° 35' 02"	Al-Dair Village,	570	Mediterranean basin territories
Inv. B	31° 35' 06"	Khirbet Dari Musa	600	Mediterranean basin territories
Inv. C	31° 35' 10"	Ali Ghoneim's Khalet	605	Mediterranean basin territories
Inv. D	31° 35' 09"	Khirbet Abu Shouk	610	Mediterranean basin territories
Inv. E	31° 35' 62"	Jabla village	550	Mediterranean basin territories
Inv. F	31° 35' 03"	Khirbet Jamreen	577	Mediterranean basin territories
Inv. G	31° 35' 63"	Khirbet Mishrif	590	Mediterranean basin territories

The plants of Palestine, Syria, Lebanon, Jordan, the Negev Desert, the Sinai Desert, and the Mediterranean coast were used in the study of floristic as cover vegetation of sites in the Hebron area (Ighbareyeh et al., 2014b, Ighbareyeh et al., 2017a; Jehad et al., 2021; Ighbareyeh et al., 2021a; Ighbareyeh et al., 2022, Ighbareyeh et al., 2022a).

Many methodological studies have been conducted to explain the vegetation, including those by Bols et al. (1958), Braun-Blanquet (1979), Biondi (2011), Rivas-Martinez et al. (1999, 2001, 2002, 2017), and Theurillat et al. (2020).

2.3. Statistical Analyses

Data were used to create an Excel table with 210 rows (plants) and 7 columns (relèves) to calculate distance and similarity using the whole correlation approach. The Euclidean distance matrix (DCA) was produced from this table. We then performed detrudded correspondence analysis (DCA) ordination analysis after generating two correlation and covariance value matrices. The statistical software program was useful since it generated a suitable, distinct inventory.

However, we have only one association or community, association 1 (ASL1), consisting of forest samples from groups (A, B, C, D, E, F, and G) that were combined using cluster and DCA.

3. Result & Discussion

3.1. Steppe Vegetation, Maquis, and Macchie Forests

Pino Halepensis-Cupression Sempervirenti

The majority of the species in inventories (A, B, C, D, E, F, and G) belonged to *Pinus halepensis* (L.) Miller (known as the Jerusalem pine and Aleppo pine), *Cupressus sempervirens* L., *Cupressus arizonica* Greene, *Pinus Pinea* L., *Pinus brutia* Tenore, *Juniperus deltoides* R. P.Adams (*Juniperus oxycedrus* L.), *Juniperus turbinata* Guss. (*Juniperus phoenicea* L.), *Retama raetam* (Forssk.) Webb. & Berthel.,

Spartium junceum L., *Thuja occidentalis* L., *Glycyrrhiza glabra* L., *Ceratonia siliqua* L., *Cersis siliquastrum* L., *Acacia dealbata* Link., *Acacia salicina* Lindl., *Acacia cyanophylla* Lindl., *Calicotome villosa* (Poir.) Link., *Genista monspessulana* (L.) O. Bolós & Vigo., *Acacia radiana* Savi., *Ficus cariacia* L., *Retama rhodorhizoides* (Webb. & Berthel.), Scop., *Ficus microcarpa* L. F., *Prosopis farcta* (Banks et Sol.), *Morus nigra* L., *Olea europaea* L., *Anonis natrix* (L.), *Morus alba* L., *Olea europaea* var. *sylvestris*, *Quercus calliprinos* Webb. or *Quercus palaestina* Kotschy or *Quercus coccifera* L., *Quercus rotundifolia* Lam., *Quercus boissieri* Reut. or *Quercus infectoria* Olivier, *Quercus inthaburensis* Decne., *Pistacia saportae* Burnat., *Rhus tripartita* (Ucria) Grande *Pistacia khinjuk* Stocks, *Rhus coriaria* L., *Schinus molle* L., *Schinus terebinthifolius* Raddi, *Rhamnus alaternus* L., *Sageretia thea* (Osbeck) M. C. Johnst., *Rhamnus disperma* Ehrenb. ex Boiss., *Zizyphus jujuba* Miller, *Searsia tripartita* (Ucria) Moffett, *Zizyphus Lotus* (L.) Lam., *Paliurus spina-christi* Miller, *Zizyphus Spina-christi* (L.) Desf., *Populus alba* L., *Populus euphratica* Oliv., *Salix alba* L., *Atraphaxis spinosa* L., *Sarcopoterium spinosum* (L.) Spach, *Crataegus oriana* (L.) DC., *Amygdalus ramonensis* Danin, *Prunus arabica* (Olivier) Meikle., *Crataegus monogyna* Jacq., *Prunus dulcis* (Miller) D. A. Webb., *Mespilus germanica* L., *Crataegus azarolus* L., *Lycium shawii* Roem., *Malus communis* Desf., *Prunus korshinskyi* Hand. Mazz., *Prunus ursina* Kotschy, *Solanum incanum* L., *Salvia officinalis* L., *Lycium europaeum* L., Schult., *Ballota undulata* (Sieber ex. Fresen.) Benth., *Bassia arabica* (Boiss.) Maire & Weiller, *Lycium depressum* Stocks, *Phlomis brachyodon* (Boiss.) Zohary, *Phlomis pungens* Willd., *Phlomis chrysophylla* Boiss., *Phlomis platystegia* Post., *Ballota philistaea* Bornm., *Lycium schweinfurthii* Dammer, *Phlomis viscosa* Poir., *Teucrium capitatum* L., *Lycium barbarum* L., *Salvia fruticosa* Miller, *Satureja thymbriifolia* Hedge & Feinbrun, *Stachys palaestina* L., *Thymbra spicata* L., *Capparis aegyptia* Lam., *Satureja thymbra* L., *Salvia aegyptiaca* L., *Teucrium creticum* L., *Salvia palaestina* Benth., *Thymbra capitata* (L.) Cav., *Haloxylon salicornicum* (Moq.) Bunge ex Boiss., *Sarcocornia fruticosa* (L.) A. J. Scott., *Suaeda palaestina* Eig. & Zohary, *Salsola cyclophylla* Baker, *Atriplex halimus* L., *Haloxylon persicum* Bunge, *Hyoscyamus aureus* L., *Iphiona maris-mortui* Feinbrun, *Echinops philistaeus* Feinbrun & Zohary, *Cota tinctoria* (L.) J. Gay, *Crepis reuteriana* Boiss., *Alkanna tinctoria* (L.) Tausch, *Doellia bovei* (DC.) Anderb., *Crepis hierosolymitana* Boiss., *Achillea aleppica* DC., *Alkanna strigosa* Boiss. & Hohen., *Artemisia monosperma* Delile, *Artemisia sieberi* Besser, *Alkanna galilaea* Boiss., *Periploca aphylla* Decne., *Artemisia arborescens* L., *Euphorbia hirta* L., *Heliotropium arbainense* Fresen., *Alkanna orientalis* (L.) Boiss., *Euphorbia hierosolymitana* Boiss., *Echium glomeratum* Poir., *Heliotropium bacciferum* Forssk., *Echium angustifolium* Miller, *Podonosma orientalis* (L.) Feinbrun, *Euphorbia hirsuta* L., *Echiochilon fruticosum* Desf., *Heliotropium rotundifolium* Lehm., *Erysimum crassipes* Fisch. & C. A. Mey., *Festuca arundinacea* Schreb., *Fibigia clypeata* (L.) Medik, *Glaucium flavum* Crantz., *Hordeum bulbosum* L., *Iris vartanii* Foster, *Verbascum sinaiticum* Benth., *Gladiolus italicus* Mill., *Juncus subulatus* Forssk., *Iris palaestina* (Bak.) Boiss., *Kickxia aegyptiaca* (L.) Nabelek, *Capparis sicula* Duh., *Iris atropurpurea* Baker, *Juncus acutus* L., *Clematis cirrhosa* L., *Capparis spinosa* L., *Convolvulus dorycnium* L., *Clematis flammula* L., *Ipomoea cairica* (L.) Sweet, *Fagonia orientalis* C. Presl., *Ferula biverticillata* J. Thieb., *Convolvulus lanatus* Vahl., *Fagonia bruguieri* DC., *Ipomoea imperati* (Vahl.) Griseb., *Foeniculum vulgare* Miller, *Fagonia arabica* L., *Ferula tingitana* L., *Balanites aegyptiaca* (L.) Delile, *Fagonia mollis* Delile, *Ferula orientalis* L., *Ferula communis* L., *Conium maculatum* L., *Ferulago syriaca* Boiss., *Glaucium grandiflorum* Boiss. & A. Huet, *Glaucium arabicum* Fresen., *Cistus creticus* L., *Fumana thymifolia* (L.) Webb., *Tamarix nilotica* (Ehrenb.) Bunge, *Asparagus palaestinus* Baker, *Parkinsonia aculeata* L., *Ochradenus baccatus* Delile, *Styrex officinalis* L., *Azolla filiculoides* Lam., *Paeonia mascula* (L.) Miller, *Melia azedarach* L., *Ephedra aphylla* Forskal, *Thymelaea hirsuta* (L.) Endl., *Erodium arborescens* (Desf.) Willd., *Rubia tinctorum* L., *Jacaranda mimosaefolia* D. Don., *Erodium acaule* (L.) Becherer & Thell., *Verbascum fruticulosum* Post., *Erodium crassifolium* L'Her., *Arbutus andrachne* L., *Juglans regia* L., *Globularia arabica* Jaub. & Spach, *Vitex agnus-castus* L., *Hibiscus micranthus* L., *Brachychiton populneus* (Schott & Endl.) R.Br., *Verbena officinalis* L., *Arundo micrantha* Lam., *Arundo donax* L., *Arundo micrantha* Lam. (*Arundo mediterranea* Danin), *Heptaptera anisoptera* (DC.) Tutin, *Cynodon dactylon* (L.) Pers., and *Dittrichia viscosa* (L.) Greuter accompanied by *Pistacia lentiscus* L., *Rhamnus palaestinus* Boiss. (*Rhamnus lycioides* L.), *Pistacia palaestina* Boiss., *Pistacia atlantica* Desf., *Crataegus monogyna* Jacq., *Rhamnus disperma* Ehrenb. ex Boiss., *Quercus* species, and many species of herbaceous plants. In mesomediterranean to thermomediterranean thermotype zones, dry to humid and sub-humid conditions, it finds forests that have evolved to the Mediterranean woods, shrublands, and relict maquis trees, and carbon-rich soils with pH values that are nearly neutral, such as limestone, brown ruins, and light rendzina (terra rossa) (Ighbareyeh & Carmona, 2018; Jehad et al., 2021; Ighbareyeh et al., 2021; Ighbareyeh et al., 2022, Ighbareyeh et al., 2022a). The typical height is 586 meters, and the vegetation is 5-20 m (10 m) tall with a 5-30% slope and a 75% plant cover rate, it gives us proof that the association, which is situated in the Asian

portions of the Eastern Mediterranean and belongs to the inframediterranean, thermomediterranean to mesomediterranean thermotype: *Pino halepensis-Cupression sempervirenti* (Figures 5 and 6; Table 2: ASL 1- Inventores A, B, C, D, E, F, G, H, typus group 1), therefore, the proposed association is *Pino halepensis-Cupression sempervirenti* (Figure 4 and 5; Table 2: ASL 1- Inv. A, B, C, D, E, F, G and H).

Table 2. Association 1. *Pino halepensis-Cupression semperviren.*

Releve of inventories	A	B	C	D	E	F	G	P	Sta- tus	Life form	Family
Surface in m2 1 = 10	750	600	450	650	300	270	500	R			
Cover rate %	73	65	77	75	70	80	85	E			
Altitude in m.	570	600	605	610	550	577	590	S			
Average height of vegetation (m.)	9	5	17	15	12	20	8	N			
Slope %	15	20	30	5	10	7	12	C			
Orientation	E	N	S	W	S	E	W	I			
Order number	1	3	4	2	5	7	6	A			
Characteristics of association and higher units											
<i>Cupressus sempervirens</i> L.	4	4	4	3	4	4	3	V	N	Tree	Cupres- saceae
<i>Pinus halepensis</i> (L.) Miller	5	4	4	4	4	4	4	V	N	Tree	Pinaceae
<i>Pinus Pinea</i> L.	3	3	3	1	1	1	1	IV	N	Tree	Pinaceae
<i>Pinus brutia</i> Tenore		2	1			1	1	III	N	Tree	Pinaceae
<i>Juniperus deltoides</i> R.P. Adams						1	1	I	N	Tree	Cupres- saceae
<i>Juniperus turbinata</i> Guss. (<i>Juni- perus phoenicea</i> L.)						1	1	I	N	Tree	Cupres- saceae
<i>Cupressus arizonica</i> Greene							1	I	N	Tree	Cupres- saceae
Companions											
<i>Pistacia lentiscus</i> L.	4	4	4	3	2	3	3	V	N	Tree	Anacardi- aceae
<i>Pistacia terebinthus</i> L.			2	1	2		1	IV	N	Tree	Anacardi- aceae
<i>Quercus calliprinos</i> Webb. (<i>Quercus palaestina</i> K., <i>Quercus coccifera</i> L.)	4	4	4	3	2	3	3	V	N	Tree	Fagaceae
<i>Rhamnus palaestinus</i> Boiss. or <i>Rhamnus lycioides</i> L.	2	2	2	3	2	1	2	IV	Sub- e	Phan.	Rham- naceae
<i>Rhamnus alaternus</i> L.		2	2	2	2		1	IV	N	Tree	Rham- naceae
<i>Pistacia saportae</i> Burnat.	2		2		2		1	III	N	Tree	Anacardi- aceae
<i>Rhamnus disperma</i> Ehrenb.ex. Boiss.		2		2		2		III	N	Phan.	Rham- naceae
<i>Pistacia palaestina</i> Boiss.			2	1	2			III	Sub- e	Tree	Anacardi- aceae
<i>Ceratonia siliqua</i> L		1		1		1		III	N	Tree	Fabaceae
<i>Ficus cariaca</i> L.	1		1		1			III	N	Tree	Moraceae
<i>Pistacia atlantica</i> Desf.			2		2	1		III	N	Tree	Anacardi- aceae
<i>Quercus boissieri</i> Reut. (<i>Quercus infecto- ria</i> Olivier var. <i>veneris</i> (C.K. Schnei- der) Meikle)			1				1	I	N	Tree	Fagaceae

<i>Quercus inthaburensis</i> Decne.	2	2		1	III	N	Tree	Fagaceae
<i>Rhus tripartita</i> (Ucria) Grande		1			I	N	Phan. shrubs	Anacardiaceae
<i>Sageretia thea</i> (Osbeck) M.C. Johnst.	1	1	1		II	N	Phan.	Rhamnaceae
<i>Schinus molle</i> L.		1		1	II	N	Tree	Anacardiaceae
<i>Paliurus spina-christi</i> Miller			1 1	1	II	N	Tree	Rhamnaceae
<i>Rhus coriaria</i> L.	1				I	N	Tree	Anacardiaceae
<i>Zizyphus Spina-christi</i> (L.) Desf.			1		II	N	Tree	Rhamnaceae
<i>Schinus terebinthifolius</i> Raddi		1			II	N	Tree	Anacardiaceae
<i>Searsia tripartita</i> (Ucria) Mof-fett		1			II	N	Phan.	Rhamnaceae
<i>Crataegus azarolus</i> L.			1		I	N	Tree	Rosaceae
<i>Zizyphus Lotus</i> (L.) Lam.		1	1	1	II	N	Shrubs	Rhamnaceae
<i>Crataegus monogyna</i> Jacq.		2	1	1	III	N	Tree	Rosaceae
<i>Prunus amygdalus</i> (<i>Prunus dulcis</i> (Mill.) D. A. Webb.)	2	1	2		III	N	Tree	Rosaceae
<i>Malus communis</i> Desf.		1	1		I	N	Shrubs	Rosaceae
<i>Amygdalus ramonensis</i> Danin		1	1		I	E	Tree	Rosaceae
<i>Mespilus germanica</i> L.			1		I	N	Shrubs	Rosaceae
<i>Prunus arabica</i> (Olivier) Meikle.		1	1 1		II	N	Phan. shrubs	Rosaceae
<i>Crataegus oriana</i> (L.) DC		1	2	1	II	N	Cham.	Rosaceae
<i>Prunus korshinskyi</i> Hand.Mazz.	1		1		I	N	Tree	Rosaceae
<i>Prunus ursina</i> Kotschy		1	1 1		II	N	Tree	Rosaceae
<i>Sarcopoterium spinosum</i> (L.) Spach		1	2	1	III	N	Tree	Rosaceae
<i>Spartium junceum</i> L.		1			I	N	Phan. shrub	Fabaceae
<i>Acacia salicina</i> Lindl.		1			I	N	Tree	Fabaceae
<i>Prosopis farcta</i> (Banks et Sol.)			1		I	N	Cham. sem-shrubs	Mimosa-ceae
<i>Calicotome villosa</i> (Poir.) Link		1	1		I	N	Tree	Fabaceae
<i>Cersis siliquastrum</i> L.		1			I	N	Tree	Fabaceae
<i>Retama raetam</i> (Forssk.) Webb. & Berthel.	1				I	N	Phan. shrub	Fabaceae
<i>Morus nigara</i> L.			1		I	N	Tree	Moraceae
<i>Acacia radiana</i> Savi.			1		I	N	Tree	Fabaceae
<i>Retama rhodorhizoides</i> (Webb. & Berthel.)		1			I	N	Tree	Fabaceae
<i>Acacia cyanophylla</i> Lindl.			1 1		I	N	Tree	Fabaceae
<i>Glycyrrhiza glabra</i> L.	1		1		I	N	Phan. shrub	Fabaceae
<i>Morus alba</i> L.			1 1		I	N	Tree	Moraceae
<i>Genista monspessulana</i> (L.) O.Bolós & Vigo			1		I	N	Tree	Fabaceae
<i>Olea europaea</i> L.		1	1 2		III	N	Tree	Oleaceae
<i>Anonis natrix</i> (L.) Scop.	1				I	N	Cham.	Fabaceae

<i>Olea europaea</i> var. <i>sylvestris</i>				1		I	N	Tree	Oleaceae
<i>Lycium shawii</i> Roem. & Schult.	1				1	I	N	Shrubs	Solanaceae
								Cham.	
<i>Phlomis chrysophylla</i> Boiss.				1		I	N	semi-shrubs	Lamiaceae
<i>Helichrysum sanguineum</i> (L.) Kostel.	1					I	N	Hem.	Compositae
<i>Salvia officinalis</i> L.		1	1	1		II	N	Cham.	Lamiaceae
<i>Salvia fruticosa</i> Miller	1			1	1	II	N	Cham.	Lamiaceae
<i>Cota tinctoria</i> (L.) J.Gay ex Guss		1				I	N	Hem.	Compositae
<i>Salvia aegyptiaca</i> L.	1			1		I	N	Cham.	Lamiaceae
<i>Salvia palaestina</i> Benth.				1	1	I	Sub-e	Cham.	Lamiaceae
<i>Crepis hierosolymitana</i> Boiss.				1		I	N	Hem.	Compositae
								Cham.	
<i>Phlomis platystegia</i> Post.				1		I	E	semi-shrubs	Lamiaceae
<i>Artemisia monosperma</i> Delile	1		1			II	N	Cham.	Compositae
<i>Artemisia sieberi</i> Besser	1		1		1	II	N	Cham.	Compositae
								Cham.	
<i>Phlomis viscosa</i> Poiret.				1		I	N	semi-shrubs	Lamiaceae
<i>Achillea aleppica</i> DC.			1	1	1	II	N	Cham.	Compositae
<i>Artemisia arborescens</i> L.			1	1	1	II	N	Cham.	Compositae
<i>Crepis reuteriana</i> Boiss.			1			I	N	Hem.	Compositae
<i>Teucrium capitatum</i> L.	1		1		1	II	N	Cham.	Lamiaceae
<i>Doellia bovei</i> (DC.) Anderb.				1		I	N	Cham.	Compositae
<i>Teucrium creticum</i> L.	1				1	II	N	Cham.	Lamiaceae
<i>Thymbra capitata</i> (L.) Cav.			1		1	II	N	Cham.	Lamiaceae
<i>Lycium barbarum</i> L.				1		I	N	Shrubs	Solanaceae
<i>Bassia arabica</i> (Boiss.) Maire & Weiller				1		I	N	shrubs	Lamiaceae
								Cham.	
<i>Solanum incanum</i> L.					1	I	N	semi-shrubs	Solanaceae
<i>Lycium europaeum</i> L.					1	I	N	Shrubs	Solanaceae
								Cham.	
<i>Satureja thymbra</i> L.		1				I	N	semi-shrubs	Lamiaceae
<i>Lycium depressum</i> Stocks		1				I	N	Phan. shrubs	Solanaceae
<i>Lycium schweinfurthii</i> Dammer					1	I	N	Phan. shrubs	Solanaceae
								Cham.	
<i>Satureja thymbriifolia</i> Hedge & Feinbrun		1				I	E	semi-shrubs	Lamiaceae
								Cham.	
<i>Phlomis brachyodon</i> (Boiss.) Zohary					1	I	N	semi-shrubs	Lamiaceae
								Cham.	
<i>Stachys palaestina</i> L.		1		1		I	E	semi-shrubs	Lamiaceae

<i>Ballota undulata</i> (Sieber ex. Fresen.) Ben- tham	1				I	N	shrubs	Lamiaceae
							Cham.	
<i>Phlomis pungens</i> Willd.	1				I	N	semi- shrubs	Lamiaceae
<i>Hyoscyamus aureus</i> L.	1				I	N	Cham.	Solanaceae
<i>Gundelia tournefortii</i> L.	1				I	N	Hem.	Compositae
							Cham.	
<i>Heliotropium arbainense</i> Fresen.	1	1			I	N	Semi- shrubs	Boragina- ceae
<i>Haloxylon persicum</i> Bunge			1		I	N	Phan. Shrubs	Amaran- thaceae
<i>Suaeda palaestina</i> Eig. & Zohary	1				I	E	Cham.	Amaran- thaceae
							Cham.	
<i>Heliotropium bacciferum</i> Forssk.	1				I	N	Semi- shrubs	Boragina- ceae
<i>Haloxylon salicornicum</i> (Moq.) Bunge ex Boiss.	1	1	1		II	N	Cham.	Amaran- thaceae
<i>Salsola cyclophylla</i> Baker	1	1	1		II	N	Shrubs	Amaran- thaceae
<i>Echium angustifolium</i> Mill.	1				I	N	Cham.	Boragina- ceae
<i>Heliotropium rotundifolium</i> Lehm.	1				I	N	Cham.	Boragina- ceae
<i>Echiochilon fruticosum</i> Desf.	1				I	N	Cham.	Boragina- ceae
<i>Sarcocornia fruticosa</i> (L.) A.J.Scott	1	1	1		II	N	Cham.	Amaran- thaceae
<i>Echium glomeratum</i> Poir.		1			I	N	Hem.	Boragina- ceae
<i>Podonosma orientalis</i> (L.) Feinbrun	1				I	N	Cham.	Boragina- ceae
<i>Fagonia arabica</i> L.		1			I	N	Shrubs	Zygophyl- laceae
<i>Atriplex halimus</i> L.					I	N	Shrubs	Amaran- thaceae
<i>Fagonia orientalis</i> C. Presl.		1			I	N	Shrubs	Zygophyl- laceae
<i>Alkanna orientalis</i> (L.) Boiss	1	1	1		II	N	Cham.	Boragina- ceae
<i>Alkanna strigosa</i> Boiss & Ho- hen.	1	1		1	II	N	Cham.	Boragina- ceae
<i>Alkanna tinctoria</i> (L.) Tausch		1		1	II	N	Cham.	Boragina- ceae
<i>Ferula communis</i> L.	1				I	N	Hem.	Apiaceae
<i>Fagonia bruguieri</i> DC.		1			I	N	Shrubs	Zygophyl- laceae
<i>Ferula biverticillata</i> J. Thieb	1				I	E	Hem.	Apiaceae
<i>Fagonia mollis</i> Delile	1				I	N	Shrubs	Zygophyl- laceae
<i>Ferulago syriaca</i> Boiss.				1	I	N	Hem.	Apiaceae
<i>Ferula orientalis</i> L.	1				I	N	Hem.	Apiaceae

<i>Capparis spinosa</i> L.		1	1		II	N	Shrubs	Cappa- raceae
<i>Foeniculum vulgare</i> Miller		1			I	N	Hem.	Apiaceae
<i>Ferula tingitana</i> L.		1			I	N	Hem.	Apiaceae
<i>Capparis aegyptia</i> Lam.	1	1		1	II	N	Shrubs	Cappa- raceae
<i>Conium maculatum</i> L.		1			I	N	Hem.	Apiaceae
<i>Capparis sicula</i> Duh.		1		1	II	N	Shrubs	Cappa- raceae
<i>Ipomoea imperati</i> (Vahl.) Griseb.			1		I	N	Hem.	Convolvu- laceae
<i>Clematis cirrhosa</i> L.			1		I	N	Phan. vine	Anuncula- ceae
<i>Atraphaxis spinosa</i> L.					I	N	Cham.	Polygona- ceae
<i>Convolvulus dorycnium</i> L.			1		I	N	Hem.	Convolvu- laceae
<i>Tamarix nilotica</i> (Ehrenb.) Bunge				1	I	N	Tree	Tamarica- ceae
<i>Clematis flammula</i> L.			1		I	N	Phan. vine	Anuncula- ceae/Ra- nuncula- ceae
<i>Convolvulus lanatus</i> Vahl.					I	N	Cham.	Convolvu- laceae
<i>Ipomoea cairica</i> (L.) Sweet			1		I	N	Hem.	Convolvu- laceae
<i>Kickxia aegyptiaca</i> (L.) Nabelek		1			II	N	Cham.	Plantagina- ceae
<i>Verbascum sinaiticum</i> Benth.	1	1	1		II	N	Hem.	Scrophular- iaceae
<i>Euphorbia hierosolymitana</i> Boiss.			1		I	N	Shrubs	Euphorbia- ceae
<i>Periploca aphylla</i> Decne.			1		I	N	Phan. shrubs	Apocyna- ceae
<i>Euphorbia hirta</i> L.			1		I	N	Shrubs	Euphorbia- ceae
<i>Iris vartanii</i> Foster			1		I	E	Geo- phyte	Iridaceae
<i>Iris palaestina</i> (Bak.) Boiss.			1		I	E	Geo- phyte	Iridaceae
<i>Euphorbia hirsuta</i> L.		1			I	N	Hem.	Euphorbia- ceae
<i>Tamarix aphylla</i> (L.) Karsten	1				I	N	Tree	Tamarica- ceae
<i>Glaucium arabicum</i> Fresen.			1		I	N	Hem.	Papavera- ceae
<i>Glaucium flavum</i> Crantz		1	1		I	N	Hem.	Papavera- ceae
<i>Glaucium grandiflorum</i> Boiss. & A.Huet				1	I	N	Hem.	Papavera- ceae

<i>Thymelaea hirsuta</i> (L.) Endl	1			I	N	Phan. dwarf - shrub	Scrophular- iaceae
<i>Ephedra foeminea</i> Forssk		1		I	N	Phan. shrubs vine	Ephed- raceae
<i>Verbascum fruticosum</i> Post.	1	1		I	N	Phan. dwarf - shrub	Scrophular- iaceae
<i>Ephedra aphylla</i> Forskal		1		I	N	Phan. shrubs vine	Ephed- raceae
<i>Juncus subulatus</i> Forssk.		1		I	N	Hem.	Juncaceae
<i>Hordeum bulbosum</i> L.	1			I	N	Hem.	Poaceae
<i>Erysimum crassipes</i> Fisch. &C.A.Mey.	1			I	N	Hem.	Brassica- ceae
<i>Juncus acutus</i> L.	1			I	N	Hem.	Juncaceae
<i>Fibigia clypeata</i> (L.) Medik				I	N	Hem.	Brassica- ceae
<i>Festuca arundinacea</i> Schreb.	1			I	N	Hem.	Poaceae
<i>Erodium crassifolium</i> L'Her.		1	1	I	N	Hem.	Geraniaceae
<i>Asparagus palaestinus</i> Baker	1			I	Sub- e	Geo- phyte vine	Liliaceae
<i>Erodium arborescens</i> (Desf.)Willd.	1	1	1	I	N	Hem.	Geraniaceae
<i>Cistus creticus</i> L.	1			I	N	Cham. semi- shrubs	Cistaceae
<i>Erodium acaule</i> (L.) Becherer &Thell.		1	1	I	N	Hem.	Geraniaceae
<i>Asparagus horridus</i> L.	1	1	1	II	N	Geo- phyte	Liliaceae
<i>Parkinsonia aculeata</i> L.		1		I	N	Phan. shrubs	Caesalpini- aceae
<i>Fumana thymifolia</i> (L.) Webb.		1	1	I	N	Cham. semi- shrubs	Cistaceae
<i>Ochradenus baccatus</i> Delile		1		I	N	Phan. shrubs	Resedaceae
<i>Azolla filiculoides</i> Lam.		1		I	N	Helo- phyte	Azollaceae
<i>Melia azedarach</i> L.		1		I	N	Tree	Meliaceae
<i>Paeonia mascula</i> (L.) Mill.		1	1	I	N	Geo- phyte	Paeoniaceae
<i>Styrex officinalis</i> L.	1		1	I	N	Phan. shrubs	Styracaceae
<i>Vitex agnus-castus</i> L.		1	1	I	N	Cham. semi- shrubs	Verbena- ceae
<i>Juglans regia</i> L.		1		I	N	Tree	Juglan- daceae
<i>Globularia arabica</i> Jaub. & Spach	1			I	N	Cham. semi- shrubs	Plantagina- ceae

<i>Verbena officinalis</i> L.	1		I	N	Hem.	Verbena- ceae
					Cham.	
<i>Hibiscus micranthus</i> L.	1		I	N	semi- shrubs	Malvaceae
<i>Tamarix palestina</i> Bertol.	1	I	I	E	Tree	Tamarica- ceae
<i>Achillea arabica</i> Kotschy	1		I	N	Hem.	Compositae
<i>Achillea fragrantissima</i> (Forssk.) Sch.Bip.	1		I	N	Hem.	Compositae
<i>Achillea membranacea</i> DC.	1		I	N	Cham.	Compositae
<i>Achillea wilhelmsii</i> K. Koch	1		I	N	Hem.	Compositae
<i>Cotoneaster nummularius</i> Fisch. & C.A.Mey.	1		I	N	Phan. Shrubs	Rosaceae
<i>Astragalus aleppicus</i> Boiss.		1	I	N	Hem.	Fabaceae
<i>Salsola gaetula</i> (Maire) Botsch.		1	I	N	Cham.	Amaran- thaceae
<i>Salsola imbricata</i> Forssk.		1	I	N	Phan. Shrubs	Amaran- thaceae
<i>Salsola incanescens</i> C.A.Mey.		1	I	N	Cham.	Amaran- thaceae
<i>Salsola oppositifolia</i> Desf.		1	I	N	Cham.	Amaran- thaceae
<i>Acanthus syriacus</i> Boiss.		1	I	N	Hem.	Acan- thaceae
<i>Atriplex glauca</i> L.		1	I	N	Cham.	Amaran- thaceae
<i>Haloxylon scoparium</i> Pomel		1	I	N	Cham.	Amaran- thaceae
<i>Kickxia acerbiana</i> (Boiss.) Taeckh. & Boulos	1		I	N	Hem.	Plantagina- ceae
<i>Kickxia floribunda</i> (Boiss.) Taeckh. & Boulos	1		I	N	Cham.	Plantagina- ceae
<i>Kickxia macilenta</i> (Decne.) Danin	1		I	N	Cham.	Plantagina- ceae
<i>Kickxia spartioides</i> (Brouss. ex Buch) Janch.	1		I	N	Cham.	Plantagina- ceae
<i>Salvia ceratophylla</i> L.		1	I	N	Hem.	Lamiaceae
<i>Salvia lanigera</i> Poir.		1	I	N	Cham.	Lamiaceae
<i>Salvia samuelssonii</i> Rech.F.		1	I	N	Hem.	Lamiaceae
<i>Salvia spinosa</i> L.		1	I	N	Hem.	Lamiaceae
<i>Salvia verbenaca</i> L.		1	I	N	Hem.	Lamiaceae
<i>Cistus salvifolius</i> L.	1		I	N	Cham.	Cistaceae
<i>Solanum elaeagnifolium</i> Cav.		1	I	N	Hem.	Solanaceae
<i>Solanum nigrum</i> L.		1	I	N	Hem.	Solanaceae
<i>Solanum villosum</i> (L.) Mill.		1	I	N	Hem.	Solanaceae
<i>Teucrium decaisnei</i> C.Presl		1	I	N	Cham.	Lamiaceae
<i>Tamarix tetragyna</i> Ehrenb.	1		I	N	Tree	Tamarica- ceae
<i>Thymbra spicata</i> L.		1	I	N	Cham.	Lamiaceae
<i>Stachys viticina</i> Boiss.		1	I	N	Hem.	Lamiaceae
<i>Stachys aegyptiaca</i> Pers.		1	I	N	Cham.	Lamiaceae
<i>Cyperus alopecuroides</i> Rottb.		2	I	N	Hem.	Cyperaceae

<i>Arundo micrantha</i> Lam.	1		I	N	Phan. Shrub, Geo.	Poaceae
<i>Arundo donax</i> L.	1		I	N	Phan. Shrub, Geo.	Poaceae
<i>Arundo micrantha</i> Lam. (<i>Arundo mediterranea</i> Danin)	1		I	N	Phan. Shrub, Geo.	Poaceae
<i>Heptaptera anisoptera</i> (DC.) Tutin	1		I	N	Hem.	Apiaceae
<i>Cynodon dactylon</i> (L.) Pers.	1	1	II	N	Phan. Shrub, Geo.	Poaceae
<i>Dittrichia viscosa</i> (L.) Greuter	2		II	N	Cham	Compositae
<i>Astragalus bethlehemiticus</i> Boiss.	1		I	N	Cham	Fabaceae
<i>Origanum syriacum</i> L.	1		I	N	Cham	Lamiaceae
<i>Verbascum agrimoniifolium</i> (K.Koch) Hub.-Mor.	1		I	N	Hem.	Scrophular- iaceae

Abbreviations: T.: tree; Phan: phanerophyte, Phan. Shrubs: phanerophyte shrubs, Phan. shrubs vine: phanerophyte shrubs vine; Phan. vine: phanerophyte vine; Phan. dwarf shrubs: phanerophyte dwarf shrubs; Cham.: chamaephyte; Cham. semi-shrubs: chamaephyte semi-shrubs; Cham., chamaephyte; Cham. Shrubs: chamaephyte shrubs; Hem.: hemicryptophyte; Geo.: geophyte, Geo. vine: geophyte vine; H.: Helophyte. Percentage of plant species present in the sample studies and communities: V = 100%, IV = 60.1-80%, III = 40.1-60%, II = 20.1-40% and I = 0.1-20%. N: native, E: endemic, ASL: Association, and ASL1: association 1.

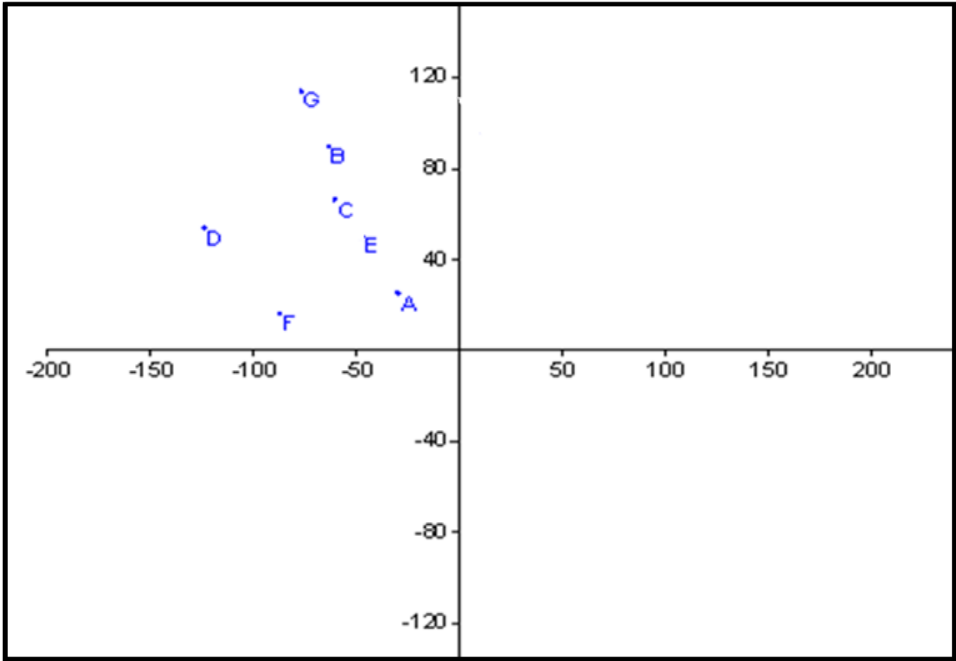


Figure 4. Detrended correspondence analysis.

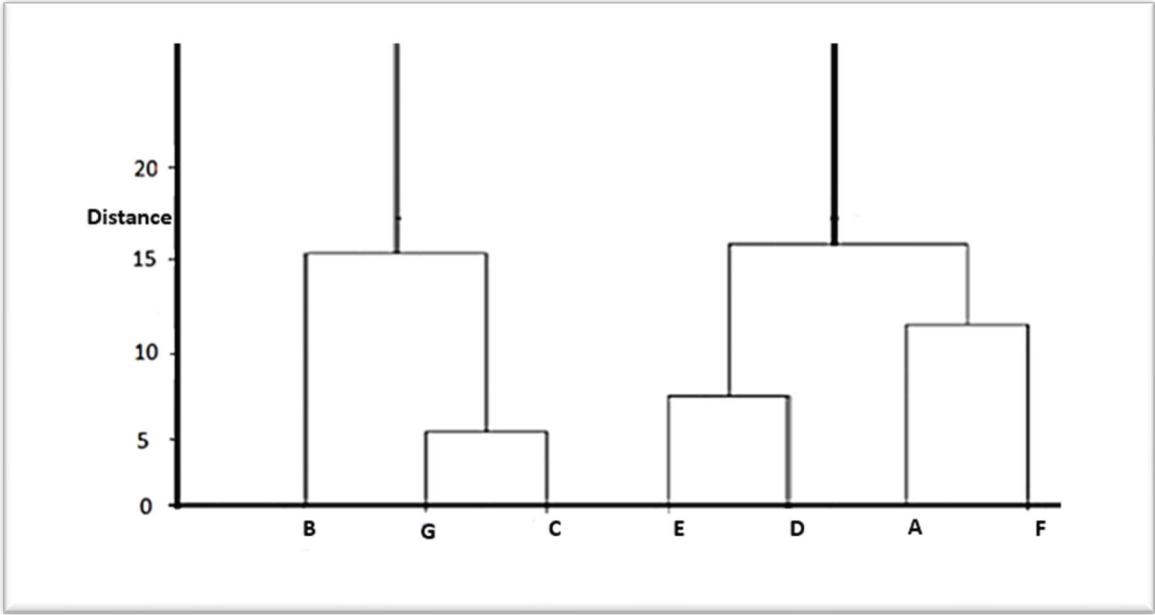


Figure 5. Cluster denogram analysis in the study.

Furthermore, in terms of flora and vegetation following are: In the life forms' in this association, 210 species, which of 77 (36.66%) phanerophytes trees, as trees (47), phanerophytes (4), phanerophytes shrubs (14), phanerophytes shrubs geophyte (4), phanerophytes vine (2), phanerophytes shrub vine (2), phanerophytes dwarf-shrub (2); shrubs 19 (9%); chamaephyte 61 (29.04%) as chamaephyte shrubs or semi shrubs (17) and chamaephyte 45 (21.42%); hemicryptophyte 48 (22.85%); geophyte 5 (2.38%) as (geophyte 4, geophyte vine 1(0.47%); and helophyte 1 (0.47%), as shown in the (Figure 6).

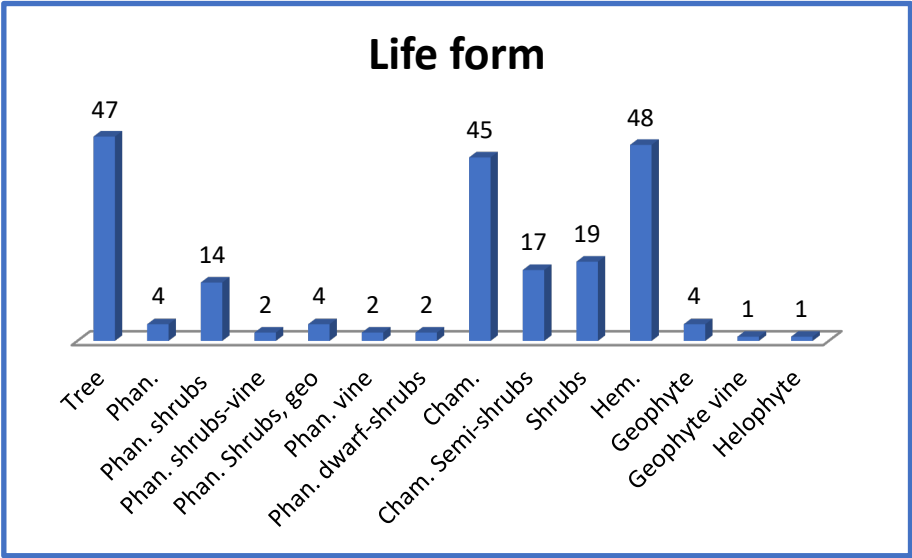


Figure 6. Plant association' life forms.

On the other side, in this study, more than 46 families were recorded, the most representative of which was Lamiaceae 26 (12.38%), Compositae 14 (6.36%), Rosaceae 13 (6.19%), Amaranthaceae 12 (5.71%), Fabaceae 12 (5.45%), Boraginaceae 10 (4.76%), Rhamnaceae 9 (4.28%), Anacardiaceae 9 (4.28%), and the rest of family as shown in the (Figure 7).

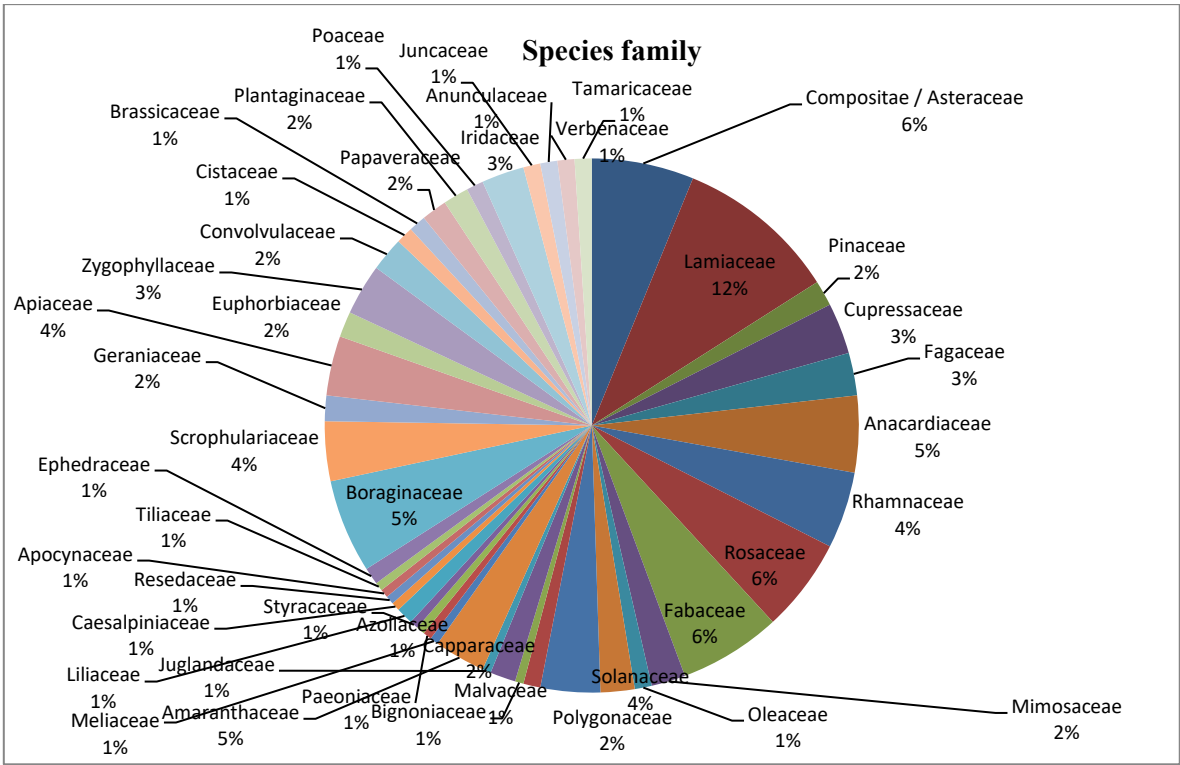


Figure 7. Proportion of family species in the research.

However, of the 600 plant species observed, 210 were woody, and 15 species were endemic to the Surif region (7.14%), including 4 sub-endemics. Herbaceous plants were excluded from analysis in the paper because our focus is on large or woody plants, and thus, they were not included in the study. During our study of this plant community (*Pino halepensis-Cupressiom sempervirentis*), we found that it is similar to another plant unit or community that was published in the year 2022 in the western region of Hebron, Beit Jibreen (Ighbareyeh et al., 2022), among these varieties are *Pinus halepensis* Miller (Jerusalem pine), *Pinus pinea* L., *Pinus brutia* Tenore, and *Cupressus sempervirens* L., *Cupressus arizonica* Greene, *Juniperus oxycedrus* L., and others species.

Moreover, we found numerous *Pinus* species in the area, including *Pinus brutia* Tenore, *Pinus pinea* L., *Pinus halepensis* Miller (often known as the Jerusalem pine or Aleppo pine), and *Cupressus* spp. as, *Cupressus sempervirens* L., *Juniperus deltoides* R. P. Adams (*Juniperus oxycedrus* L.), *Juniperus turbinata* Guss. (*Juniperus phoenicea* L.), and other species in dry, subhumid, and humid regions in order *Pinetalia halepensis* Biondi et al. (2014) and class *Junipero phoeniceae-Pinon acutisquamae* A.V. Pérez et Cabezudo in A.V. Pérez et al. 1988 corr. Rivas-Mart. et al. 2002 nom. invers. Propos (Rivas-Mart. et al. 2002), and the community is habituated in the class of *Quercetea palaestini* or *calliprini* (Ighbareyeh et al., 2022) and *Quercetea ilicis* Br.-Bl. ex. A.& O. Bolòs 1950, with the order *Pinetalia halepensis* Biondi et al. (2014), and in alliance of *Pino halepensis-Cupressiom sempervirentis* (Ighbareyeh et al., 2022).

These associations' syn-taxonomical interpretation is demonstrated:

- Maquis and forest vegetation:
- Class: *Quercetea ilicis* Br.-Bl. ex. A.& O. Bolòs 1950
- Class: *Quercetea calliprini* or *palaestini* (Ighbareyeh et al., 2022)
- Order: *Pinetalia halepensis* Biondi et al. (2014)
- Alliance: *Pino halepensis-Cupressiom sempervirentis* (Ighbareyeh et al., 2022)

Association: Pino halepensis-Cupressetum sempervirentis

Since Surif is home to more than 210 types of forest plants and shrubs that were investigated and analyzed in this study, it exhibits a different pattern of forest vegetation and biodiversity while being at an appropriate altitude above sea level in comparison to the rest of the Palestinian lands, includes steppes, oak woodlands, shrubs, and other species, Surif region has a dry climate with inframediterranean to thermomediterranean and mesomediterranean thermotypes, with precipitation ranging from 350 to 600 mm.

"Syntaxonomical scheme:

Class: *Quercetea ilicis* Br.-Bl. ex A. Bolòs et O. de Bolòs in A. Bolòs y Vayreda 1950

Class: *Quercetea calliprini* or *palaestini* nova. (Ighbareyeh et al., 2022)

Order: *Quercetalia calliprini* Zohary 1960

Order: *Quercetalia ilicis* Br.-Bl. ex Molinier 1934

Order: *Pinetalia halepensis* Biondi et al. (2014)

Alliance: Pino halepensis-Cupressiom sempervirentis (Ighbareyeh et al., 2022)

Alliance: *Querco - Pistacion lentisci* all. nova (Ighbareyeh et al., 2022)

Association: Pino halepensis-Cupression sempervirenti *

Class: *Quercetea ilicis* Br.-Bl. ex A. Bolòs et O. de Bolòs in A. Bolòs y Vayreda 1950

Order: *Quercetalia calliprini* Zohary 1955,1960

Alliance: *Cerantonio-Pistacion lentisci* Zohary ex Zohary et Orshan 1959

Alliance: *Querco - Pistacion lentisci* all. nova (Ighbareyeh et al., 2022)

Cerantonio siliquae - Quercion calliprinae (Jehad et al., 2021)

Pino halepensis-Cupression sempervirenti (Jehad et al., 2021)

Associations:

- *Cerantonio siliquae-Quercetum callipinii*. (Jehad et al., 2021)

- Pino halepensis-Cupressetum sempervirentis (Jehad et al., 2021)

* Associations in which olive cultivation is possible.

References

1. Al-Dabbagh, Mustafa, 1991, Our Country Palestine, Part Five, Section Two, Dar Al-Huda, Afer Qara-Palestine.
2. Applied Research Institute - Jerusalem (ARIJ), 2006-2009, GIS database. Bethlehem - Palestine.
3. Bolòs, O.; De et Molinier, R. Recherches phytosociologiques dans l'île de Majorque; Collect. Bot. (Barcelona), 1958, V (III): 699-865.
4. Braun-Blanquet, J. Fitosociología. Bases para el estudio de las comunidades vegetales. Blume, Madrid 1979; 820 p.
5. Braun-Blanquet, J.; Bolòs, O. De. Les groupements végétaux du bassin moyen de l'Ebre et leur dynamisme. Anales Estac. Exp. Aula Dei 1957, 5(1-4): 1-266. Saragossa.
6. Braun-Blanquet, J.; de Bolòs, O. Aperçu des Groupements Végétaux des Montagnes tarragonaises. Collect. Bot 1950, 2, 303-342.
7. Danin, A. Distribution Atlas of plants in Flora Palaestina area. 2nd Edn., Academy of science and Humanities, Jerusalem 2004; PP: 520. ISBN: 9652081671.
8. Danin, A.; Feinbrun-Dothan, N. Analytical Flora of Eretz-Israel, CANA Publishing House Ltd., Jerusalem, 1991.
9. Dothan, F.N. Flora Palaestina, part four Plates, text Alismaceae to Orchidaceae. Academy of science and Humanities, Jerusalem 1986a; PP: 525.
10. Dothan, F.N. Flora Palaestina, part three, text Ericaceae to Compositae. Israel academy of science and Humanities, Jerusalem 1978b; PP: 481.

11. Ighbareyeh J.M.H. (2019). Bioclimate of Jericho in Palestine. Palestine Technical University Research Journal, 2019, 7(1), 1-7(<http://www.ptuk.edu.ps>).
12. Ighbareyeh J.M.H., Cano-Ortiz A., Cano Carmona E. (2015). Study of Biology and Bioclimatology of Date Palm (Phoenix Dactylifera L.) to Optimize Yield and Increase Economic in Jericho and Gaza Cities of Palestine. International Journal of Research Studies in Biosciences, 3,1-8. <http://www.arcjournals.org>.
13. Ighbareyeh J.M.H., Cano-Ortiz A., Suliemih A. A. A., Ighbareyeh M.M.H. and Cano E. (2015c). Study Effect of Biology and Bioclimatology Applied on Plant in the Area of Hebron at the South of Palestine. International Journal of Research Studies in Biosciences, 3, 56-64. <http://www.arcjournals.org>.
14. Ighbareyeh J.M.H., Cano-Ortiz A., Suliemih A. A. A., Ighbareyeh M.M.H. and Cano E. (2015d). Biology and Bioclimatology Applied on Plant in Palestine. International Journal of Research Studies in Biosciences, 3, 79-86. <http://www.arcjournals.org>.
15. Ighbareyeh J.M.H., Cano-Ortiz A., Suliemih A.A.A., Ighbareyeh M.M.H. and Cano E. (2015a). Assessment of Biology and Bioclimatology of Plant to Increase Economic in Palestine. International Journal of Research Studies in Biosciences, 3,1-8. <http://www.arcjournals.org>.
16. Ighbareyeh J.M.H., Cano-Ortiz A., Suliemih A.A.A., Ighbareyeh M.M.H. and Cano E. (2016a). Modeling of biology and bioclimatology applied studies on plant in Palestine. International Journal of Development Research 6, 9585-9590. <http://www.journalijdr.com>.
17. Ighbareyeh JMH, Cano-Ortiz A, Cano Carmona E, Suliemih AAA, Ighbareyeh MMH. Flora endemic rare and bioclimate of Palestine. Open Access Library Journal. 2017;4:e3977. Available: <https://DOI:10.4236/oalib.1103977>.
18. Ighbareyeh JMH, Cano-Ortiz A, Cano E. (2014b). Case Study: Analysis of the Physical Factors of Palestinian Bioclimate. American Journal of Climate Change. 2014;3;223-231. Available: <http://dx.doi.org/10.4236/ajcc.2014.32021>.
19. Ighbareyeh, J. M. H., Cano-Ortiz, A., & Cano, E. (2021a). Endemic plant species in the west of Hebron, Palestine. European Journal of Applied Sciences, 9(3) 368-385.
20. Ighbareyeh, J. M. H., Suliemih, A. A.-R. A., Sheqwarah, M., Cano-Ortiz, A., & Carmona, E. C. (2022a). Flora and Phytosociological of Plant in Al-Dawaimah of Palestine. Research Journal of Ecology and Environmental Sciences, 2(1), 58–91. Retrieved from <https://www.scipublications.com/journal/index.php/rjees/article/view/202>.
21. Ighbareyeh, J.M.H., Cano-Ortiz, A., Carmona, E.C., Ighbareyeh, M.M.H. and Suliemih, A.A.A. (2015b) Assessing Crop Yield Sustainability under the Climatic and Bioclimatic Change in the Area of Palestine. American Journal of Climate Change, 4, 48-56. <http://dx.doi.org/10.4236/ajcc.2015.41005>.
22. Ighbareyeh, J.M.H.; Cano-Ortiz, A.; Cano, E. Phytosociology and Vegetation of Plants of Beit Jibrin in Palestine. Land 2022, 11, 264. <https://doi.org/10.3390/land11020264>.
23. Ighbareyeh, J.M.H.; Cano-Ortiz, A.; Suliemih, A.A.A.; Ighbareyeh, M.M.H.; Cano, E. Phytosociology with Other Characteristic Biologically and Ecologically of Plant in Palestine. American Journal of Plant Sciences 2014c, 5, 3104-3118. <http://dx.doi.org/10.4236/ajps.2014.520327>.
24. Ighbareyeh, J.M.H.; Carmona, E.C. A phytosociological of plant communities and Biodiversity in the East-South of Idna Village-Hebron of Palestine. Int. J. Geosci. 2018, 9, 44–58.
25. Jehad M. H. Ighbareyeh, Cano-Ortiz, A., & Cano, E. (2021a). Bioclimate of Hebron city in Palestine. Transylvanian Review of Administrative Sciences, NO. 63 E/2021 pp. 227-238.
26. Jehad M.H. Ighbareyeh, Cano-Ortiz A., Cano Carmona E., Ighbareyeh Mohammed M. H., Suliemih Asma A. A. (2015). Modeling of Biology and Bioclimatology Applied on Plant in Palestine. Swift Journal of Agricultural Research 1(3), pp. 021-027. <http://www.swiftjournals.org/sjar>.
27. Jehad Mahmoud Hussein Ighbareyeh, Asma Abdel-Raheem Ahmad Suliemih, Azhar Mousa Abu Ayash, Maen Nimer Sheqwarah, Ana Cano Ortiz, Eusebio Cano Carmona, Biodiversity and Phytosociological Analysis of Plants in Wadi Al-Quf Nursery Reserve North - Western of Hebron City in Palestine, Journal of Plant Sciences. Volume 9, Issue 1, February 2021 , pp. 13-24. doi: 10.11648/j.jps.20210901.13.
28. Molinier, R. Études phytosociologiques et écologiques en Provence occidentale. Annales Museo Historia Natural Marseille 1934, 27, 1- 273.

29. Palestinian Central Bureau of Statistics, 2009, General Census of Population, Housing and Establishments, 2007. Ramallah - Palestine.
30. Palestinian Ministry of Agriculture (MOA), (2006), Hebron Agriculture Directorate data, Palestine.
31. Rivas-Martínez, S.; Díaz, T.E., Fernández-González, F., Izco, J., Lousã, M.; Penas, A. Vascular plant communities of Spain and Portugal. Addenda to the syntaxonomical checklist of 2001. *Itinera Geobotanica* 2002, 15 (1): 5-432.
32. Rivas-Martínez, S.; Fernández-González, F.; Loidi, J.; Lousã, M.; Penas, A. Syntaxonomical checklist of vascular plant communities of Spain and Portugal to association level. *Itinera Geobotanica* 2001, 14: 5-341.
33. Rivas-Martínez, S.; Penas, A.; del Río, S.; Díaz, G.T; Rivas-Sáenz, S. Bioclimatology of the Iberian Peninsula and the Balearic Islands. In: Loidi J. (eds) *The vegetation of the Iberian Peninsula. Plant and vegetation vol.* 2017, 12(1): 29–80. Springer, Cham.
34. Rivas-Martínez, S.; Sanchez, M.D; Costa, M. North American boreal and western temperate forest vegetation (Syntaxonomical synopsis of the potential natural plant communities of North America, II). *Itinera Geobotanica* 1999, 12: 5–316.
35. Theurillat, J.P., Willner, W., Fernández-González, F., Bültmann, H., Čarni, A., Gigante, D., et al. International Code of Phytosociological Nomenclature. 4th edition. *Applied Vegetation Science* 2020;00:e12491. doi: 10.1111/avsc.12491.
36. Van Der Maarel, E. Transformation of Cover-Abundance Values in Phytosociology and Its Effects on Community Similarity. *Vegetatio* 1979, 39, 97-114. <http://dx.doi.org/10.1007/BF00052021>.
37. Weber, H.E.; Moravec, J.; Theurillat, J.P. International Code of Phytosociological Nomenclature. 3rd edition. *Journal of Vegetation Science* 2000, 1, 739-768. <https://doi.org/10.2307/3236580>.
38. Zohary, M. *Flora Palaestina* 1972; Volume II. Israel Academy of Sciences and Humanities, 1972.
39. Zohary, M. *Flora Palaestina* 1987; Volume III Israel Academy of Sciences and Humanities, 1987.
40. Zohary, M. *Flora Palaestina*. Part 1, Text Equisetaceae to Moringaceae. Israel academy of science and Humanities, Jerusalem 1966; PP: 346.
41. Zohary, M. *Flora Palaestina* 1986; Volume IV. Israel Academy of Sciences and Humanities, 1986.
42. Zohary, M. *Geobotanical Foundations of the Middle East Vols. I and II*. Gustav Fisher Verlag, Stuttgart 1973; 739 pp.
43. Zohary, M. *Plant Life of Palestine*; Ronald Press Company. New York, 1962.
44. Zohary, M.; G. Orshan. The maquis of *Ceratonia siliqua* in Israel. *Palest. J. Bot.* Jerusalem 1959, 8:385-397.
45. Zohary, M.; Orshan, G. The maquis of *ceratonia siliqua* in Israel. *Vegetatio* 1959, 8, 285–297.

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