



Ethnobotanical profile of medicinal plants used by people of North-eastern Morocco: Cross-cultural and Historical approach (Part I)

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Research

Abstract

Background: Northeastern Morocco is characterized by a wide range of plants. However, the list of medicinal herbs used in this area has not been identified completely. This work aims to give an exhaustive compendium of medicinal plants used by people in this region. We then compare the plants listed with others documented in some ethnobotanical studies conducted through Morocco, as well as with Ibn Al Baytar's compendium.

Methods: A survey was carried out in North-eastern Morocco between 2015 and 2017, including 931 informants (887 ordinary inhabitants and 44 herbalists). An ethno-guided approach based on semi-structured interviews was used. Data obtained was analyzed through the Number of Citations (NC), Use Value (UV), Family Use-Value (FUV), Informant Consensus Factor (ICF), and Jaccard similarity Index (JI).

Results: A total of 283 species regrouped in 80 botanical families were recorded. The most represented family is Asteraceae. The highest use value (UV) was attributed to *Allium sativum* L. (UV=0.23), and the highest Family Use Value (FUV) was assigned to Amaryllidaceae (FUV=0.116). Considering the Informant Consensus Factor, the highest values of (ICF) were recorded for digestive problems (ICF=0.56). Comparatively, the high similarity in Morocco was observed with the Ksar Lakbir district (JI=37.1). Historically, 73.5% of the plants recorded in this study were mentioned in Ibn Al Baytar's compendium.

Conclusion: The results of this study show that the local population used plants extensively as medicine. This means that the plants used locally are a primary component of a distinct cultural domain in ancestral medical knowledge.

Keywords: Northeastern Morocco, Medicinal plants, Use value, Jaccard similarity Index, Informant Consensus Factor

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Background

Northeastern Morocco is a particularly interesting region due to its geographical position and the sociocultural of the local population. The closeness of this area to the Mediterranean Sea and the mountains of Beni-Snassen and Rif created an exceptional biogeographical context in which various bioclimatic conditions can be noticed. The area encompasses a small region, including the high

altitude of Rif's Mountain in the north with a sub-humid climate, while the semi-arid, arid, and Saharan climates dominate the rest of the area. Such complex features have ensured an extraordinary richness in biodiversity with remarkable floristic landscapes and various endemic plant species that have contributed to the development of ethnobotanical traditions.

Due to its location, this region constitutes the eastern gate of Morocco; it has the privilege of being an intersection bridge of cultural and economic exchange through time between the African continent, the Arab-Muslim world, and Europe. This multiplicity is mirrored in the country's pluralistic medical system and beliefs covering illness and health concepts. The use of plants as medicine is an integral part of this region's biocultural diversity, resulting in the traditional medical system pluralism (Martinson 2011). This strong attachment to traditional medicine is currently due to the low level of socio-economic status of most people, the lack of medical infrastructures, and the poor indicators of well-being and health, especially in rural areas (Alami Merrouni & Elachouri 2021). Historically, people of North-eastern Morocco have developed an empirical health care system knowledge with medicinal plants by the accumulation and mixture of culture that originates from various ethnicities settled or traveled across the region through the time, including Arabs from the Middle East, the Andalusians, Jews from Europe, and the Blacks from Sudan, Senegal, and Niger. The classical Arabic texts on *Materia Medica* indicated that the advancement for medicine was shaped by names of Arabo-Muslim scholars such as Ibn Zuhr (1094-1162 CE), Averroes (1126-1198 CE), Maimonides (c.1138-1204 CE), or Ibn Al-Baytar (1197-1248 CE). This knowledge is becoming popular and widespread in Morocco and has a rich and vibrant history, enriched with various documented uses of plants (Elachouri 2018). However, most of the ethnobotanical studies conducted in Morocco overlooked the richness and accuracy of historical sources and ignored their probable influence on developing today's local traditional medicines in this country.

Unfortunately, this cultural heritage, enjoyed by the local population, is threatened with extinction. The decline of these Phyto-therapeutic practices and the degradation of the Phyto-genetic resources are due to several factors, mainly urbanization and climatic hazards. Additionally, the holders of information on medicinal plants (herbalists and traditional healers) had kept scant records, and their information is passed on, mainly verbally, from one generation to the next. Furthermore, the lack of documentation databases related to traditional medical practices

and the scarcity of the ethnobotanical information archive exacerbate this natural and cultural patrimony loss. Therefore, ethnobotany and ethnopharmacology in Northeastern Morocco need more ethnobotanical studies, applying quantitative methods for compiling lists of useful plants or just medicinal ones and understanding the rational and cultural sets behind these uses.

In this respect, we undertook an ethnobotanical investigation, using a new approach, including guided field, considered the best technique, allowing for new ethnobotanical information and observing the plants in situ (Albuquerque & Lucena 2004). based on semi-structured interviews coupled to a method consisting of visiting the new sites not visited previously. In the context of the current interest, we raise the following questions and hypothesis:

1. Are there any medicinal plants and therapeutic uses not documented yet in North-eastern Morocco?
2. Does the population of this region use similar or different medicinal plants compared to the rest of the country?
3. Does Ibn Al-Baytar's compendium document the traditional medical practices that influenced local traditional medicine?

Materials and Methods

Study area

The study was conducted in North-eastern Morocco, including eight province districts (Figure 1) with a total of 90 130 Km² (12% of the national territory). The study area is comprised between the latitudes 33° 30' 39.567" N and 33° 36' 19.969" N and the longitude of 5° 48' 19.314" E and 5° 55' 39.317" E. According to the national census report published in 2014, the population in this region reached 2,314,346 (6.8% of the national population) with a density of 26 persons per square kilometer. The dominant language in this region was dialect Arabic. In the second position, we found the berbère language, which is subdivided into two dialects, with low proportions; *Tarifit* in the north of the region (Driouech and Nador provinces) and *Tashelhit* in the south (province of Figuig). The region includes the mountainous area of Beni-Snassen, Rif, and Horst, culminating respectively to 1800 m, 1500 m, and 1100 m, while the coastal area is 200 km of Mediterranean coastline as the vast High Land and Sahara characterize its south area. These geographical features provide the region with a Mediterranean climatic zone that is characterized by hot and dry summers while winters are more cool and wet with average rainfall between 100 mm per year in the South (Saharan bioclimatic zone) and 400mm per year in the North (Influenced by the Mediterranean Sea). Additionally, the region

encompasses several Sites of Biological and Ecological Interest (SBEI) and protected areas such as Benisnassen, Jbel Gorougou, Cap des Trois Fourches, Chekhar, Lalla Chafia, Lalla Mimouna,

and National Park of Al Hoceima. These sites had already been identified for their original flora and their biological and ecological qualities (Fennane 2004, GEF 2000).

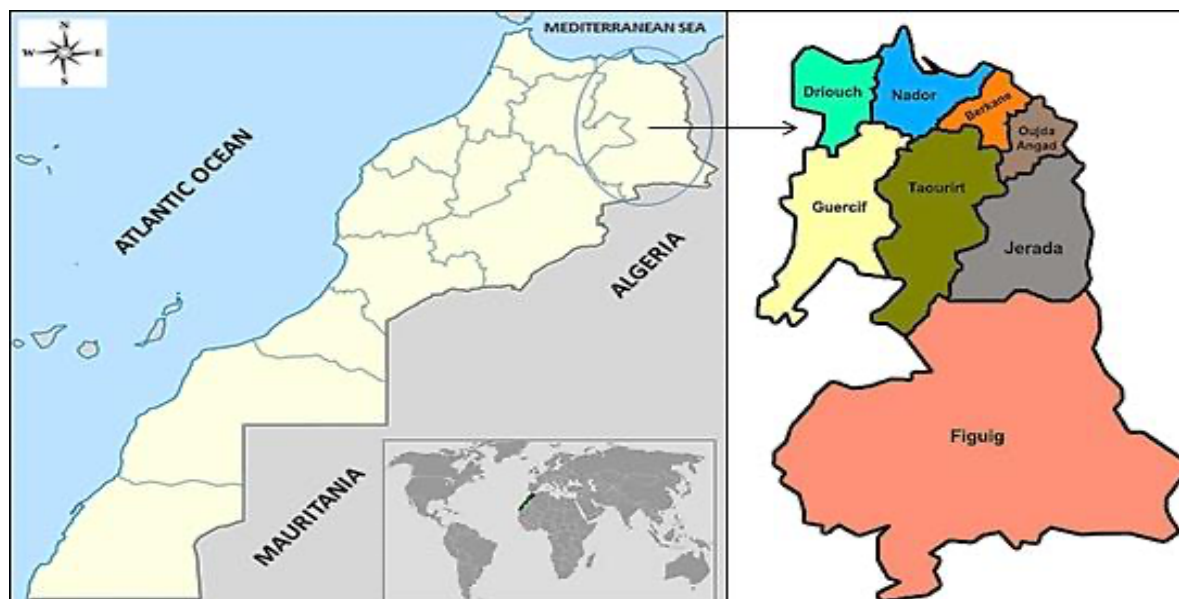


Figure 1. Geographical position of the study area

Study sites and informant selection technics

The sampling device of this study formed multi transects from the top to the bottom of Northeastern Morocco, including Al Hoceima, Driouech, Nador, Berkane, Ahfir, Saidia, Jerada, Oujda, Debdou, Bergem, Figuig, and Bouaarfa. Twenty-six sites were surveyed between 2015 and 2017. Each study site visited was located with the Global Positioning System (GPS); afterward, the geographical positions were converted to a map using Geographic Information System (GIS) tools. The study region was divided into three zones: North (S1 to S16 + S26), Center (S17 to S20 + S25), and South (S21 to S24) which correspond to the number of stations (Table 1 and Figure 2).

To obtain essential ethnobotanical information, collect the medicinal plants, and gather their use indications, the conducted survey used an ethno-guided approach based on semi-structured interviews and guided field tours. This technique involves visiting the sites considered in this work with one or more informants to observe the plants cited and collect samples for posterior botanical identification (Albuquerque & Lucena 2004).

The interviewers were selected with a purposive random sampling technic (probability). This adopted approach combines ethnobotanical interviews and guided tours with some interviewees (spread in the different study sites, voluntarily accepted to monitor the guided tours), which helped us to discover the various medicinal plants in the studied sites and to

grasp the maximum of information related to these plants and their uses. The interview guide is divided into two major parts. The first one is related to the informant profile (demographic characteristics), while the second part is about the therapeutic indications concerning the used plants. The interviewers were asked in their local language (Arabic Darija or Amazigh language). The interview transcripts were made by specialists and were translated from Arabic and Amazigh dialects to English to reflect, as much as possible, their contents and be faithful to the data gathered. Essential information was recorded, such as vernacular names (Arabic/Amazigh names), their nature (Spontaneous, Cultivated or Imported), medicinal uses, parts used, and mode of administration (Annex A). Finally, each specimen was collected and deposited in the Herbarium called "Herbier Université Mohamed Premier Oujda Maroc" (HUMPOM) at University Mohamed Premier Oujda Morocco.

Collection of plant species

During the interview process, plant samples were collected from the 26 sites concerned by our study, and each collected species had been georeferenced to define its existence in a physical space (Hill 2006). Firstly, and for scientific identification, including classification purposes, photographs were taken before the plants were picked. Secondly, during the picking, the geographical location (altitude and geographical coordinates) of each collected species was recorded using GPS (Global Positioning

System), following the latest revision:WGS 84 (World Geodetic System 84). Then, the whole or a part of the picked plants were pressed with a plant press

and dried adequately in the laboratory. A voucher number was assigned to each specimen and deposited in Herbarium "HUMPOM."

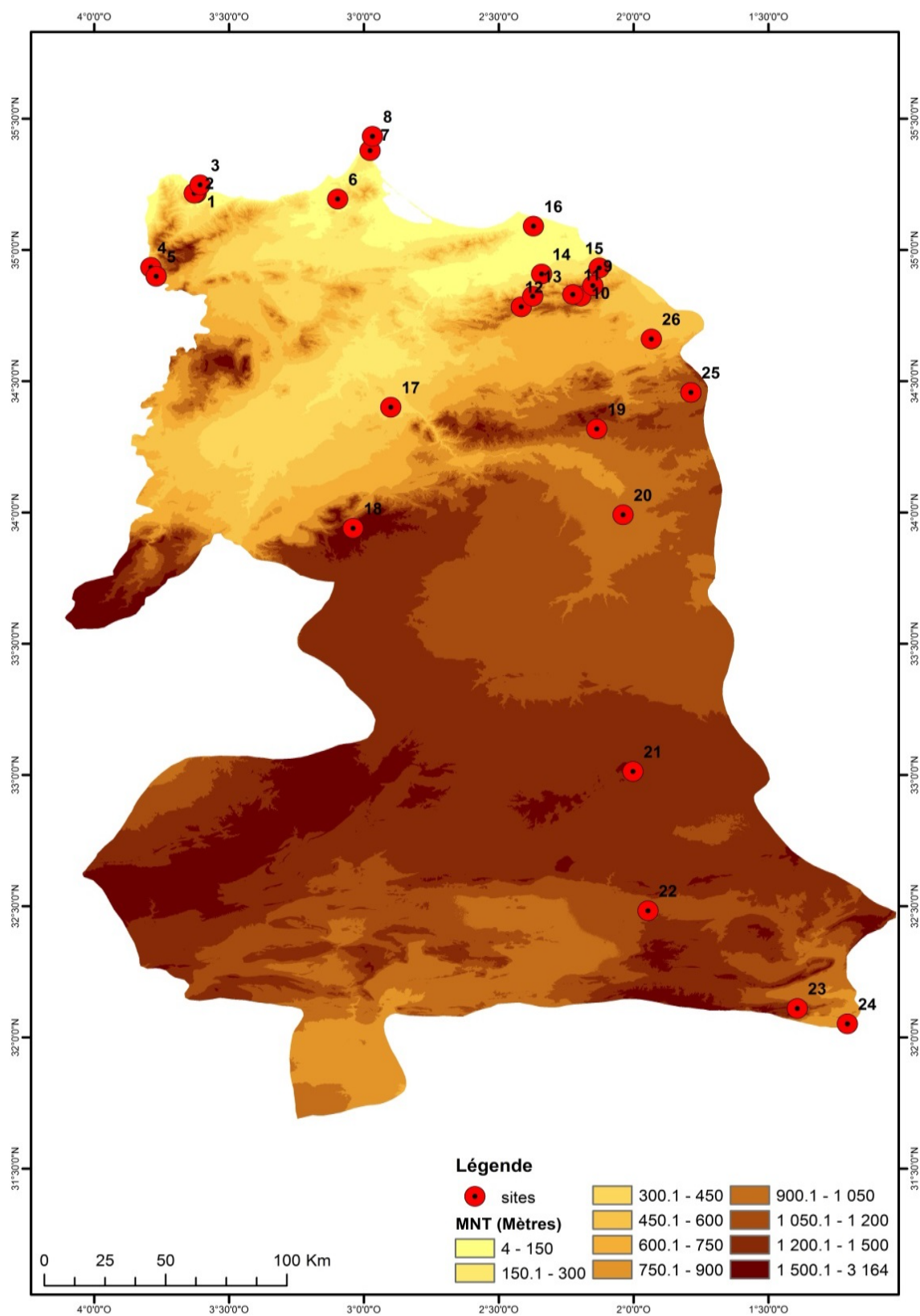


Figure 2. Map of the study area showing the Geographical Position of each visited station. Image adapted using GIS Software

Identification and systematization of plant materials

At the laboratory, all data was processed and analyzed. Concerning the vernacular nomenclature, we transcribed all the retained words in Latin characters based on the collected data, and they were then translated into English with the help of translation experts. The scientific nomenclature of plant species was determined and verified by a professional taxonomist/botanist using live specimens and photographs. Moreover, to identify plant species' accuracy, we referred to technical documents related to Moroccan flora (Fennane *et al.* 1999, 2007, 2014). Afterward, to identify the origin of the plants and their ecological distributions, rarity, and endemism, we referred to the recent lists of native Moroccan flora produced by specialized references (Fennane & Rejdali 2016, Fennane & Ibn tattou 1998, Rankou *et al.* 2013). It is worth mentioning that the scientific names listed in this paper are updated to the currently accepted names according to the following database: Catalogue of Life:2019 Annual Checklist (<https://www.catalogueoflife.org/col/>).

Data analysis

To analyze the obtained results from our ethnobotanical investigation, we adopted a quality-quantitative analysis by using statistical parameters and ethnobotanical indexes such as Use Value (UV), Family Use Value (FUV), Informant Consensus Factor (ICF), and Jaccard Index of similarity (JI).

Use value (UV)

To assess the relative importance of plant species used as medicine in the study area, the use-value was calculated following the formula suggested by (Phillips & Gentry 1993):

$$UV = \sum U/N$$

Where:

UV= use value of species

U= number of use reports for a given species

N= total number of informants

The Family Use Value (FUV):

To evaluate the relation between the botanical families and users of species belonging to these families, we used the index named Family Use Value (FUV) which equals the average total use-value for each species in the family (Hoffman & Gallaher 2007).

$$FUV = \sum UV/n$$

Where:

FUV: family use value

UV: use value of the species belonging to the family

n: number of species in the family.

Informant Consensus Factor (ICF):

To know about the agreement in the use of plants listed in this paper, we applied the following formula (Heinrich *et al.* 1998):

$$ICF = (Nur - Nut)/(Nur - 1)$$

Where:

Nur: is the number of use-reports for a particular ailment category.

Nut: is the number of plants species used for a particular ailment category by all informants.

Jaccard similarity Index (JI):

To determine the percentage of similarity and diversity of plant species recorded in our study compared to other regions inside Morocco, we used the JI (Jaccard Index). Jaccard Index may be expressed as follows (González-Tejero *et al.* 2008):

$$\text{Jaccard Index} = \left[\frac{C}{A + B - C} \right] \times 100$$

Where:

A is the number of species of sample A, B the number of species of sample B, and C is the number of species common to A and B.

The formula considers the similarity between the two areas of study as the number of shared medicinal plants divided by the total number of medicinal plants present in both. Conceptually, the Jaccard index is a percentage of how many plant species each set has in common with another set out of how many species they have total.

It is worth noting that the ethnobotanical studies used for this comparison were selected according to the following three criteria:(1) they must have been conducted in Morocco, (2) the species listed must be the results of ethnobotanical fieldwork, i.e., not from bibliographical revisions, and (3) studies must provide the collection of voucher specimens deposited in the recognized herbarium and correct botanical names (Bennett & Balick 2014; Rivera *et al.* 2014).

Kilometric distances (for the comparison study)

To know about the variation of the use of medicinal plants throughout the space, we attempt to evaluate the percentage of the similarity and the kilometers distances between our fieldwork and other ethnobotanical studies carried out in different regions of Morocco. We calculated the kilometric distances (as Straight line) based on "Google Maps" and taking three points, arbitrarily, as benchmarks in each zone of study; Al Hoceima in the North, Oujda in the Center, and Bouaarfa in the South (Figure 3).

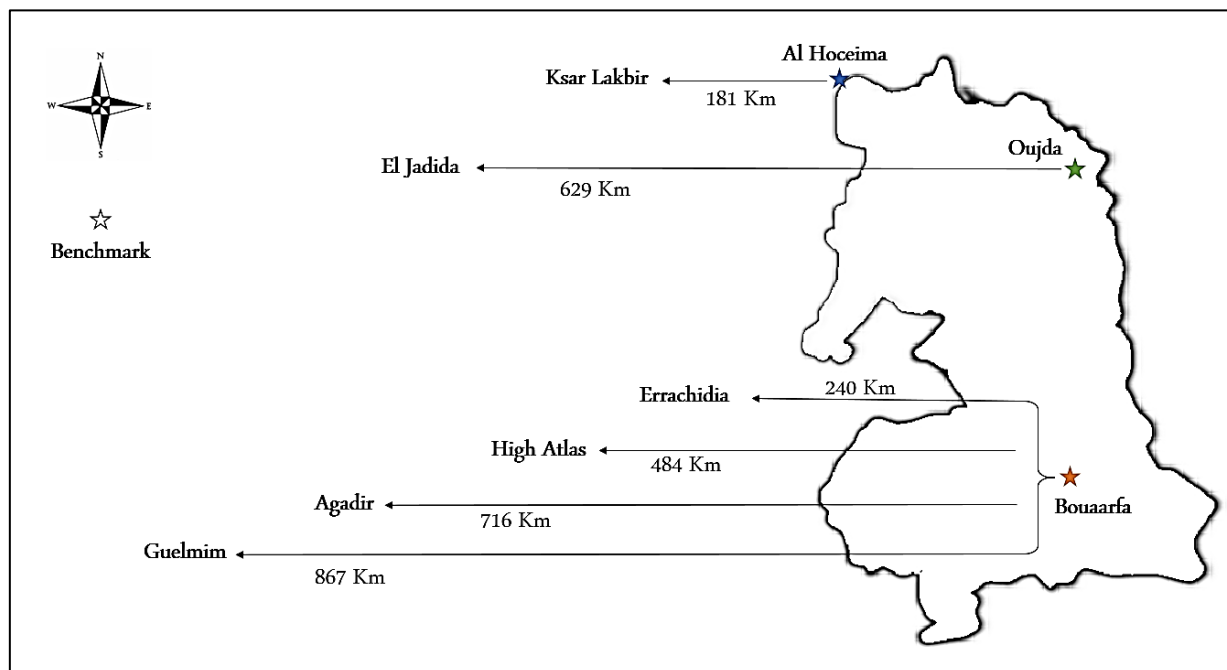


Figure 3. The kilometric distances between three benchmarks and the regions considered for comparison

Classification of diseases

An alternative classification system accepted by the World Health Organization (WHO), International Classification of Primary Care (ICPC) second edition by the Wonca International Classification Committee (WICC) was adopted in this work with some minor modifications. This classification is closer to ethnomedical reality (Staub *et al.* 2015). Available online: (<http://www.who.int/classifications/icd/adaptations/icpc2/en/>). Categories of ailments and their symptoms and complaints available in English version

online: (http://docpatient.net/3CGP/QC/ICPC_desk.pdf).

Historical analysis: Nomenclature and taxonomical issues

To compare our data with historically recorded plant species, we used the French edition (Leclerc 1877) of the *Compendium of Simple Drugs and Food* by Ibn al-Baytar (al-Jami' li-Mufradat al-Adwiyawa'l-Aghdhiya).

The French edition of the "Compendium of Simple Medicaments and Foods" presents a significant list of botanical plant historically mentioned by Ibn Al-baytar, gathered in alphabetical order and provided much information related to each plant species such as their origin, common names in Arabic, Berber, French and Latin languages, scientific name, besides the classification number for each plant species. Even that, is still challenging to identify and confirm the complete similarity between the plant names presented in this work and Ibn Al baytar's

book, especially for some cases, where the translated version (Leclerc 1877) provides the plant name only with the genus, and or mentioned only the vernacular name. The similarity of the current scientific names with ancient texts is not easy, as many authors pointed out, including the Ibn al-Baytar translator (De Vos 2010, Leclerc 1877).

Results and Discussion

Sociodemographic profile of informants

A total of 931 respondents were interviewed, including expert and knowledgeable informants (those who have more information about medicinal plants and their uses), 44 herbalists "Ahab" and 887 ordinary informants (including 51 guided-field monitors) having a relatively low knowledge about medicinal plants (Table 1). The age range of respondents was between 20 and 75 years old, with an average age of 52 years. The gender ratio was female-dominated with 53%, while the male rate represented 47% (Table 2). Indeed, in the study area, the interviews showed that women and experts in the sector (herbalists) are remarkably competent and possess much more excellent knowledge about native plants. This could be justified by the fact that the majority of women acquired the traditional medical knowledge from each other during the wedding ceremonies or meeting in the Turkish bath "Hammam," also because women prepared herbal soups and infusions as treatment for many diseases, which are one of their household tasks in the Moroccan traditional families, as being responsible for the well-being of the entire family. Moreover, the traditional recipes of Moroccan cuisine are rich in

plants for taste and their believed benefits for health. At the same time, herbalists hold these traditional practices from their experiences (Bellakhdar *et al.* 1991, Merzouki *et al.* 2000). Previous studies confirm our observation in other regions of Morocco, where indigenous knowledge on the use of medicinal plants is kept by these two groups and specialists in the sector (Eddouks *et al.* 2017, El Hachlafi *et al.* 2020, Hachi *et al.* 2016, Merzouki, *et al.* 2000).

Furthermore, our results show that many respondents were illiterate, representing 47.5%, followed by 26.3% of informants who attended primary school, while 21.6% attended secondary school and only 4.6% the university (Table 2). Similar profiles were observed in other studies in different regions of Morocco (Eddouks *et al.* 2002).

Table 1. Number of informants for each station

Province	Stations		Number of informants	
	(a) Rural;	(b) Urban	Population (M)*	Herbalist
Driouech	S1	Boaawin (a)	54 (3)	2
	S2	Tizza (a)	40 (1)	0
	S3	Imazakan (a)	47 (3)	0
	S4	Tssafi (a)	24 (3)	0
	S5	Kassita (b)	25 (3)	3
Nador	S6	Jbel Gourorou (a)	21 (2)	0
	S7	Cap 3 fourches (a)	15 (2)	0
	S8	Le Phare (a)	9 (1)	0
Berkane	S9	Taghajirt (a)	36 (2)	1
	S10	Tinisan (a)	42 (3)	2
	S11	Ain Almou (a)	36 (2)	0
	S12	Tafoughalt (a)	45 (3)	4
	S13	Zagzal (a)	30 (3)	0
	S14	Berakne (b)	50 (0)	4
	S15	Ahfir (b)	30 (0)	3
	S16	Moulouya (a)	18 (1)	0
Taourirt	S17	Taourirt (b)	50 (0)	4
	S18	Debdou (a)	36 (3)	2
Jerada	S19	Jerada (b)	45 (0)	3
	S20	Ain Benimathar (a)	24(3)	0
	S21	Tendrara (a)	37 (3)	2
	S25	Touissit (a)	18 (2)	0
Figuig	S22	Bouarfa (b)	25 (2)	2
	S23	Abo Lakhhal (a)	20 (3)	0
	S24	Figuig (b)	40 (3)	6
Oujda-Angad	S26	Oujda (b)	70 (0)	6
Total	26 stations		887 (51)	44

*(M): number of the field guide monitors per station.

Table 2. Socio-demographic population in northeastern Morocco

Socio-demographic variables	Categories	Percentage (%)
Gender	Male	47
	Female	53
Age (years)	20 - 35	14
	35 - 55	66
	55 - 75	20
Habitat	Urban	39.3
	Rural	60.7
Study level	Illiterate	47.5
	Primary	26.3
	Secondary	21.6
	University	4.6

Ecological status and Growth form of plant species

This ethnobotanical inquiry, among the population and traditional healers, carried out in the 26 sites within the study area, allowed us to inventory a total of 283 plant species, representing 31% of Moroccan medicinal plants (905 species) according to the last published work conducted by our team (Fakchich & Elachouri 2020). This group of plants includes 166 spontaneous species growing naturally in the area of study (59%), 96 plant species cultivated in home gardens or commercial crops (34%), and 21 plant species imported (7%). These results show that the number of spontaneous medicinal plants is higher than the cultivated and the imported. The remarks drawn from these findings are that the local people have not yet started cultivating most of the plant species used for medication. Also, we assume that people living in this region of Morocco have a great attachment to their environment for alleviating their ailments. This ascertainment was already mentioned by (Yabrir *et al.* 2018) in their field study conducted in the Djelfa region (Algeria).

Regarding the ecological distribution, we found that 12% (20 plant species) were endemics, 7% (12 plant species) were considered as very rare, 4% (7 plant species) rare, 3% (5 plant species) suspected rare, 1% (2 plant species) taxon on extinguished or dubious presence, 1% (2 plant species) vulnerable (or seemingly) which are in decline and could become rare at short term. In contrast, the remaining species, representing 83%, are abundant. Also, the results show all life forms, but within variable proportions; approximately 28.3% phanerophytes, 25.8% therophytes, 15.8% hemicryptophytes, 15.6% chamaephytes, 14.1% geophytes, and 0.4% hydrophytes. Herbaceous life form was dominant with 69%, followed by shrubs (16%) and trees (15%).

The reason for herbaceous dominance in the study area might be the easy availability resulting from abundant growth in wild habitats. Less tree percentage might be due to geographic and climatic factors. These results were verified by checking the ecological and botanical most specialists' resources available in Morocco (Fennane *et al.* 1999, 2007, 2014, Fennane & Ibn tattou 1998, Fennane & Rejdali 2016, Rankou *et al.* 2015).

The local informants reported that most of the practitioner healers (Herbalists) use herbs against diseases due to their easy availability. Inline results were found from other researchers on medicinal plants conducted in Ethiopia (Giday *et al.* 2003, 2007), Nepal (Uprety *et al.* 2010), Swat, Pakistan (Akhtar *et al.* 2013), and Karak, Pakistan (Rehman *et al.* 2015). They reported the herbaceous life form as the dominant one for medicinal purposes. Taking into account the statistical point of view by matching the local medicinal flora recorded in this paper with national vascular flora inventoried, we can argue that the number of medicinal plants recorded by our team represents only 5.9% of total Morocco's vascular flora, which accounts for about 4800 species, according to the latest statistics published works (Fennane & Rejdali 2018). Owing to this finding, we can note that local medicinal flora is not well explored on a national scale. No percentage can be estimated regarding the local flora until the flora at the regional level has been determined.

Medicinal plants and species composition

The results regrouped in a table (Annex A) showed that 283 medicinal plants belonging to 224 genera and 80 families with 1720 use reports were recorded. The medicinal plants on file were unevenly distributed in the 26 study sites visited (Figure 2). The plants listed were arranged in alphabetical order

of families using the scientific names (Family, Species and number of Voucher specimen), Local/Vernacular names (Arabic and/or Amazigh), Localization (GPS), Life forms, Ecological status, Herbaceous life forms, Traditional uses (use reports), Parts used, Mode of preparation, Use value (UV), Family Use Value (FUV) and Number of citation (NC) for each plant species (Annex A). The dominated families (Figure 4) are Asteraceae (9.5%) followed by Apiaceae (8.8%), Lamiaceae (7.4%),

and Fabaceae (7%), while the other represented families are Rosaceae, Poaceae with 3.5 % each, Solanaceae with 3.2%, Euphorbiaceae, Brassicaceae and Asparagaceae with 2.8% each. The remaining 70 families represent 57.8% of the total. Note that some families contained less than three species (e.g., Aristolochiaceae), and others are only represented by a single species (e.g., Apocynaceae).

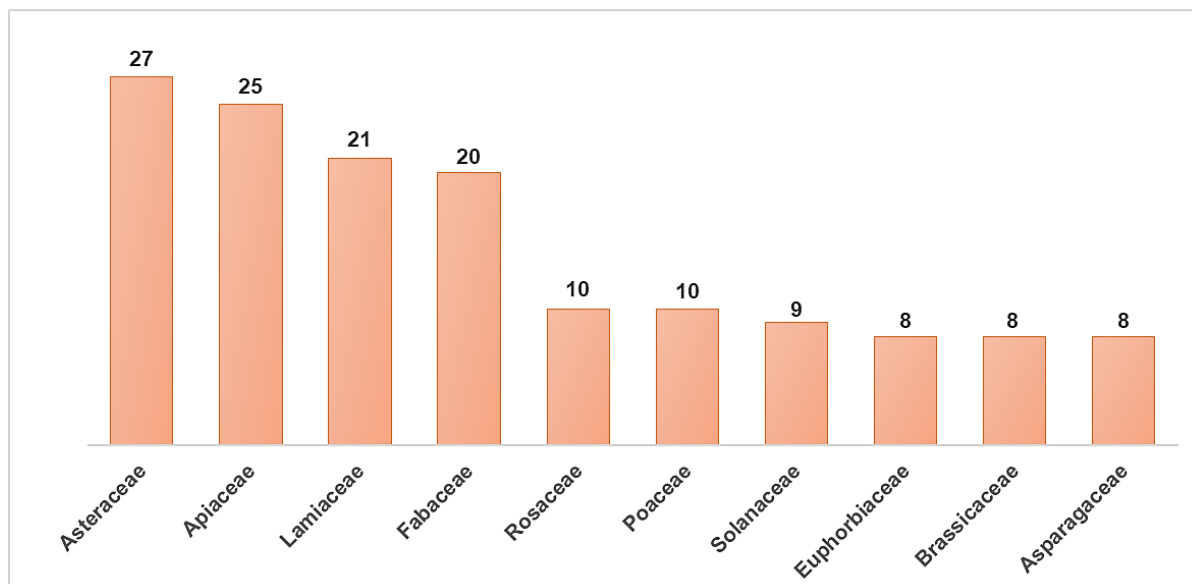


Figure 4. Dominant botanical families

The predominance of the four families: Asteraceae, Apiaceae, Lamiaceae, and Fabaceae was already mentioned in other ethnobotanical studies carried out in other regions of Morocco (Barkaoui *et al.* 2017, Belhaj *et al.* 2020, El Hachlafi *et al.* 2020, Es-Safi *et al.* 2020, Fakchich & Elachouri 2014).

The top position of these families (according to the number of species cited) could be justified because they regroup the widely spread and most studied plant species in Morocco (Alami Merrouni & Elachouri 2021, Alves-Silva *et al.* 2017, Bouyahya *et al.* 2020). In fact, according to the National Study on Biodiversity Synthesis Reports, published in 2001 (Franchimont & Saadaoui 2001), these botanical families are in the lead of the specific wealth of the nine first families of the Moroccan vascular flora.

Plant parts used

As indicated in figure 5, the leaves are the most commonly used parts in medical preparation, with a percentage of 21.4%, followed by fruits (12.2%), whole plant (12.1%), seeds (10.7%), roots (10.4%), flowers (7.9%), aerial part (7.3%), stem (4.6%), cortex (3.4%), rhizome (2%) and others (8%). The predominance of leaves used in traditional remedies corroborates with several studies conducted in other works in various regions inside Morocco (Eddouks *et*

al. 2017, El Hachlafi *et al.* 2020, Es-Safi *et al.* 2020) or foreign countries such as the northeast and northwest of Algeria (Benarba *et al.* 2015, Bouasla & Bouasla 2017) and Tamul Nadi in India (Parthiban *et al.* 2016). The frequent use of the leaves could be explained by the “ecological appearance,” which means that the more salient a species is, the more likely that it will be used (Johns *et al.* 1990), the abundance, the availability of this part of the plant, as well as the ease of its harvesting (Sargin 2015; Yemele *et al.* 2015). Furthermore, the harvesting of these organs is relatively a sustainable practice compared to the utilization of other parts of the plants, like roots and stem. Roots harvests could contribute to the extermination and vanishing of the plants. The predominance of using a specific organ, such as leaves, compared to another in the therapeutic domain is strongly linked to its concentration of active ingredients (the leaf is the principal seat of photosynthesis). The use of particular plant parts suggests that these parts have very efficient secondary metabolites with medicinal properties.

Modes of preparation

Different drug preparation from medicinal plants used by the local population included decoction, infusion, powder, fumigation, poultice, maceration,

and cooking (Figure 6). The mode of preparation is related to the type of use (external or internal); for example, massage or mask uses are applied externally, while decoction, infusion, maceration, and the other modes are used internally. Our survey demonstrates that the decoction constitutes the highest type of preparation form with a percentage of 30.5%, followed by infusion (22.5%), powder (20.2%), raw (6.2%), cataplasm (6%), and maceration (5.7%). The other preparations such as

a poultice, fumigation, preparing juice, and mixed in honey represented a cumulative percentage of 9%. This finding corroborates with other studies carried out in other regions of Morocco (Belhaj *et al.* 2020, El Hachlafi *et al.* 2020, Es-Safi *et al.* 2020). Most drug preparation methods used water as diluents (El Abbouyi *et al.* 2014; El Hachlafi *et al.* 2020; Es-Safi *et al.* 2020). On the other hand, others are prepared based on some foods such as milk, olive oil, and honey (Abouri *et al.* 2013).

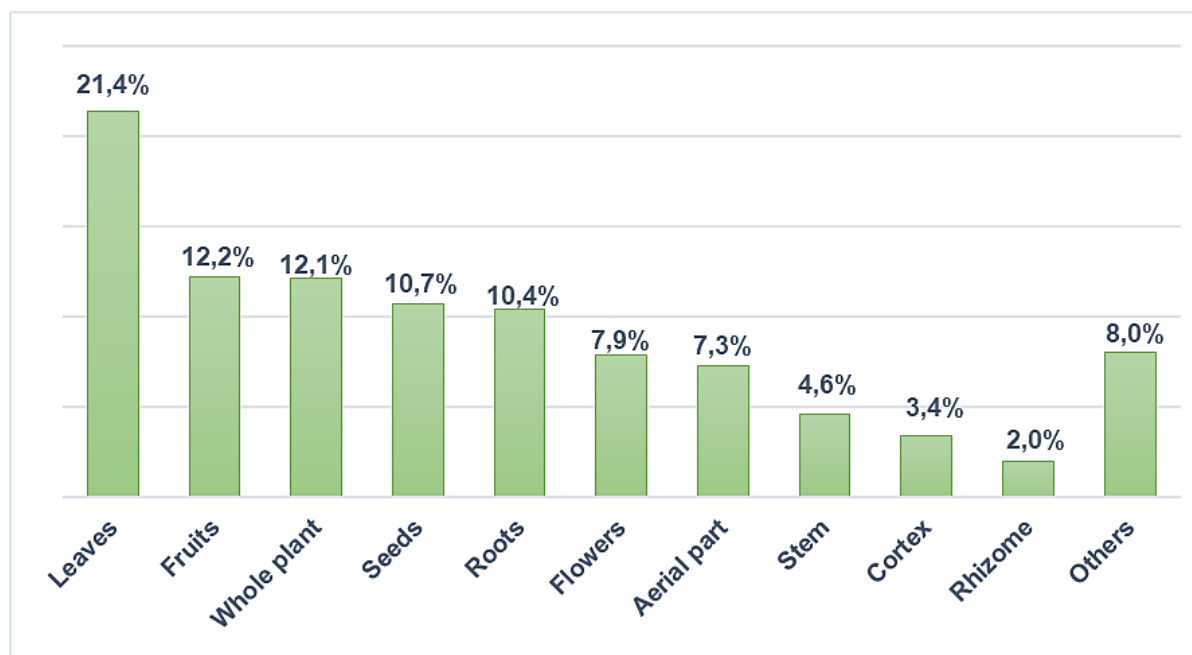


Figure 5. Percentage of the different used parts

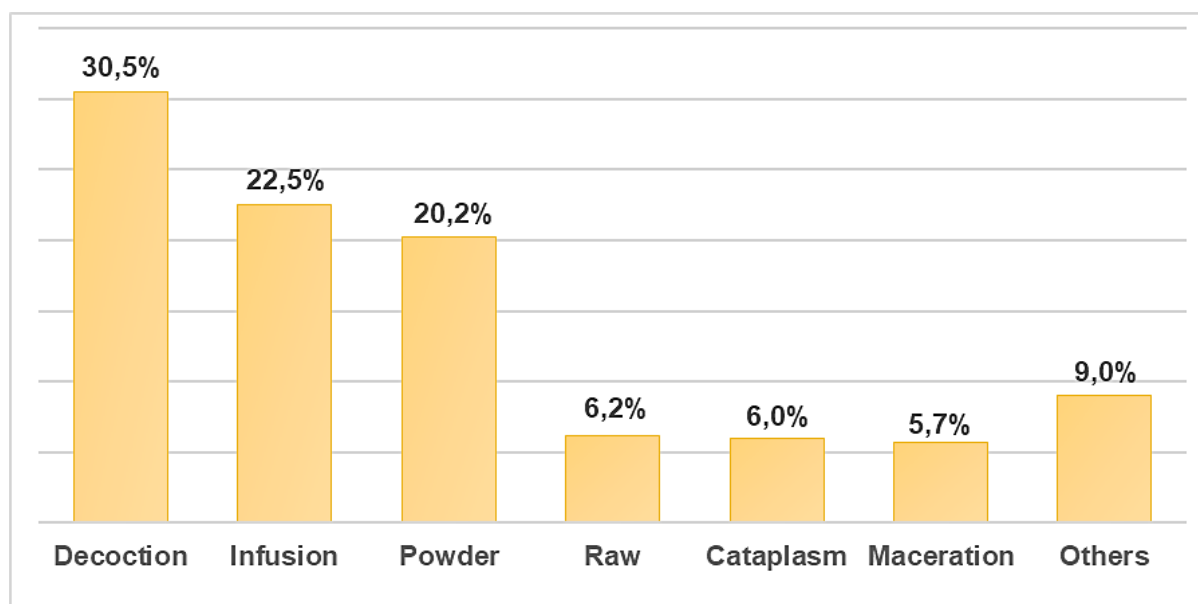


Figure 6. Percentage of different mode of preparation

Toxicological evidence

The use of medicinal plants is not always benign and can cause toxicity in some cases. The use of these plants faces many problems related to these herbs' safety, which could negatively affect health. As mentioned in our team's previous works, 89 of the plants listed in this paper (31%) have potentially unexpected effects to cause toxicities and/or interacting with prescribed medications or other chemical compounds. Detailed information on these toxic plants' potential toxicity has been documented by our team in previously published works (Kharchoufa *et al.* 2018, Yamani *et al.* 2015). Knowing that the traditional phytotherapy sector is excluded from the national health system in Morocco, the medicinal plant sector was not regulated nor controlled. In such a situation, the recklessness of medicinal plants' use remains a potential danger that threatens public health.

The use value (UV)

The preference of the local population to use some plants more than others in treating different ailments is confirmed by the Use Value (UV). The high score of this index reflects the importance of the plant considered. The results of this parameter were presented in a table (Annex A), with values limited between 0.23 and 0.0011. The high value (UV= 0.23) was attributed to *Allium sativum* L., followed by *Rosmarinus officinalis* L. (UV=0.19), *Dysphania ambrosioides* (L.) Mosyakin & Clemants (UV=0.16), *Olea europaea* L. (UV=0.15), *Trigonella foenum-graecum* L. (UV=0.13), *Ricinus communis* L., *Mentha pulegium* L. with (UV=0.12), *Allium cepa* L., *Origanum majorana* L., and *Lavandula stoechas* L. with (UV=0.11). While, the lowest values of UV were assigned to 27 plant species, including *Fagonia cretica* L., *Searsia tripartita* (Ucria) Moffett, and *Picris asplenoides* L. with UV= 0.0011.

The results indicate that the plants with high use-value denoted high use reports contrariwise to the species with low use-value, which indicates that the plant had few use reports and therefore was less preferred by the local users.

The high score (UV=0.23) of *Allium sativum* L. justified the importance of this species. Garlic is well known in the traditional folk medicine in Morocco to treat various ailments such as digestive disorders, hair loss, diabetes, hypertension, and dermatitis (Barkaoui *et al.* 2017, Eddouks *et al.* 2017, Merzouki *et al.* 2000). In Algeria, garlic is used as antiseptic, antispasmodic, hypotensive, and wormer (Rebbas *et al.* 2012); in Italy, *A. sativum* is used as a hypotensive and wormer (Guarrera 2005), it is also used in Turkey as a hypotensive, wormer, antibiotic and antidiabetic (Güzel *et al.* 2015).

Ranked in the second position, *Rosmarinus officinalis* L. (UV=0.19), a plant native to the Mediterranean region with an important historical story. This herb was considered as a love symbol and used in wedding ceremonies (Heinrich *et al.* 2006). Rosemary is widely used in the traditional medicine of the Mediterranean countries as an appetizer, anticancer agent, intestinal antiseptic, and antispasmodic; it is also used against cold and fever (Guarrera 2005, Güzel *et al.* 2015, Miara *et al.* 2018, Rigat *et al.* 2015).

Dysphania ambrosioides L. (= *Chenopodium ambrosioides* L.), with UV= 0.16. This plant is widely used in traditional medicine around the world. The plant was used to treat many illnesses in Morocco, such as fever, colds, rheumatism, headache, and migraine (Eddouks *et al.* 2017, El-Hilaly *et al.* 2003, Teixidor-Toneu *et al.* 2016).

Olea europaea L. (UV= 0.15) is among the most cited plants in different Mediterranean countries such as Morocco, Cyprus, and Algeria (González-Tejero *et al.* 2008). The Olive tree is considered a symbol of the Mediterranean region. *O. europaea* is traditionally used to treat diabetes in Turkey (Bulut & Tuzlaci 2013), while in Spain, this plant is used against hypertension (González *et al.* 2010).

Trigonella foenum-graecum L. (UV= 0.13) is one of the medicinal plants commonly used in traditional therapy in Morocco to treat various illnesses such as diabetes, rheumatism, and fever; also, the fenugreek is used to treat cardiovascular, gynecological, respiratory, and gastrointestinal problems (Eddouks *et al.* 2017, Teixidor-Toneu *et al.* 2016).

Ricinus communis L. (UV=0.12) has been widely used in traditional phytotherapy across the world. In Iran, *R. communis* is used for digestive disorders such as emetic and against diarrhea and abdominal pains (Sadat-Hosseini *et al.* 2017). In Turkey, this herb is used to treat hair loss (Güzel *et al.* 2015), while in Brazil, the castor bean is used as a remedy against allergies and wound healing (Bieski *et al.* 2015). Our results correlate relatively with some previous works conducted in other regions of Morocco, in which *Allium sativum* L. also has the highest UV (Barkaoui *et al.* 2017). Otherwise, *Rosmarinus officinalis* L. has the highest UV (Eddouks *et al.* 2017) instead of the second-highest UV as presented in the present work.

Finally, the most reported plants with the highest UV values were considered the most cited plants in Morocco, according to the results of the European RUBIA project (González-Tejero *et al.* 2008). This group of medicinal plants was widely used and well known in the Moroccan traditional pharmacopeia.

The botanical Family Use Value (FUV)

Previous ethnobotanical investigations conducted by our team in Oriental Morocco (Eastern Morocco) revealed 60 families of medicinal plants (Fakchich & Elachouri 2014). However, the present work, which was carried out in the same region, but in other districts not previously visited, revealed a patrimony of 80 plant families. Our study revealed that 57% of medicinal plant families were reported for the first time from the study area. Regarding their uses, this justifies in part the novelty of the present study. Comparing the number of families recorded in this paper (80 Families) with those recorded by other ethnobotanical studies carried out in other regions in Morocco: Errachidia province, Tata province, Agadir Ida outanane province, and the El Jadida region, in which the number of families recorded was 69, 56, 53 and 37 families respectively (Abouri *et al.* 2013, Briguiche *et al.* 2015, Eddouks *et al.* 2017, Ouhaddou *et al.* 2014), we can estimate that the area of the present study was endowed with a rich medicinal flora.

Regarding the Family Use Value of the plants recorded in this paper, the results show the high score for Amarillydaceae (FUV= 0.1160) followed by Verbenaceae (FUV=0.1031), Nitrariaceae (FUV= 0.0870), Oleaceae (FUV= 0.0548), Iridaceae (FUV= 0.0515), Lamiaceae (FUV= 0.0485), Ranunculaceae (FUV= 0.0456), Thymelaeaceae (FUV= 0.0430), Amaranthaceae (FUV= 0.0429) and Capparaceae (FUV= 0.0408). Caprifoliaceae, Convolvulaceae, Cynomoriaceae, and Dioscoreaceae (FUV= 0.0011) had the lowest values of FUV among the recorded families.

The highest FUV (0.116) was assigned to the Amarillydaceae, which regroup only three species: *Allium sativum* L., *Allium cepa* L. and *Allium ampeloprasum* L. The high (FUV) value for this botanical family can be explained by the fact that garlic and onion were considered one of the most important cultivated crops of genus *Allium* (Devi *et al.* 2014). Additionally, these plant species are widely used in Moroccan traditional pharmacopeia for multiple therapeutic virtues mentioned above (for *A. sativum*). These herbs are used frequently as food or as a meal ingredient in Moroccan cuisine (i.e., the famous Moroccan salad made from onions, garlic, tomatoes, and olive oil).

Informant Consensus Factor (ICF)

The recorded use reports data have been classified into different ailment categories, based on the International Classification of Primary Care - 2nd Editions (ICPC-2), that we adopted in this study (<http://www.who.int/classifications/icd/adaptations/icpc2/en/>). So, 17 categories of diseases treated traditionally by popular herbal medicine were regrouped in Table 3, including categories of

ailments, the number of use reports for each category (Nur), the number of plants related to the treatment of each category of ailment (Nut), the percentage of taxa (%) and the Informant consensus factor (ICF). As indicated in Table 3, the medicinal plants listed in this paper are endowed with a large diversity of pharmacological properties. According to these results, we noted that the highest values of this index (ICF) were recorded for digestive system problems (ICF=0.56) with 198 plant species (70% of recorded taxa), followed by General and Unspecified diseases (ICF=0.43), Urological diseases (ICF=0.39), Respiratory diseases (ICF=0.37). Illnesses such as Musculoskeletal problems (ICF=0.11) and Male genital problems (ICF=0.07) had the lowest values of ICF.

The high prevalence of ICF value of digestive diseases is in accordance with several studies carried out in other areas in Morocco (Eddouks *et al.* 2017, El-Hilaly *et al.* 2003, Fakchich & Elachouri 2014; Merzouki *et al.* 2000), in Algeria (Benarba *et al.* 2015, Bouasla & Bouasla 2017, Miara *et al.* 2018), and globally in Mediterranean region (González-Tejero *et al.* 2008). These observations could be justified because the digestive system encompasses many organs, like the liver, spleen, stomach, gut esophagus, and intestine. Each one of these organs, when affected, could be assimilated to a digestive problem. The high ICF values for most ailments observed in the present work show homogeneity of informants' knowledge, thereby reinforcing the medicinal properties of the listed plants. Since there was a high consensus among the informants about the use of these plants, their medicinal properties cannot be neglected. A high degree of consensus on the use of these plants suggests that the species likely have high therapeutic potential. Unfortunately, this high population's interest could have a negative spinoff since these species, which are unsustainably harvested, were exposed to a high threat risk.

Cross-cultural analysis

Most ethnobotanical studies focus on the use of medicinal plants within one culture or ethnic group, and little emphasis has been given to the comparison of plant species in various cultures (Heinrich *et al.* 1998). However, traditional knowledge changes over space and time. Therefore, several cross-cultural studies aim to find which parameters explain such patterns by comparing species traditionally used in different regions or countries and which variables explain this culture changes over space and time (Bradacs *et al.* 2011, Eddouks *et al.* 2017, Ellena *et al.* 2012, Ghorbani *et al.* 2012, Heinrich *et al.* 1998, Leonti *et al.* 2009, 2010, Leporatti & Ghedira 2009, Madaleno 2010, Pieroni *et al.* 2011, Söukand & Kalle 2010).

Generally, patterns of medicinal plant knowledge could be determined by both ecological availabilities, which means that the more salient a species is, the more likely it will be used, and cultural factors including language, human cognition, cultural history beliefs, religion, socio-cultural identities, political context, and social networks (Maffi 2005).

In this part of the text, we attempt to assess the importance of the factors influencing the use of medicinal plants by comparing traditional medicinal plant knowledge recorded in this paper with other ethnobotanical studies carried out in other areas inside Morocco. With such an approach, we try to explore the fundament of common traditional knowledge for the medicinal plants used by the local inhabitants.

Plants recorded locally versus plants recorded elsewhere within Morocco

To better understand the use of medicinal plants by different communities, it is interesting to examine the complex interactions of culture, geographic setting, and health experiences. Several studies have focused their investigation in cross-cultural analysis between plants used in various cultures in different parts of the Mediterranean area, including Morocco (Eddouks *et al.* 2017, El-gharbaoui *et al.* 2017,

Heinrich *et al.* 1998; Lardos & Heinrich 2013, Leonti *et al.* 2010). Such comparison is handy in the sense that it leads to the enrichment of traditional medicinal knowledge. To ascertain this assumption, and for performing a detailed cross-cultural analysis between our study and other geographically and culturally distant areas, we attempt to compare the ethnobotanical resources of medicinal interest in north-eastern Morocco with particular attention to the differences and/or similarities between the information known in neighboring regions (Table 4). For this purpose, we calculate the Jaccard Index of similarity (JI) between areas considered according to the plant species inventoried. By this approach, we opted for investigating the divergences and convergences of our ethnobotanical data versus plant species recorded in other works conducted inside Morocco. With such an approach, we could sketch the distribution and diversity of medicinal plants recorded in this paper.

Plant species were compared with the available data from ethnobotanical studies in different regions of Morocco; NW: Ksar Lakbir; SE: Errachidia; W: Eljadia; SW:Agadir Ida ou Tanane province; S:G uelmim province and Center:High Atlas. The correspondent results are presented in Table 4.

Table 3. Informant consensus factor (ICF)

Category of ailments (ICPC-2)	Nur	Nut	% of taxa	ICF
Digestive problems	453	198	70	0.56
General and Unspecified	187	107	38	0.43
Urological	121	74	26	0.39
Respiratory diseases	118	75	27	0.37
Eye diseases	15	10	4	0.36
Skin diseases	183	119	42	0.35
Ear problems	7	5	2	0.33
Endocrine, Metabolic and Nutritional	216	153	54	0.29
Blood, Blood Forming Organs and Immune Mechanism	22	17	6	0.24
Neurological	40	32	11	0.21
Psychological	42	34	12	0.20
Female Genital	29	24	8	0.18
Cardiovascular	114	96	34	0.16
Cancer	20	17	6	0.16
Pregnancy, Childbearing and Family Planning	35	30	11	0.15
Musculo-skeletal	76	68	24	0.11
Male Genital	42	39	14	0.07

- **ICF:** Informant consensus factor
- **Nur:** is the number of use-reports for a particular ailment category.
- **Nut:** is the number of plants species used for a particular ailment category by all informants.

Table 4. Jaccard Index of similarity inside Morocco

	Locality and kilometric		Indices	Jaccard Index	References
	Area	distance from benchmark			
Moroccan regions	Ksar Lakbir District	(NW) 181 km from Al Hoceima	A = 283 B = 186 C = 127	37.1	(Merzouki <i>et al.</i> 2000)
	Province of Errachidia	(SE) 240 km from Bouarfa	A = 283 B = 194 C = 125	35.5	(Eddouks <i>et al.</i> 2017)
	El Jadida	(W) 629 from Oujda	A = 283 B = 102 C = 76	24.5	(El Abbouyi <i>et al.</i> 2014)
	Agadir Ida Ou Tanane Province	(SW) 716 km from Bouarfa	A = 283 B = 110 C = 68	20.9	(Ouhaddou <i>et al.</i> 2014)
	Taidalt village (Guelmim province)	(SW) 867 km from Bouarfa	A = 283 B = 164 C = 31	7.4	(Blanco & Carrière 2016)
	High Atlas of Morocco	(Center) 484 from Bouarfa	A = 283 B = 159 C = 23	5.4	(Teixidor-Toneu <i>et al.</i> 2016)

A: The number of species of our region. **B:** The number of species of each region in Morocco. **C:** The number of species common to A and B. Three benchmarks (Al Hoceima in the North, Oujda in the Center, and Bouaarfa in the South) have been considered references for calculating distances.

The results showed that the highest value of similarity was found with studies conducted in 'Ksar lakbir' district and the province of 'Errachidia' with JI= 37.1 and 35.5 respectively, while the lowest indices of similarity were found in Taidalt Village "Guelmime Province" and High Atlas, with JI= 7.4 and 5.4 respectively. Medium value has been noted in El Jadid and Agadir Ida ou Tanane, with JI= 24.5 and 20.9, respectively. According to these results, at first glance, we could link between the kilometric distance separating the comparative areas (geographical position) and the degree of similarities. The degree of similarity is higher when the study area is closed to our study area, and the opposite is correct.

The high value of the Jaccard index (JI= 37.1) corresponding to "Ksar lakbir," which is located at a distance of 181 km (as the crow flies, taking Al Hoceima as reference). For Errachidia, the distance from Bouaarfa (as reference) is about 240 km; in this case, the value of JI= 35.5. For El Jadida, which is about 629 km from Oujda (as reference), the value of JI = 24.5; The value of JI= 5.4 for the High Atlas which is about 484 km from Bouaarfa, considering

Agadir Ida ou tanane and Guelmim, the JI value and kilometric distances are respectively JI = 20.9/716 km and JI = 7.4 / 867 km. However, the High Atlas represents an exception with a value of JI= 5.4, which seems to be an outlier point (Figure 7), corresponding to the kilometric distance (484 km), relatively low, whereas El Jadida which was far from the reference by 629 km, the value of JI was relatively elevated (JI= 24.5). This discrepancy observed could be explained by the different locations of the regions considered, the orographic position, and the exceptional bioclimate characterizing each area. The region of High Atlas of Morocco, which is situated at a high altitude (culminating summit surrounding 4200m), sheltered a special bioclimate (Mountainous bioclimate), besides, this territory was characterized by its richness on endemic plants with 439 species (49.1% of Moroccan endemic plants) (Rankou *et al.* 2013), which can confirm the dissimilarity of plants used concerning our study area. However, El Jadida, which is located at the edge of the Atlantic Ocean, has an advantage from the maritime influence. These observations indicate that the relationship (JI

- Km) is not always accurate because other factors such as climate and sociocultural parameters may interfere, as with the High Atlas cited above (Teixidor-Toneu *et al.* 2016).

Globally, with such results, we can postulate that the variation in the percentage of similarity might be due to the distance between the study area and other regions in the first place. Secondary, by the homogeneous ecological area, including vegetation

types, climatic conditions, and the sociocultural homogeneity in the regions considered for comparison. Furthermore, it is worth noticing that the sample sizes (number of informants) within the studies considered for comparison may also affect these outcomes. Nevertheless, our finding corroborates those conducted by other researchers (Amiguet *et al.* 2006, Leonti *et al.* 2006, Saslis-lagoudakis *et al.* 2011).

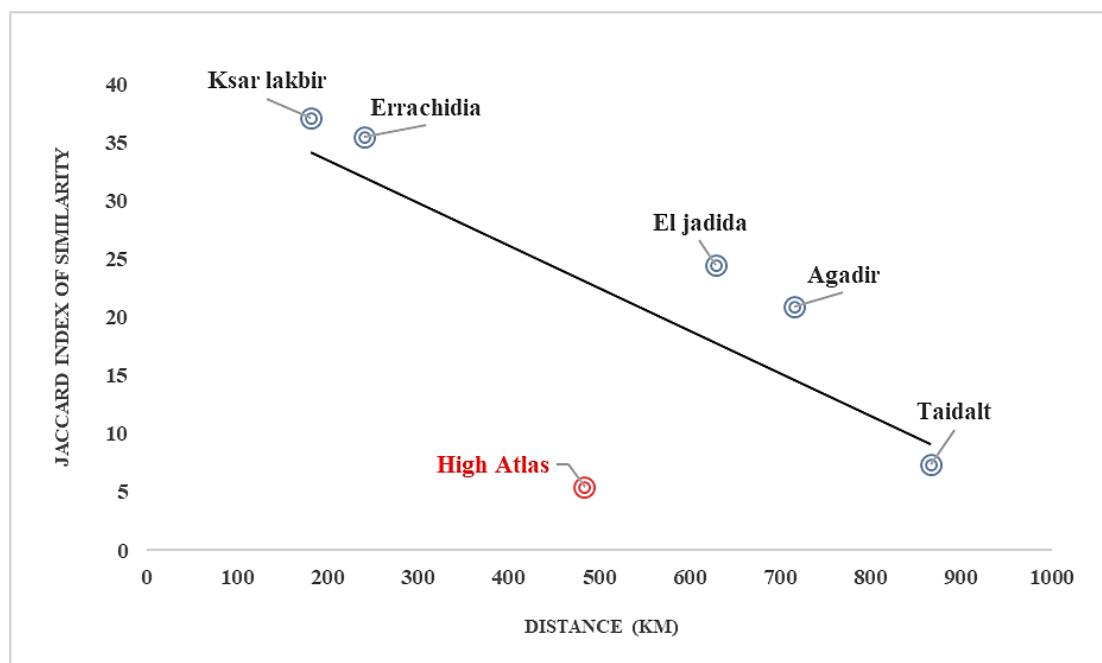


Figure 7. Correlation between Kilometric distances and Jaccard index of similarity

Historical analysis

In this paragraph, we were interested in the knowledge transmission regarding medicinal plants and their uses by local people through history. To fill the gaps between the current and the historical written records of oral medical traditions, we chose Leclerc's translation as a proxy for Ibn Al Baytar's text in three volumes (Leclerc 1877). The document with expertise conveys authority resulting in practical yet qualified interpretations and is easily accessible to readers. With such an approach, we would like to highlight the importance of the analysis of historical texts on the plants used by people in north-eastern Morocco by comparing our data with plants listed in Ibn Al Baytar's compendium, a document representing a valuable bibliographical source for comparison, including a high number of plants used as medicine.

Considering the checklist of the local plant recorded in this paper, with those documented by Ibn Al Baytar, our results showed a congruence of many plant species. Out of 283 plant species reported locally, 208 were documented historically in Ibn Al Baytar's compendium (Annex A), representing 73.5%. A similar finding has been found by El-

gharbaoui (2017), although they were limited in their study only on the botanical family of Lamiaceae.

Among the plants not cited in Ibn Al Baytar's texts, we found species not known at his time which were imported later from Australia (e.g., *Eucalyptus torquata* Luehm.), Japan (e.g., *Eriobotrya japonica* (Thunb.) Lindl.), and America (e.g., *Agave americana* L.), or were out of the reach like endemic and Saharan plants, in addition to some species newly introduced in the Franco-Spanish colonial time. This high correspondence between ancient texts and current local folk traditions prompts us to conclude that many traditional medical practices derive more or less directly from the ancestral Arabo-Islamic civilization. However, we must remain cautious about this hypothesis because of some difficulties with the translation of historical terms for diseases and symptoms into modern biomedical terminology, the technical problems with a straightforward interpretation of Ibn Al Baytar's work for plant identification, and also current scientific names for individual plants do not correspond precisely with Ibn Al Baytar's "kinds" of plants. These parameters could impede such assumption. So, it

must be essential to be cautious with such a conclusion.

Overall, these observations led us to conclude a historical continuity concerning the medicinal plants and their traditional uses. Thus, the historical prevalence of these ancestral Phyto therapeutic uses testified to their past. Throughout this reflection, we can say that the historical written records of oral medical traditions have significantly impacted the development of medicine and the pharmacopeia in Moroccan society, including people living in north-eastern Morocco.

Conclusion

Keeping in mind the importance of medicinal flora, the present work provides the fundamental component of a distinct cultural domain in the ancestral medical knowledge related to medicinal plants in North-eastern Morocco. Also, the survey discusses the gaps in the current state of knowledge on ethnomedicinal plants used by people living in this region. Our results show that traditional medicine still plays a significant role in meeting indigenous people's primary health care needs in this region. We can note that plant wealth documented in this paper deserves great attention, as natural resources should be kept and protected from threatening and endangering factors, especially for the rare and the endemic species, which could enhance the efforts to sustain these species. The current paper (Part I) regrouped scientific ethnobotanical information on 283 medicinal plants used by people living in Northeastern Morocco. In the second paper (Part II), which is currently in preparation, we attempt to determine the phytochemical and pharmacological profile of the plants listed herein. Finally, the motivation behind this study was to advance ethnobotanical research regarding the North-eastern region that has not yet been explored exhaustively. Also, the plants listed in the present paper could serve as a database and could have adequate support to research on traditional ethnobotanical knowledge and the sourcing of raw materials to produce commercial pharmaceutical compounds. That is why it is necessary to develop novel approaches to conserve and valorize this wealthy ancestral heritage.

Declarations

Ethics approval and consent to participate:The data were collected with respect to confidentiality, anonymity and consent. All respondents were informed about the aim of this study. No further ethics approval was required.

List of abbreviation:N/A

Competing interest:The authors declare that they have no competing interests.

Author's contributions:Alami Merrouni Ilyass contributed to the ethnobotanical survey, the data analysis, drawing of graphics, collect of plants and the writing of the manuscript; Kharchoufa Loubna contributed to the collect of plants, botanical identification and to the writing of the manuscript; Bencheikh Noureddine, inquiry and collect of plants; Elachouri Mostafa designed the study, performed the ethnobotanical survey and contributed to the writing of the manuscript.

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Annex A: List of medicinal plants species used by local people, and some of their properties

Family / Scientific Name (Synonym) / Voucher	Local name	Ibn Al Baytar (Leclerc Voucher)	Localization of plants specimen (GPS)	Ecological status / Life forms / Herbaceous form	Therapeutic uses (Use reports)	Part used	Mode of preparation	NC	UV	FUV
ACANTHACEAE <i>Acanthus mollis</i> L. HUMPOM188	الأخنث، صبانا	-	N 35°13'34.8" W 003°38'15.7" E = 248 m	S / Hem / H	Skin infections (1), skin burns (4) and eczema (3).	lv, rt	inf, cat	8	0.0086	0.0086
AMARANTHACEAE <i>Anabasis aretioides</i> Coss. & Moq. HUMPOM049	أكنود	-	N 32°06'20.8" W 001°13'31.4" E = 911 m	S / Th / H	Rheumatism (5), blood disorder (1), diuretic (6), antidote (7), diabetes (1) and hypertension (3).	ap, lv, wp	dec	23	0.0247	
<i>Beta vulgaris</i> L.* HUMPOM191	بطراف، السلك	n° 1202, 1424	N 34°47'66.3" W 002°24'21.7" E = 893 m	C / Hem / H	Diabetes (5).	sd	pod, fod	5	0.0054	
<i>Chenopodium album</i> L. ^o HUMPOM043	بليتو، رجل فلوس	n° 1064	N 35°12'00.2" W 003°05'53.3" E = 603 m	S / Th / H	Stomach ache (9) and antispasmodic (2).	rt	dec	11	0.0118	
<i>Dysphania ambrosioides</i> (L.) Mosyakin & Clemants* HUMPOM042	مخينزة	-	N 35°12'01.3" W 003°05'55.9" E = 605 m	S / Th / H	Hypertension (12), colds (25), antitussive (3), emmenagogue (2), diabetes (6), antispasmodic (1), menstrual pains (4), asthma (2), analgesic (1), arrhythmia (1), headache (36), respiratory infections (12), carminative (4), fever (41), oral infections (2) and anxiety (1).	lv, fl, sd, rt, st, wp	dec, inf, mac, cat, juc	153	0.1643	0.0430
<i>Haloxylon scoparium</i> Pomel* HUMPOM047	رمث، اساي	n° 1063	N 32°09'54.8" W 001°24'36.0" E = 980 m	S / Ch / H	Allergy (3), hypertension (3), cancer (1), mouthwash (2), antidote (5), dermatitis (1), diabetes (4), stomach ache (10), colds (7), rheumatism (1), scabies (1), wounds healing (1) and intestinal antiseptic (2).	bl, lv, fr, rt, wp, ap, ls, sd	dec, inf, pod, juc, cat, tis	41	0.0440	
<i>Nitrosalsola vermiculata</i> (L.) Theodorova ^a (<i>Salsola vermiculata</i> L.) HUMPOM048	غسال، ليسريف	n° 87, 709, 1037	N 34°28'52.8" W 001°45'49.0" E = 1143 m	S / Ch / SH	Hypertension (3), arrhythmia (1), hair care (1), and intestinal antiseptic (2).	lv, ap, fr	cat, pod, dec	7	0.0075	
AMARILLYDACEAE <i>Allium ampeloprasum</i> L. ^o HUMPOM193	بورو، لحريف	n° 1760, 1820, 1875, 1910, 1911, 1998	N 35°56'10.2" W 002°20'39.5" E = 145 m	C / GB / H	Diabetes (1), hypertension (1) and otitis (1).	bl, wp	fod	3	0.0032	0.116

<i>Allium cepa</i> L. HUMPOM192	بصلة, أزيليم	n° 296, 979	N 35°56'23.1" W 002°20'48.8" E = 151 m	C / GB / H	Diabetes (12), cancer (1), colds (19), cough (6), diuretic (1), fever (6), boils (9), respiratory problems (13), eye infection (3), asthma (15), vertigo (9), sterility (1), antispasmodic (5) and urinary infections (4).	bl	fod, dec, cat, inh, raw, juc	104	0.1117
<i>Allium sativum</i> L.* HUMPOM194	الثوم	n° 453	N 35°56'16.3" W 002°20'42.7" E = 149 m	C / GB / H	Diabetes (23), cough (21), hypertension (16), colds (9), wounds healing (12), antidote (37), antibacterial (2), antifungal (3), cancer (3), Alzheimer (1), rheumatism (11), kidney stones (7), anxiety (5), migraine (8), headache (13), intestinal pains (4), skin infections (10), respiratory problems (14), urinary infections (4), appetizer (1), angina (1), asthma (8) and oral hygiene (4).	bl	fod, dec, raw, cat, oil	217	0.2331
ANACARDIACEAE <i>Pistacia atlantica</i> Desf. HUMPOM079	لبطم, إغ	n° 302	N 34°50'52.8" W 002°12'18.6" E = 1347 m	S / Ph / T	Laxative (1), diuretic (1), stomach ache (1), skin problems (1) and allergy (1).	ct	dec	4	0.0043
<i>Pistacia lentiscus</i> L.* HUMPOM080	مسكة, مسطعة, درو	n° 923	N 34°47'57.1" W 002°24'07.4" E = 889 m	S / Ph / T	Diabetes (1), oral hygiene (1), cardio stimulant (1), menstrual pains (1), digestive problems (2), hair care (1), diuretic (1) and asthma (1).	lv, wp	dec, inf,	9	0.0097 0.0083
<i>Searsia tripartita</i> (Ucria) Moffett ^a HUMPOM001	تيزغة	n° 539	N 32°06'24.8" W 001°13'32.5" E = 910 m	S / Ph / T	Hypertension (1) and digestive problems (1).	rt, ct,	dec,	1	0.0011
APIACEAE <i>Ammi majus</i> L.* ^a HUMPOM116	أتريرال, تيريرال, بيلالا	n° 2, 3, 288, 1036, 2202	N 34°50'30.2" W 002°10'26.2" E = 1198 m	S / Th / H	Vitiligo (3), respiratory infection (1) and cardiovascular diseases (1).	ap, fr,	inf, pod,	5	0.0054
<i>Visnaga daucoides</i> Gaertn. (<i>Ammi visnaga</i> (L.) Lam). HUMPOM117	بشنخة, تريلان	n° 2, 3	N 34°50'26.5" W 002°21'23.2" E = 723 m	S / Th / H	Diabetes (1), hypoglycemia (1), renal pain (1), headache (1), vertigo (1), antispasmodic (1), asthma (1), carminative (1), aphrodisiac (2), tonic (1), kidney stones (1), urinary infection (1) and mouth hygiene (5).	sd, st, fr, ap,	dec, raw, pod,	14	0.0150 0.0167

<i>Ammodaucus leucotrichus</i> Coss. HUMPOM098	كمون الصوفي -		N 32°06'28.5" W 001°13'37.1" E = 911 m	S / Th/ R? / H	Stomach ache (14), intestinal antiseptic (5), diarrhea (17), diabetes (6), hypertension (4), arrhythmia (1), respiratory problems (8), allergy (2), reproductive system problems (6) and anxiety (5).	fr, lv, sd,	inf, dec, pod, raw,	69	0.0741
<i>Ammoides pusilla</i> (Brot.) Breistr. HUMPOM100	نونخة n° 2202		N 34°47'59.1" W 002°24'01.0" E = 889 m	S / Th / H	Colds (11), fever (9), influenza (6), stomach ache (2), bronchitis (4), diabetes (10) and hypertension (1).	ap,	dec, inf, pod,	43	0.0462
<i>Anethum graveolens</i> L. ^α HUMPOM118	كروية العمية , بسياس	n° 894, 1275	N 35°14'50.3" W 003°37'33.1" E = 55 m	S / Th/ R? / H	Aphrodisiac (1), intestinal antiseptic (1) and constipation (1).	fr, fl,	dec,	3	0.0032
<i>Apium graveolens</i> L. HUMPOM112	كرافس n° 1902, 2304		N 35°14'43.8" W 003°37'38.4" E = 57 m	C / Th-b / H	Urinary disorders (4), cardiovascular diseases (2), tonic (1), kidney stones (4), anxiety (1), antispasmodic (1), aphrodisiac (1) and diuretic (2).	wp, fr, lv, rt,	inf, dec, pod,	10	0.0107
<i>Helosciadium nodiflorum</i> (L.) Koch ^α (<i>Apium nodiflorum</i> (L.) Lag.) HUMPOM113	زياتة , تيلغدامين -		N 34°50'27.8" W 002°21'24.9" E = 723 m	S / G; HyF / H	Digestive problems (4) and rheumatism (1).	lv, wp,	cat, fod,	4	0.0043
<i>Bunium bulbocastanum</i> L. ^α HUMPOM104	اللفت الكحلة , بكيوكة	n° 3, 542	N 34°52'53.8" W 002°07'39.7" E = 506 m	S / G / H	Appetizer (1) and gain weight (1).	rt,	-	1	0.0011
<i>Carum carvi</i> L. HUMPOM195	كروية n° 1772, 1774, 1913, 1970		N 34°52'52.7" W 002°07'44.2" E = 512 m	C / Hem / H	Antispasmodic (8), stomach ache (6), sedative (1), analgesic (1), diabetes (3), problems of nervous system (1), hypertension (1), aphrodisiac (2), carminative (2), colds (3), bronchitis (2) and lactation (1).	sd, fr,	dec, inf, mac, pod,	19	0.0204
<i>Conium maculatum</i> L. ^{*α} HUMPOM101	بربوش , حليبيبية سكران n° 1350		N 35°12'00.8" W 003°05'54.1" E = 604 m	S / Th-b (Hem) / H	Fever (3), abortive (2), facilitating childbirth (2) and female sterility (1).	lv, wp,	cat, fmg,	8	0.0086
<i>Coriandrum sativum</i> L. [*] HUMPOM196	قصبور n° 424, 1926, 1933		N 34°47'49.6" W 002°24'07.8" E = 876 m	C / Th / H	Diabetes (2), aphrodisiac (4), tonic (1), anti-inflammatory (2), allergy (1), kidney stones (2), insomnia (1), intestinal pains (3), bladder diseases (1), hypertension (2), stomach ache (5) and sedative (2).	fr, sd, wp,	pod, inf, dec, raw,	26	0.0279
<i>Cuminum cyminum</i> L. HUMPOM197	كمون n°1967, 1969, 1971, 1972		N 34°47'79.1" W 002°24'37.6" E = 885 m	C / Th / H	Intestinal antiseptic (11), stomach ache (18), carminative (6), dental problems (3), fever (14), insomnia (2), lactation (1), rheumatism (5), asthma (3), bronchitis (13) and cardiovascular (9).	sd, lv, fr,	pod, dec, inf, mac, raw,	85	0.0913

<i>Daucus carota</i> L. HUMPOM198	زرودية، خيزو	n° 96, 481, 983, 1389, 2240	N 34°47'62.1" W 002°24'16.5" E = 881 m	C / Th-b / H	Urinary infections (3), stomach ache (4), renal diseases (3), diuretic (2), diarrhea (1), depurative (1), hypoglycemia (2) and emmenagogue (1).	rh, sd, juc, dec,	17	0.0183
<i>Daucus crinitus</i> Desf. HUMPOM099	بوزفور	-	N 34°50'32.3" W 002°21'29.2" E = 723 m	S / G / H	Cardiovascular diseases, (1) laxative (1), rheumatism (1) and weakness (1).	rt, st, wp, pod, dec, raw, fod,	3	0.0032
<i>Deverra scoparia</i> Coss. & Durieu * ^α HUMPOM114	لغزاح	n° 1784	N 33°57'40.5" W 003°02'36.3" E = 1535m	S / Ch / H	Migraine (4).	ap, cat,	4	0.0043
<i>Eryngium tricuspdatum</i> L. ^α HUMPOM094	مغيزلة , هرزيزوة	n° 865, 1015, 1360, 1363, 1754, 1894	N 34°50'29.8" W 002°21'21.3" E = 719 m	S / Hem (G) / E / H	Gain weight (1), tonic (1), respiratory infections (6), rheumatism (3) and labor pains (2).	rt, lv, pod, dec,	13	0.0140
<i>Ferula assa-foetida</i> L. ^α HUMPOM270	حنثينة	n° 158, 688, 2091	-	I / Hem (G) / H	Epilepsy (3), hypoglycemia (2), antispasmodic (1) and fever (1).	rs, dec, cat,	7	0.0075
<i>Ferula communis</i> L. * HUMPOM119	فاسوخ , بوبال	n° 1834, 1961	N 34°47'62.7" W 002°24'09.9" E = 889 m	S / G / H	Antispasmodic (1), rheumatism (1), aphrodisiac (1), sterility (3), fever (1), gain weight (1), uro-genital affection (2), cardiovascular diseases (1), and neurological diseases (2).	fl, fr, rt, wp, dec, inf,	8	0.0086
<i>Foeniculum vulgare</i> Mill* HUMPOM109	نافع، بسباس	n° 265, 286, 1019, 1341, 1784	N 34°47'58.7" W 002°24'01.8" E = 889 m	S / Ch (Hem; Th-b) / E / H	Diabetes (2), liver and pancreas disorders (1), cardiovascular diseases (3), carminative (1), lactation (1), oral hygiene (1), anxiety (1) and respiratory infections (2).	fr, sd, fl, rt, st, inf, dec, pod, mac,	5	0.0054
<i>Petroselinum crispum</i> (Mill.) Fuss HUMPOM199	معدنوس	n° 307, 1902, 2161	N 34°41'61.8" W 002°22'02.1" E = 854 m	C / Th / H	Hypertension (3), cardio stimulant (2), renal disease (1), insomnia (1), appetizer (2), sedative (1), allergy (1), diuretic (2), emmenagogue (1), antidote (1), stomach ache (3) and tonic (2).	ap, sd, lv, wp, inf, dec, pod,	16	0.0172
<i>Pimpinella anisum</i> L. HUMPOM200	حبة حلاوة	n° 159, 571, 1020, 1968	N 34°61'76.2" W 002°28'08.2" E = 778 m	C / Hem / H	Aphrodisiac (2), antidote (1), menstrual pains (1), diabetes (1), asthma (1), bronchitis (1), antispasmodic (1), cough (2), diuretic (2), kidney stones (2), hypertension (1), stomach ache (1) and cancer (1).	sd, fr, lv, rt, dec, pod, inf, mac,	9	0.0097
<i>Polygonum maritimum</i> L. HUMPOM090	زياتة	-	N 34°56'10.8" W 003°48'36.7" E = 508 m	S / Ch / H	Hypercholesterolemia (1), diarrhea (1), allergy (1) and oral infections (1).	rt, ct, wp, dec, pod,	4	0.0043

<i>Ridolfia segetum</i> (L.) Moris HUMPOM115	طبش , سليلوع	n° 666, 989, 1138	N 34°47'69.1" W 002°24'04.0" E = 889 m	S / Th / H	Diabetes (3) and jaundice (1).	sd, pod,	3	0.0032	
<i>Smyrniolus atratum</i> L. ^α HUMPOM102	جغيع , بلحك	n° 1228, 1902	N 34°47'66.2" W 002°24'17.6" E = 750 m	S / G (Hem) / RR / H	Colds (2), stomach ache (1), aphrodisiac (1) and hemorrhoids (1).	fr, sd, pod, dec,	3	0.0032	
<i>Thapsia garganica</i> L.* ^α HUMPOM121	الدرياس , أبغور	n° 28, 440,2321	N 34°47'55.1" W 002°24'09.0" E = 896 m	S / G / H	Analeptic (1), rheumatism (2), antispasmodic (4), colds (3), cough (3), sterility (1), aphrodisiac (1), face care (1), gain weight (1), hepatitis (1), and bladder diseases (1).	rt, ap, inf, oil,	10	0.0107	
APOCYNACEAE <i>Nerium oleander</i> L.* HUMPOM131	الدفلة , ألبلي	n° 567, 833, 873, 984, 1232	N 34°56'52.7" W 002°06'19.3" E = 249 m	S / Nph / SH	Headache (5), migraine (8), oral infections, (1) diabetes (3), anti- inflammatory (2), vertigo (1) and abortive (2).	wp, st, lv dec, inf,	19	0.0204	0.0204
ARACEAE <i>Arisarum vulgare</i> O. Targ. Tozz. * ^α HUMPOM125	تبيكوكة , أيرنا , يرني	n° 2047	N 34°25'05.1" W 002°54'02.1" E = 391 m	S / GT / H	Cancer (1), scabies (2), eczema (3) and purgative (1).	tb, rt, cat,	5	0.0054	0.0054
ARALIACEAE <i>Hedera helix</i> L.* ^α HUMPOM093	اللوايا , المصاصة	-	N 34°50'30.5" W 002°21'27.6" E = 725 m	S / Ph(-) / SH	Weakness (1), rheumatism (1), boils (1) and wounds healing (1).	lv, fr, mac, pod,	4	0.0043	0.0043
ARISTOLOCHIACEAE <i>Aristolochia baetica</i> L.* ^α HUMPOM026	برزطم , ازلاك اوشن	n° 58, 243, 1099, 1300, 1744, 2135	N 34°50'26.9" W 002°21'22.8" E = 723 m	S / Ph / SH	Respiratory infections (3) and skin problems (1).	lv, st, rt, fr, pod,	4	0.0043	
<i>Aristolochia fontanesii</i> Boiss. & Reut * HUMPOM027	برزطم	n° 58, 243, 1099, 1300, 1744, 2135	N 34°50'29.4" W 002°21'25.7" E = 729 m	S / G / SH	Cancer (1), diabetes (7), laxative (5), intestinal disorders (8), menstrual pains (1), aorta palpitation (1), hypoglycemia (4), skin problems (3) and rheumatism (2).	wp, rt, sd, lv, rh, inf, dec, pod, raw,	31	0.0333	0.0188
ASPARAGACEAE <i>Agave americana</i> L. ^α HUMPOM149	صايرة , سبير	-	N 34°39'47.7" W 002°19'02.9" E = 866 m	C / Hem / SH	Antibacterial (1), cancer (1), diabetes (1), skin problems (3), rheumatism (1), eczema (2) and digestive problems (3).	lv, st, dec, cat, fod,	8	0.0086	
<i>Asparagus albus</i> L. HUMPOM142	سكوم , تازوت , ازوي	n° 518, 2260, 2308	N 34°47'60.5" W 002°24'10.4" E = 889 m	S / Nph SH	Diabetes (1), anemia (1), rheumatism (1), hepatitis and appetizer (1).	st, rt, rh, dec,	1	0.0011	0.0063
<i>Asparagus acutifolius</i> L. ^α HUMPOM143	سكوم	n° 518, 2260, 2308	N 34°47'60.2" W 002°24'01.9" E = 890 m	S / Nph; Ch / H	Digestive problems (1).	lv, st, dec,	1	0.0011	
<i>Asparagus officinalis</i> L. ^α HUMPOM201	سكوم , حميسو	-	N 34°47'70.3" W 002°24'03.1" E = 893 m	C / Nph; Ch / H	Hepatitis (3), sterility (1), menstrual pains (1), aphrodisiac (1), rheumatism (4) and digestive problems (10).	wp, rh, dec, inf,	18	0.0193	

<i>Asparagus horridus</i> L. ^α HUMPOM141	سكوم الديب -		N 34°47'60.2" W 002°24'01.9" E = 890 m	S / Nph; Ch / H	Aphrodisiac (1).	rt,	-	1	0.0011
<i>Leopoldia comosa</i> (L.) Parl. ^α HUMPOM148	بصيلة -		N 34°52'63.5" W 002°07'44.7" E = 506 m	S / GB / H	Toothache (2), bad breath (1) and aphrodisiac (1).	up,	inf, cat,	2	0.0021
<i>Ruscus aculeatus</i> L. ^α HUMPOM140	بوشوكة -		N 34°50'56.7" W 002°12'20.9" E = 1347 m	S / Nph (GR) / H	Depurative (1), aphrodisiac (1), intestinal pains (1), hypertension (1), eczema (1), otitis (1) and rheumatism (1).	rh,	mac, pod,	2	0.0021
<i>Drimia maritima</i> (L.) Stearn. * ^α HUMPOM146	عنصل يصل الديب -	n° 298, 1593	N 34°50'28.8" W 002°21'25.1" E = 723 m	S / GB / H	Abscesses (2), jaundice (1), skin problems (2), oral infections (1), rheumatism (2) and digestive problems (3).	bl, rt,	raw, dec,	5	0.0054
ASTERACEAE									
<i>Achillea odorata</i> L. ^α HUMPOM074	لقورط -		N 32°09'55.9" W 001°24'37.1" E = 980 m	S / Hem / H	Diabetes (1), rheumatism (1), and sexual stimulant (1).	lv, fl, ap,	dec, inf,	3	0.0032
<i>Anacyclus clavatus</i> (Desf.) Pers. ^α HUMPOM071	جعدة بكراع دجاجة -		N 35°12'02.4" W 003°05'55.5" E = 605 m	S / Th / H	Hair care (3), sedative (2) and purgative (1).	fl,	Inf,	5	0.0054
<i>Anacyclus pyrethrum</i> (L.) Link. HUMPOM072	تغنداست، اغنس -	n° 400, 959, 1507, 1570	N 34°20'33.5" W 002°07'18.3" E = 1181m	S / Hem / E / H	Analgesic (2), toothache (1), aphrodisiac (1), rheumatism (1), liver pains (1), skin inflammation (1), digestive disorder (3), oral infections (1), allergy (1) and diabetes (2).	rt, lv, wp,	pod, dec,	8	0.0086
<i>Chamaemelum nobile</i> (L.) All. HUMPOM069	بابونج رومي -	n° 121, 220, 418, 590, 745, 907, 1767	N 35°12'05.4" W 003°05'54.2" E = 603 m	S / Th-b (Hem) / H	Diabetes (2), diarrhea (1) and intestinal antispasmodic (1).	cp, lv,	inf, dec, oil,	3	0.0032
<i>Anvillea garcinii</i> subsp. <i>radiata</i> (Coss. & Dur.) A. Anderberg HUMPOM062	نكود إيلنا، فسييت الشيخ -		N 33°57'43.5" W 003°02'39.4" E = 1535m	S / Ch / H	Diabetes (3), skin problems, (2) liver pains (1), vaginal antiseptic (1), cystitis (1).	fl, lv, rt, wp,	dec,	6	0.0064
<i>Artemisia absinthium</i> L.* HUMPOM086	شبية، شهبية -	n° 113, 759, 957, 1942	N 34°47'67.2" W 002°24'19.5" E = 886 m	C / Ch / H	Diabetes (6), tonic (2), digestive problems (9), emmenagogue (1), fever (2), cardiovascular diseases (5), toothache (8), vaginal antiseptic (1) and colds (6).	lv, st, wp,	dec, inf, mac, raw, pod,	37	0.0397
<i>Artemisia arborescens</i> L.* HUMPOM087	شبية -	n° 113, 759, 957, 1942	N 34°47'70.6" W 002°24'18.8" E = 892 m	C / Ch / H	Diabetes (5), diuretic (4), menstrual pains (1), abortive (1) and aperitive (1).	lv, st, ap,	mac,	11	0.0118
<i>Artemisia campestris</i> L. HUMPOM082	علال -		N 34°47'69.2" W 002°24'16.1" E = 889 m	S / Ch / H	Digestive problems (3), asthma (1) and allergy (1).	sd, lv, wp,	dec, pod, inf,	4	0.0043

0.0091

<i>Seriphidium herba-alba</i> (Asso) J. Soják * (<i>Artemisia herba-alba</i> Asso) HUMPOM083	شيخ ابيزري	n° 1372	N 34°01'15.2" W 002°01'40.3" E = 934 m	S / Ch (Hem) / SH	Diabetes (16), skin problems (9), antibacterial (8), emmenagogue (2), antidote (2), and intestinal antiseptic (23).	lv, sd, fl, wp,	dec, inf, pod,	56	0.0602
<i>Asteriscus graveolens</i> (Forsk.) Less. ^a HUMPOM063	توجرغت، تافسات	-	N 32°31'51.3" W 001°57'14.1" E = 1167 m	S / Ch / H	Rheumatism (1), antispasmodic (2) and weakness (1).	ap,	dec,	2	0.0021
<i>Brocchia cinerea</i> (Delile) Vis HUMPOM081	عداد	n° 27, 86, 294, 741, 1358	N 32°06'22.3" W 001°13'33.6" E = 911 m	S / Th/ R? / H	Diabetes (1), stomach ache (3), cystitis (1) and kidney stones (1).	lv, fl,	pod, dec,	3	0.0247
<i>Calendula arvensis</i> M.Bieb. ^a HUMPOM091	قرطوفة، ربروبية	-	N 35°13'36.6" W 003°38'19.8" E = 250 m	S / Th / ?? / H	Anti-inflammatory (1), intestinal antiseptic (1), antispasmodic (2), emmenagogue (1) and cosmetic (1).	fl,	cat,	3	0.0032
<i>Chamaeleon gummiifer</i> (L.) Cass. * (<i>Atractylis gummiifera</i> L.) HUMPOM030	جمرة، سوسي	n° 30	N 35°12'00.8" W 003°05'54.4" E = 603 m	S / Hem (G) / H	Headache (2), vertigo (1), rheumatism (6), anti-inflammatory (4), cosmetic (3), boils (1), allergy (1), abortive (1), purgative (4), gum diseases (2) and toothache (2).	rt, st, wp,	cat, dec, mac, raw, pod,	23	0.0032
<i>Cichorium Intybus</i> L. ^a HUMPOM092	بوعكاد، العكيف	n° 2263	N 35°23'08.2" W 002°58'27.7" E = 350 m	S / Hem / H	Diabetes (1), diuretic (1), liver disorders (1), renal disease (2) and eczema (1).	ap, rt, wp,	dec,	4	0.0043
<i>Cynara cardunculus</i> L. HUMPOM202	خرشوف	n° 524, 658, 659	N 32°09'26.8" W 001°15'35.7" E = 922 m	C / G / H	Digestive problems (5), cardio stimulant (2) and diabetes (3).	rt, lv,	dec, inf,	7	0.0075
<i>Cynara scolymus</i> L. HUMPOM203	قرنبيق، القوق	n° 658	N 32°09'23.1" W 001°13'30.7" E = 897 m	C / G / H	Hypercholesterolemia (1), oral infections (1), respiratory problems, (1) skin problems (1) and digestive problems (3).	fl, rt, wp,	dec, inf,	4	0.0043
<i>Dittrichia viscosa</i> (L.) W. Greuter HUMPOM058	مفرمان، تريالا	n° 413, 1448	N 35°12'48.1" W 003°38'40.5" E = 274 m	S / Ch (Nph) / H	Cancer (1), stomach ache (4), diabetes (1), hypertension (1), and skin problems (1).	lv, wp, sd, rt,	dec, inf, pod,	6	0.0064
<i>Echinops spinosissimus</i> Turra * HUMPOM029	تسكرة، عربان	n° 222	N 35°12'01.2" W 003°05'54.3" E = 603 m	S / Hem (G) / ? / H	Diabetes (1), diuretic (1), hypoglycemia (1), stomach ache (3), liver disorders (1), and cystitis (1).	sd, rt, cp,	inf, dec, pod,	8	0.0086
<i>Helianthus annuus</i> L. HUMPOM204	عباد الشمس	-	N 35°15'14.5" W 003°08'66.1" E = 610 m	C / Th / H	Cholesterol (1), renal disease (1), laxative (2), respiratory problems (2).	fl, sd,	dec,	5	0.0054
<i>Lactuca sativa</i> L. ^a HUMPOM205	خص	n° 792	N 35°14'12.4" W 003°07'65.6" E = 610 m	C / Th / H	Diabetes (2), cardio stimulant (1), appetizer (3), depurative (2) and antidote (1).	ap, lv,	raw, cat,	4	0.0043
<i>Launaea arborescens</i> (Batt.) Murb * HUMPOM103	مليينة، اومليينة	-	N 35°12'10.5" W 003°05'62.3" E = 608 m	S / Nph / SH	Diabetes (1), fever (2) and hypertension (1).	wp, lt,	dec,	2	0.0021

<i>Matricaria chamomilla</i> L. HUMPOM075	بابونج, منساتية	n° 121, 1767	N 34°56'51.8" W 002°06'19.5" E = 249 m	S / Th/ RR / H	Colds (1), diabetes (1), anxiety (3), insomnia (3), labor pains (1), cosmetic (3), antispasmodic (2), and wounds healing (1).	fl, lv, cp,	dec, inf,	3	0.0032
<i>Picris asplenioides</i> L. ^α HUMPOM096	الهيديوان	-	N 34°25'15.2" W 002°54'12.3" E = 395 m	S / Th-b / H	Digestive problems (1).	wp,	pod,	1	0.0011
<i>Rhaponticum acaule</i> (L.) DC. ^α HUMPOM035	تافكة	-	N 34°50'59.3" W 002°12'23.6" E = 1347 m	S / Hem / H	Stomach ache (1) and Genito-urinary problems (1).	rt,	raw,	2	0.0021
<i>Scolymus hispanicus</i> L. ^α HUMPOM206	كرنينة	n° 658	N 34°24'05.2" W 002°53'01.8" E = 393 m	C / Hem / H	Diabetes (3).	rt,	raw, fod,	3	0.0032
<i>Sonchus arvensis</i> L. HUMPOM111	كتان الحنش	-	N 34°25'07.1" W 002°54'03.1" E = 391 m	S / GR / H	Diabetes (3).	lv,	inf,	3	0.0032
<i>Warionia saharae</i> Benth. Hook. * HUMPOM050	افزداز, افساس	-	N 34°28'55.7" W 001°45'51.2" E = 1143 m	S / Nph / E / H	Allergy (2), uterus infections (1), vaginal antiseptic (1) digestive problems (4), jaundice (2) and skin problems (3).	lv, fl, wp,	dec, inf,	12	0.0129
BERBARIDACEAE									
<i>Berberis hispanica</i> subsp. <i>hispanica</i> (<i>Berberis vulgaris</i> subsp. <i>australis</i> (Boiss.) Heywood) HUMPOM031	إيزيركي, إرغيس	n° 4, 20, 146, 1101	N 35°14'46.3" W 003°37'28.1" E = 50 m	S / Nph/ E / H	Cancer (1), stomach ache (3) and diabetes (2).	ct, st, rt, wp,	pod, dec, inf,	5	0.0054 0.0054
BORAGINACEAE									
<i>Borago officinalis</i> L. HUMPOM147	الحريشة	n° 708, 1896, 1897, 2023	N 35°23'09.3" W 002°58'27.7" E = 350 m	S / Th / H	Hypertension (2), anti-inflammatory (1), stress (1), bronchitis (3), skin problems (1), colds (4), fever (2), diuretic (1) and laxative (3).	lv, fr, lt, ifl, wp,	pod, juc, dec, cat, inf,	7	0.0075 0.0075
BRASSICACEAE									
<i>Anastatica hierochuntica</i> L. * ^α HUMPOM152	الكميشة, كفمرم	n° 1953	N 32°06'21.8" W 001°13'33.5" E = 911 m	S / Th / H	Labor pains (1), epilepsy (2), constipation (2), sterility (1), colds (3), rheumatism (1) and eye inflammation (1).	wp,	dec,	11	0.0118
<i>Brassica napus</i> L. * HUMPOM207	لفت	n° 384, 786, 1338, 1643, 2035, 2267	N 32°05'22.1" W 001°12'32.3" E = 910 m	C / Th / H	Fever (1), antibacterial (1) and respiratory problems (1).	rh, lv,	dec, mac, raw,	2	0.0021
<i>Brassica nigra</i> (L.) W. D. J. Koch * ^α HUMPOM208	خرنل	n° 767, 768	N 32°08'27.1" W 001°15'36.2" E = 914 m	C / Th / H	Diabetes (2), aphrodisiac (3), vomiting (1), colds (4), bronchitis (1), constipation (1), bladder diseases (1), wounds healing (1) and rheumatism (1).	cp, sd,	pod, inf, cat,	12	0.0129 0.0068
<i>Brassica oleracea</i> L. HUMPOM209	لكروم	n° 321, 1909	N 32°09'26.4" W 001°16'37.2" E = 915 m	C / Th / H	Fever (1), anti-inflammatory (1), diabetes (2), anemia (1), renal diseases (1) and cardiovascular disease (1).	ap, lv, fl,	dec, raw,	4	0.0043

<i>Capsella bursa pastoris</i> (L.) Medik ^α HUMPOM151	كيس الاراي -		N 35°26'15.2" W 002°57'45.6" E = 87 m	S / Th / H	Diarrhea (1), tonic (1), wounds healing (1) and cosmetic (1).	wp, lv, inf, dec,	2	0.0021		
<i>Eruca vesicaria</i> (L.) Cav.* ^α HUMPOM144	كلكاز ليبيض , جرجير	n° 217, 473, 1890, 2239	N 35°12'00.7" W 003°05'55.2" E = 603 m	S / Th / H	Diabetes (1).	ap, -	1	0.0011		
<i>Lepidium sativum</i> L.* HUMPOM210	حب رشاد	n° 446, 578, 653, 1041, 1776, 2160	N 32°02'19.4" W 001°11'32.9" E = 909 m	C / Th / H	Respiratory infections (5), constipation (2), cardio stimulant (2), diabetes (2) and migraine (1).	sd, pod, dec, inf,	16	0.0172		
<i>Raphanus sativus</i> L.* ^α HUMPOM211	فجل	n° 1672	N 32°07'22.1" W 001°15'34.7" E = 912 m	C / Th / H	Diabetes (3) and intestinal disorders (2).	rh, raw,	3	0.0032		
BURSERACEAE										
<i>Commiphora africana</i> (A. Rich.) Engl. ^α HUMPOM271	جاوي -		-	I / Ph / T	Respiratory problems (5), cosmetic (2) and skin infections (3).	rt, rs, fmg,	8	0.0086	0.0086	
CACTACEAE										
<i>Opuntia ficus-indica</i> (L.) Mill. HUMPOM041	الهندية -		N 35°15'09.7" W 003°07'58.9" E = 613 m	C / NPh / SH	Skin problems (9), allergy (2), diabetes (6), diarrhea (2), diuretic (1), warmer (1), urinary infections (2), kidney infections (3), stomach ache (5).	fl, lv, rt, fr, dec, inf, mac, pod,	22	0.0236	0.0236	
CANNABACEAE										
<i>Cannabis sativa</i> L.* HUMPOM242	الكيف, الحشيش	n° 1874	N 35°16'14.3" W 003°09'61.5" E = 632 m	C / Th / H	Narcotic (3), sedative (2), vomiting (1), stomach ache (2) and cholagogue (1).	fl, lv, ap, sd, inh, dec, mac, cat,	5	0.0054	0.0054	
CAPPARACEAE										
<i>Capparis spinosa</i> L. HUMPOM130	الكبار, تايلولوت	n° 95, 1877, 2030	N 34°52'57.5" W 002°07'45.4" E = 506 m	S / Ch (Nph) / H	Diabetes (8), hypertension (5), aphrodisiac (3), appetizer (5), diuretic (2), antispasmodic (9), tonic (3), menstrual pains (2), and rheumatism (3).	sd, ap, fr, fl, pod, mac,	38	0.0408	0.0408	
CAPRIFOLIACEAE										
<i>Valeriana jatamansi</i> Jones HUMPOM014	السنبيل -		N 34°56'55.2" W 002°06'22.7" E = 249 m	C / Th / H	Migraine (1).	- inf, pod, dec	1	0.0011		
<i>Valeriana dioscoridis</i> Sibth. & Sm. (<i>Valeriana tuberosa</i> Sprun. ex Nym.) HUMPOM008	تيزورين -		N 33°57'41.3" W 003°02'37.7" E = 1533m	S / G / H	Intestinal antispasmodic (1).	rt -	1	0.0011	0.0011	
CARYOPHYLLACEAE										
<i>Herniaria cinerea</i> DC.* ^α HUMPOM053	هراست الحجر -		N 35°12'03.2" W 003°05'53.9" E = 603 m	S / Th / H	Kidney stones (16), pancreas ailments (2), colds (7), urinary problems (10) and cosmetic (1).	lv, ap, wp, dec, inf, pod,	32	0.0344		
<i>Herniaria hirsuta</i> L. HUMPOM055	هراست الحجر , فتاتت الحجر -		N 35°12'00.1" W 003°05'50.6" E = 598 m	S / Th / R / H	Diabetes (2), skin problems (4), diuretic (11), kidney stones (23), hypertension (11), and urinary infection (13).	lv, st, wp, dec, inf, pod,	47	0.0505	0.0217	
<i>Silene vulgaris</i> (Moench) Garcke ^α HUMPOM070	تيفشت -		N 35°12'47.2" W 003°38'41.4" E = 274 m	S / GR / H	Digestive problems (1).	fl, dec,	1	0.0011		

<i>Telephium imperati</i> L. ^α HUMPOM059	خياطة -		N 32°31'55.5" W 001°57'17.2" E = 1168 m	S / Hem (Ch) / H	Cardiovascular diseases (1), skin problems (1) and digestive problems (1).	wp, lv, dec,	1	0.0011	
CISTACEAE <i>Cistus albidus</i> L. ^α HUMPOM107	بوتور, كستوس	n° 1334, 1793, 2014	N 34°47'63.3" W 002°24'14.3" E = 887 m	S / Nph / SH	Diabetes (1), skin problems (1) and digestive problems (1).	wd, lv, dec, raw,	3	0.0032	
<i>Cistus creticus</i> L. ^α HUMPOM106	إرغل -		N 34°47'57.7" W 002°24'01.2" E = 886 m	S / Ch/ R? / SH	Rheumatism (4), respiratory problems (2), digestive problems (6), circulatory problems (2) and urinary infection (1).	lv, sd, dec, inf, rt, wp, pod,	13	0.0140	
<i>Cistus libanotis</i> L. ^α HUMPOM002	تركال, لكريدة -		N 34°47'66.7" W 002°24'22.2" E = 890 m	S / Ch / SH	Skin problems (1) and cosmetic (1).	wp mac,	1	0.0011	0.0073
<i>Cistus monspeliensis</i> L. ^α HUMPOM108	مركيل, أمزيل	n° 1334, 1793, 2014	N 34°47'68.9" W 002°24'29.7" E = 892 m	S / Nph / SH	Diabetes (1), digestive problems (1) and lose weight (1).	wp cat, inf,	1	0.0011	
<i>Helianthemum lippii</i> (L.) Dum.Cours. ^α HUMPOM110	أوم ترفاس -		N 34°47'59.6" W 002°24'02.2" E = 887 m	S / Ch / H	Arthritis (3), rheumatism (8), antibacterial (3), emmenagogue (2), and lactation (2).	lv, rt, tis, dec,	16	0.0172	
COMBRETACEAE <i>Terminalia chebula</i> Retz. ^α HUMPOM003	هليلج لكحل	n° 2261	N 33°09'12.5" W 002°08'16.8" E = 1466 m	C / Nph / SH	Sexual impotence (1), rheumatism (1), hemorrhoids (1) and constipation (1).	fr, dec, pod	3	0.0032	0.0032
CONVOLVULACEAE <i>Convolvulus althaeoides</i> L. ^α HUMPOM139	اللوابة	n° 1297, 2004	N 34°52'59.9" W 002°07'43.2" E = 508 m	C / Hem; (GR) / H	Digestive problems (1).	- dec, inf,	1	0.0011	0.0011
<i>Cuscuta epithimum</i> (L.) L. ^α HUMPOM145	زعترة	n° 700, 1095, 1160, 1161, 1940	N 34°53'63.2" W 002°08'51.6" E = 511 m	C / Th / H	Diabetes (1).	- -	1	0.0011	
CUCURBITACEAE <i>Bryonia dioica</i> Jacq.* ^α (<i>Bryonia cretica</i> subsp. <i>dioica</i> (Jacq.) Tutin) HUMPOM122	عنب الديب -		N 34°52'55.6" W 002°07'40.9" E = 506 m	S / G / H	Purgative (1), ulcers (2), urinary infection (1) and rheumatism (1).	rt, fr, dec,	3	0.0032	
<i>Citrullus colocynthis</i> (L.) Schrader.* HUMPOM123	الحنضل	n° 293, 648, 714, 1317 bis, 1584, 1741, 1884, 2054, 2121, 2249	N 33°03'08.5" W 002°00'14.8" E = 1451 m	S / G / H	Diabetes (28), hypertension (15), cardio stimulant (8), hypercholesterolemia (10), laxative (3), aphrodisiac (1), epilepsy (1), purgative (2), rheumatism (4), bronchitis (6), anti-inflammatory (4) and circulatory problems (1).	fr, sd, dec, pod, mac, pl, inf, cat,	61	0.0655	0.0132
<i>Cucumis melo</i> L. ^α HUMPOM213	بتيخ	n° 303, 304, 780, 2175	N 35°59'12.3" W 002°25'44.2" E = 157 m	C / G / H	Renal diseases (1), antitussive (1), digestive problems (2) and aphrodisiac (2).	fr, sd, -	3	0.0032	
<i>Cucumis sativus</i> L. ^α HUMPOM214	خيار	n° 508, 835, 1690, 1739, 1743	N 35°64'16.8" W 002°30'52.5" E = 167 m	C / G / H	Renal diseases (1) and diabetes (1).	fr, -	1	0.0011	

<i>Cucurbita pepo</i> L. HUMPOM215	لكرعة الحمرا -		N 35°64'18.7" W 002°30'52.7" E = 168 m	C / G / H	Renal diseases (2), cardiovascular diseases (2), colds (1), fever (1), intestinal pains (1), diuretic (1) and asthma (1).	sd, fr, lv, pod, juc, raw,	4	0.0043	
<i>Lagenaria siceraria</i> (Molina) Standl. HUMPOM216	لكرعة السلاوية -		N 35°64'19.3" W 002°30'55.1" E = 169 m	C / G / H	Migraine (1), respiratory problems (1) and asthma (1).	ct, fr, Dec, raw,	2	0.0021	
CUPRESSACEAE <i>Cupressus sempervirens</i> L. ^α HUMPOM021	سرو، ازل	n° 1168, 1291, 1416	N 34°50'47.1" W 002°12'18.9" E = 1347 m	C / Ph / T	Wounds healing (1) and warmer (1).	lc, cn, -	1	0.0011	
<i>Juniperus oxycedrus</i> L. ^α HUMPOM022	تيفي، تافا	n° 1317	N 34°50'51.5" W 002°12'18.1" E = 1312 m	S / Ph (Nph) / T	Antiparasitic (23), wounds healing (12), warmer (8), skin infections (16) and urinary-genital infections (5).	cd, wd, raw, oil,	55	0.0591	
<i>Juniperus phoenicea</i> L. ^α HUMPOM023	العرعار الحر	n° 1528	N 34°50'49.8" W 002°12'22.6" E = 1347 m	S / Ph (Nph) / T	Fever (3), psychological troubles (1), urinary infections (4), intestinal antiseptic (5), menstrual pains (1), stomach ache (7), colds (2) and rheumatism (1).	ap, lv, st, tis,	21	0.0226	0.0333
<i>Tetraclinis articulata</i> (Vahl) Mast. HUMPOM020	العرعار، ازوكة	n° 1528	N 34°50'62.8" W 002°12'28.6" E = 1347 m	S / Ph / T	Diabetes (9), skin problems (6), hypertension (15), fever (8), allergy (2), vertigo (4), headache (7) and diarrhea (3).	ap, lv, fr, wp, dec, pod, inf,	47	0.0505	
CYNOMORIACEAE <i>Cynomorium coccineum</i> L. ^α HUMPOM060	ترثوث	n° 1460	N 35°12'08.7" W 003°05'56.2" E = 605 m	C / G(-p) / H	Diabetes (1).	st, inf, pod,	1	0.0011	0.0011
DIOSCOREACEAE <i>Dioscorea communis</i> (L.) Caddick & Wilkin* ^α HUMPOM137	بوغودز، بندخير	-	N 35°23'11.6" W 002°58'28.5" E = 349 m	S / G(-l) / H	Cosmetic (1) and skin problems (1).	rt, -	1	0.0011	0.0011
EPHEDRACEAE <i>Ephedra fragilis</i> Desf. ^α HUMPOM024	أزرم، أمتر	n° 1063	N 33°57'46.2" W 003°02'40.1" E = 1536m	S / Nph / SH	Hair care (1) and diabetes (4).	ap, ls, dec,	4	0.0043	0.0043
ERICACEAE <i>Arbutus unedo</i> L. HUMPOM162	ساسنو، بختاو	n° 246, 519, 1552, 1729, 1807	N 35°12'06.9" W 003°05'58.9" E = 603 m	S / Ph (Nph) / SH	Hypertension (11), respiratory problems (3), diabetes (9), digestive problems (5), rheumatism (1) and kidney diseases (1).	rt, ct, lv, fr, dec, inf, raw,	25	0.0269	0.0269
EUPHORBIACEAE <i>Croton tiglium</i> L. ^α HUMPOM272	حبة الملك	n° 886	-	I / Nph / SH	Diabetes (2) and diarrhea (1).	fr, sd, dec,	3	0.0032	
<i>Euphorbia falcata</i> L. ^α HUMPOM073	حبة النفوس، حليبية	n° 234, 2296	N 34°47'58.1" W 002°24'02.1" E = 885 m	S / Th / H	Cardiovascular diseases (1), urinary-genital problems (1), respiratory problems (1), digestive problems (2), colds (1), aphrodisiac (1) and rheumatism (1).	lv, st, ap, inf, dec, pod, wp,	4	0.0043	0.0205

<i>Euphorbia helioscopia</i> L. ^α HUMPOM068	ليبنة	n° 1056, 2302	N 34°47'59.7" W 002°24'03.0" E = 889 m	S / Th / H	Skin problems (1), digestive problems (1).	-	-	1	0.0011
<i>Euphorbia resinifera</i> O. Berg * HUMPOM066	تكاوت, زقوم	n° 399, 1673, 2302	N 32°06'21.7" W 001°13'33.1" E = 911 m	S / Nph/ E / RR / SH	Diabetes (1), antidote (1), headache (1), abortive (1), purgative (1) and skin infections (1).	ct, lv, rs, lt, wp,	inf, pod,	4	0.0043
<i>Euphorbia retusa</i> Forssk. ^α HUMPOM067	مولبينة, تنورا	-	N 34°28'55.1" W 001°45'53.0" E = 1143 m	S / Th (Hem) / H	Skin problems (5), antidote (1), digestive problems (6), abortive (1), neuralgia (1) and kidney stones (3).	lt,	cat, raw,	15	0.0161
<i>Euphorbia saharae</i> Benth & Coss. HUMPOM004	الرمدة	-	N 32°06'26.8" W 001°13'39.2" E = 913 m	S / Th / H	Digestive problems (6), laxative (2) and purgative (1).	ct, lv,	dec, pod,	8	0.0086
<i>Mercurialis annua</i> L.* ^α HUMPOM064	حريكة الملسة	n° 689, 1716	N 34°52'60.1" W 002°07'42.3" E = 506 m	S / Th / H	Diabetes (1), diuretic (1), purgative (1) and anxiety (1).	lv, ap,	inf,	2	0.0021
<i>Ricinus communis</i> L.* HUMPOM065	الخروج, مكنك	n° 771, 925, 1476 bis	N 34°54'08.4" W 003°47'28.5" E = 923 m	S / Ph / T	Diabetes (19), fever (25), skin problems (9), digestive problems (28), laxative (6), hair care (5), jaundice (1), colds (13), menstrual pains (1), rheumatism (14) and bone fracture (3).	lv, sd,	dec, oil, cat, pod, tis,	116	0.1245
FABACEAE <i>Acacia gummifera</i> Willd ^α HUMPOM009	الطلح, عرق الطلح	-	N 34°56'55.6" W 002°06'23.5" E = 251 m	S / Ph / E / R / T	Diabetes (8), bronchitis (10), antitussive (6), anxiety (1), eyes care (2), asthma (5), jaundice (1), cough (7), hepatitis (2), angina (1), dental care (2), wound healing (1) and diarrhea (1).	ap, rb, sd, fr, rt,	inf, dec,	41	0.0440
<i>Anagyris foetida</i> L.* ^α HUMPOM010	فول الكلب, أوفني	n° 153, 156, 558, 765, 1406, 1608	N 35°23'09.7" W 002°58'28.3" E = 349 m	S / Nph / SH	Kidney stones (5), neurological diseases (1), microbial affection (3), skin problems (4), fever (5), vomiting (1), eczema (2), purgative (1) and renal diseases (4).	sd,	dec,	16	0.0172
<i>Anthyllis vulneraria</i> L. ^α HUMPOM046	النافلة, عرق سفير	-	N 34°52'57.9" W 002°07'42.2" E = 506 m	S / Hem-Th / E / RR / H	Vertigo (1) and digestive problems (2).	rt,	dec,	3	0.0032
<i>Arachis hypogaea</i> L. ^α HUMPOM217	كاوكاو	-	-	C / Hem-Th / H	Diabetes (1), aphrodisiac (1) and sexual impotence (1).	tb,	pod,	2	0.0021
<i>Senna alexandrina</i> Mill. HUMPOM005	سنا	n° 1236	N 34°50'41.3" W 002°21'33.2" E = 729 m	S / Ch / H	Digestive problems (3), rheumatism (2), diabetes (2), constipation (2), colds (1), pancreas ailments (1), cholagogue (1), sedative (1), cosmetic (2) and hair care (1).	lv, fr, wp,	dec, inf, pod,	13	0.0140

0.0177

<i>Ceratonia siliqua</i> L. HUMPOM011	خروب	n° 762	N 34°53'55.8" W 002°08'40.7" E = 508 m	C / Ph / T	Intestinal parasites (8), diarrhea (5), skin problems (3), nervous problems (1), diabetes (7), antidote (4), fever (8), laxative (1) and bronchitis (1).	lv, fr, sd, ct,	dec, raw, inf, pod,	34	0.0365
<i>Cicer arietinum</i> L. HUMPOM218	حمص	n° 696	-	C / Th / H	Diabetes (2), tonic (1), influenza (2), urinary infections (1), urethritis (1), digestive problems (2) and skin problems (1).	sd, fr,	pod, mac,	7	0.0075
<i>Glycine max</i> (L.) Merr* HUMPOM219	صوجا	-	-	C / Ch / H	Digestive problems (1), laxative (1), allergy (1) and diabetes (1).	sd, fr,	dec, mac, pod,	3	0.0032
<i>Glycyrrhiza glabra</i> L.* HUMPOM273	عرق السوس	n° 305, 1250, 1640, 1536	-	I / G / H	Renal disease (4), cholagogue (2), tonic (5), mouth infection (7), cough (2), carminative (1), allergy (1), ulcers (4), constipation (1), cardiovascular diseases (2) and circulatory problems (1).	st, sd, rt, rh,	dec, inf, pod,	26	0.0279
<i>Lens culinaris</i> Medik. HUMPOM220	عدس	n° 350, 1518	-	C / Th / H	Jaundice (1) and digestive problems (1).	sd,	mac, pod,	2	0.0021
<i>Lotus corniculatus</i> L. ^α HUMPOM045	قرن الغزال	n° 568, 717, 718, 1031, 1537, 2050	N 35°12'49.5" W 003°38'43.4" E = 274 m	S / Hem (H) / H	Anxiety (1) and stress (1).	-	-	1	0.0011
<i>Lupinus albus</i> L. HUMPOM221	فول كناوا	n° 406	-	C / Th / H	Diabetes (1), cardiovascular problems (1), hypoglycemia (1), digestive problems (1) and liver disorders (1).	sd,	pod,	3	0.0032
<i>Medicago sativa</i> L.* HUMPOM222	فصة	n° 78, 1011, 1044, 1684, 1738, 1805, 2231	N 35°12'59.3" W 003°38'48.9" E = 277 m	C / Hem / H	Diabetes (6), against scurvy (2), asthenia (3), menstrual pains (1), anemia (1), arthritis (2), appetizer (4) and lactation (3).	sd, ap, lv, fr, st,	pod, inf, dec, mac, fod,	19	0.0204
<i>Ononis natrix</i> L. ^α HUMPOM034	افراز، حبة الريح	n° 1315	N 35°12'00.4" W 003°05'53.5" E = 603 m	S / Ch / E / RR / H	Urinary infections (2), gallstones (1), skin problems (2), stomachache (4), sedative (1), respiratory problems (3), hemostatic (1) and circulatory problems (1).	ap, rt, lv,	dec, pod, inf,	14	0.0150
<i>Phaseolus vulgaris</i> L. ^α HUMPOM223	لوبية	-	-	C / Th / H	Diabetes (2).	fr,	dec, juc,	2	0.0021
<i>Retama monosperma</i> (L.) Boiss. * ^α HUMPOM016	رطم، الغي	n° 1029	N 34°50'37.9" W 002°21'29.1" E = 727 m	S / Nph / SH	Gum care (1), skin problems (1), anti-inflammatory (1).	st, lv, fr	dec, inf,	2	0.0021
<i>Tamarindus indica</i> L. ^α HUMPOM274	تمر هندي	n° 426, 705, 727, 1391	-	I / Ph / T	Laxative (1), aphrodisiac (1), liver pains (1) and anti-inflammatory (1).	fr,	dec,	2	0.0021

<i>Trigonella foenum-graecum</i> L.* HUMPOM225	لحبية	n° 684, 904	-	C / Th / H	Diabetes (26), cancer (1), tonic (7), analeptic (1), depurative (4), respiratory problems (12), colds (19), anemia (1), appetizer (31), skin problems (5), hypertension (14) and laxative (8).	sd, fl, wp,	pod, inf, dec, mac, raw,	121	0.1300	
<i>Vicia ervilia</i> (L.) Willd.* HUMPOM226	الكرسنة	n° 1912	-	C / Th / H	Allergy (1), digestive problems (1), aphrodisiac (1) and appetizer (1).	sd,	pod, mac,	1	0.0011	
<i>Vicia faba</i> L.* HUMPOM227	الفول	n° 224, 1659	-	C / Th / H	Diabetes (1), ulcers (2), cardiovascular problems (6), anti-inflammatory (1), allergy (1), renal diseases (4), bronchitis (1) and colds (2).	sd, lv, fr,	pod, dec, inf, cat,	17	0.0183	
FAGACEAE <i>Quercus faginea</i> Lam.* HUMPOM038	بلوط الزان , العصفرة	n° 339, 1081, 1564	N 34°56'12.9" W 003°48'39.6" E = 510 m	S / Ph / R / T	Diarrhea (11), vaginal antiseptic (1), hair care (8), mouth hygiene (10), colds (13), antibacterial (5), hemostatic (1), eye inflammation (1) and hypoglycemia (6).	gl, fr,	dec, pod,	51	0.0548	
<i>Quercus ilex</i> L. α HUMPOM039	كروش , البلوط لخضر	n° 339, 1244	N 34°47'62.3" W 002°24'12.1" E = 890 m	S / Ph / T	Hair care (4), respiratory problems (5), digestive problems (7), skin problems (3), anti-inflammatory (2) and circulatory problems (1).	bk, lv, fr,	inf, pod, dec,	13	0.0140	0.0261
<i>Quercus suber</i> L.* HUMPOM040	دباغ , قلين , البلوط	n° 273, 371	N 34°47'60.1" W 002°24'09.7" E = 889 m	S / Ph / T	Digestive problems (3), dental care (2), hair care (4), anti-inflammatory (2).	ct, bk, lv,	dec, pod, inf,	9	0.0097	
GENTIANACEAE <i>Centaurium erythraea</i> Rafn* HUMPOM126	كوزة الحية , مرارة الحنش	n° 1840	N 34°50'32.5" W 002°21'28.7" E = 726 m	S / Th (Hem) / E / RR / H	Diabetes (6), kidney diseases (4), appetizer (4), hypertension (3) and fever (5).	wp, ap, lv, fl,	dec, inf,	18	0.0193	
<i>Centaurium pulchellum</i> (Sw.) Druce α HUMPOM128	كسة الحية	-	N 34°50'25.5" W 002°21'22.0" E = 723 m	S / Th / E / H	Rheumatism (1), digestive problems (1), urinary- genital infections (1).	-	-	1	0.0011	0.0078
<i>Centaurium spicatum</i> (L.) Fritsch α HUMPOM127	كسة الحية , مرارة الحنش	n° 1840	N 34°50'28.3" W 002°21'25.7" E = 723 m	S / Th / H	Fever (2), digestive problems (1), diabetes (1), colds (2) and depurative (1).	wp,	cat,	3	0.0032	
HYPERICACEAE <i>Hypericum perforatum</i> L.* α HUMPOM095	حشيشة القلب , حمرة	-	N 34°50'59.7" W 002°12'24.5" E = 1347 m	S / Ch / H	Colds (1), fever (1), digestive problems (1) and asthma (1).	lv, fl,	inf,	2	0.0021	0.0021
IRIDACEAE <i>Crocus sativus</i> L.* HUMPOM228	زعفران الحر	n° 463, 484, 1110	N 34°50'61.9" W 002°12'29.2" E = 1348 m	C / GB / H	Skin problems (31), intestinal antiseptic (28), gynecological (15), eye infection (2) and respiratory problems (20).	fl, st,	pod, inf, mac,	93	0.0999	0.0515

<i>Iris germanica</i> L. ^α HUMPOM229	عود العنبر	n° 216, 900	N 34°50'55.3" W 002°12'18.7" E = 1331	C / GR	Diabetes (1), digestive problems (1) and hypercholesterolemia (1).	rh, fl, rt,	inf, dec,	3	0.0032	
JUGLANDACEAE <i>Juglans regia</i> L. HUMPOM230	الكركاغ	n°525, 928	-	C / Ph / T	Diabetes (5), tooth care (4), gum diseases (3), antidote (1), tonic (1), eczema (2), skin infections (3), rheumatism (1).	ct, st, lv, fr,	dec, pod, inf, raw,	17	0.0183	0.0183
JUNCACEAE <i>Juncus acutus</i> L. HUMPOM165	سمار, أزلاف	n° 65, 1229	N 34°25'09.2" W 002°54'05.8" E = 391 m	S / Hem (GR) / SH	Skin problems (2), diuretic (1), digestive problems (2), renal diseases (1), insomnia (1), colds (1), fever (1) and circulatory problems (1).	lt, fr, wp,	raw, dec, inf, cat,	6	0.0064	0.0048
<i>Juncus maritimus</i> Lam. ^α HUMPOM166	سمار	n° 65, 1229	N 35°06'17.6" W 002°21'05.4" E = 9 m	S / Hem (G) / SH	Diuretic (1), insomnia (1) and colds (1).	fr, rt,	-	3	0.0032	
LAMIACEAE <i>Ajuga iva</i> (L.) Schreb. HUMPOM153	شندكورة	n° 2134	N 35°12'02.3" W 003°05'55.1" E = 602 m	S / Hem (Th) / H	Diabetes (12), cardiovascular problems (6), digestive problems (5) and respiratory problems (7).	lv, rt, wp,	dec, inf, pod,	23	0.0247	
<i>Ballota hirsuta</i> Benth. ^α HUMPOM167	توغة, تفرغين	-	N 35°14'56.3" W 003°37'27.8" E = 52 m	S / Ch / H	Digestive problems (8), and gynecological problems (3).	lv,	tis,	10	0.0107	
<i>Clinopodium nepeta</i> subsp. <i>glandulosum</i> (Req.) Govaerts HUMPOM171	النبنة, مانتة	n° 1712	N 35°12'00.7" W 003°05'54.1" E = 604 m	S / Ch / RR / H	Diabetes (2), digestive problems (5), respiratory problems (3), fever (4), colds (4) and cough (3).	lv, st, wp,	dec, inf, pod,	15	0.0161	
<i>Lavandula dentata</i> L. HUMPOM157	خزامة	-	N 34°52'56.6" W 002°07'43.9" E = 506 m	S / Ch; Nph / H	Fever (3), colds (2), respiratory problems (5), bronchitis (2) and digestive problems (2).	lv, fl, wp,	dec, inf, pod,	11	0.0118	
<i>Lavandula pedunculata</i> (Mill.) Cav. ^α HUMPOM159	خزمت	-	N 34°52'55.8" W 002°07'39.3" E = 506 m	S / Ch / E / H	Skin problems (16), digestive problems (21), gynecological (2), eye infection (1), otolaryngologic (7) and respiratory problems (25).	lv, ifl,	tis,	67	0.0719	0.0485
<i>Lavandula stoechas</i> L. HUMPOM158	حلحال	n° 62, 1437, 1944, 2182	N 34°52'61.4" W 002°07'42.9" E = 506 m	S / Ch / R / H	Hypercholesterolemia (19), digestive problems (43), diabetes (27) and rheumatism (15).	lv, fl, wp,	dec, pod, inf,	98	0.1053	
<i>Marrubium vulgare</i> L. HUMPOM160	مريوت, مريوة	n° 1316, 1347, 1674	N 34°47'63.2" W 002°24'10.0" E = 889 m	S / Ch / H	Diabetes (6), hypertension (8), hair care (2), fever (9), jaundice (1), diarrhea (3), intestinal pains (11), cough (4), colds (2), respiratory problems (10), ear pains (1) and menstrual pains (1).	lv, rt, st, ap, wp,	dec, pod, inf,	55	0.0590	
<i>Melissa officinalis</i> L. ^α HUMPOM170	مرو, ملبسة	n° 221, 324, 326, 592, 1928, 2082	N 35°06'17.7" W 002°21'02.8" E = 9 m	S / Ch / R? / H	Antispasmodic (29), depurative (13), cholagogue (6), anxiety (1), diarrhea (25) and fever (17).	ap, wp,	inf,	87	0.0934	

<i>Mentha pulegium</i> L.* HUMPOM175	فليبو	n° 807, 1639,1712	N 34°47'62.5" W 002°24'06.7" E = 888 m	S / Hem / H	Diabetes (16), digestive problems (33), hypertension (15), respiratory infections (21), carminative (9), sedative (1), cough (12) and skin problems (8).	lv, st, wp,	dec, inf, pod,	109	0.1171
<i>Mentha spicata</i> L.* HUMPOM231	نعناع	n° 2227	N 34°47'65.1" W 002°24'05.8" E = 881 m	C / Hem / H	Headache (3), weakness (2), hypertension (6), renal diseases (2), skin (2) and respiratory problems (3).	lv, fl, ap, wp,	dec, inf, oil, cat,	15	0.0161
<i>Mentha suaveolens</i> Ehrh. HUMPOM176	تمرصاد, مشيشرو	n° 1442	N 34°47'59.9" W 002°24'06.4" E = 887 m	S / Hem (Th) / E / R / H	Allergy (2), diabetes (3), tonic (1), warmer (2), arrhythmia (2), sterility (1), colds (12), carminative (5) and analgesic (2).	lv, wp, st, ap,	dec, inf, mac,	29	0.0311
<i>Ocimum basilicum</i> L. HUMPOM232	لحبق	n° 205, 223, 511, 589, 593, 704, 726, 892, 897, 1075, 1077, 1268, 1441	N 34°20'45.2" W 002°07'23.1" E = 1112m	C / Th / H	Hypertension (2), arrhythmia (1), sinusitis (1), renal diseases (3), hemorrhoids (2) and allergy (1).	sd, lv, ap,	inf, pod,	8	0.0086
<i>Origanum compactum</i> Benth. HUMPOM172	زعتر	-	N 33°57'42.7" W 003°02'38.6" E = 1535m	S / Ch / E / H	Diabetes (8), hypertension (10), digestive problems (16), fever (5) and colds (4).	lv, sd, wp,	dec, inf, pod,	37	0.0397
<i>Origanum majorana</i> L. HUMPOM233	مردودش	n° 178, 586, 587, 891, 1230, 1598, 2100	N 33°57'43.8" W 003°02'39.4" E = 1534m	C / Ch / H	Cancer (1), digestive problems (26), fever (11), cough (6), flatulence (3), hypertension (12), headache (15), insomnia (1), urinary infections (24) and cystitis (5).	lv, br, ifl,	dec, inf,	102	0.1096
<i>Rosmarinus officinalis</i> L.* HUMPOM156	أزير	n° 129	N 34°20'35.3" W 002°07'20.1" E = 1180m	S / Nph / SH	Allergy (6), diabetes (46), hypertension (39), cardio stimulant (19), intestinal parasites (15), rheumatism (22), kidney diseases (13), diuretic (7), carminative (8), sedative (1) and wounds healing (5).	rt, lv, wp,	dec,inf, pod,	178	0.1912
<i>Salvia officinalis</i> L.* HUMPOM234	سالمية	n° 140, 1274, 1387	N 34°47'75.5" W 002°24'24.8" E = 894 m	C / Hem / SH	Diabetes (8), hemostatic (1), respiratory problems (15), hypertension (7), intestinal antiseptic (12), diuretic (2), rheumatism (4), cough (2), cholagogue (1) and carminative (2).	lv, fl, wp,	inf, dec, pod,	43	0.0462
<i>Salvia tingitana</i> Etl. HUMPOM169	ميرو	n° 594, 747, 781, 1113, 2061, 2108, 2109	N 34°47'72.1" W 002°24'21.6" E = 893 m	S / Hem / E / SH	Skin problems (3), hypertension (6) and respiratory problems (5).	lv, wp,	dec, mac,	13	0.0139
<i>Salvia verbenaca</i> L. HUMPOM168	كوحيلة	n° 2108	N 34°47'69.2" W 002°24'18.1" E = 892 m	S / Hem / H	Wounds healing (1), fever (4), hemostatic (1) and rheumatism (2).	ap,	pod, inf,	6	0.0064
<i>Teucrium polium</i> L.* HUMPOM73	جعدية	n° 488	N 35°12'00.4" W 003°05'53.6" E = 603 m	S / Ch / H	Digestive problems (2), liver pain (1) and hypertension (1).	ap, fl,	dec, inf,	4	0.0043

<i>Thymus vulgaris</i> L. HUMPOM155	زعيترة	n° 456, 548, 2233	-	C / Ch / H	Cardio stimulant (2), hypertension (5), skin problems (3), intestinal antiseptic (4), antispasmodic (10), bronchitis (3) and allergy (1).	lv, fl, br, wp,	inf, pod, dec,	26	0.0279
<i>Thymus saturejoides</i> Coss. HUMPOM174	أزوكني	-	N 32°09'56.8" W 001°24'38.0" E = 981 m	S / Ch / E / H	Diabetes (4), hypertension (6), respiratory problems (2), stomachache (9), skin problems (2), circulatory problems (1), genital (1), nervous (1), eyes (1) and urinary problems (3).	lv, fl, st, ap, wp,	dec,	28	0.0300
LAURACEAE <i>Cinnamomum cassia</i> (L.) J.Presl HUMPOM275	قرفة	n° 46, 841, 1205, 2213	-	I / Ph / T	Antispasmodic (10), cardiovascular diseases (5), diabetes (3), respiratory problems (13), warmer (5), and sexual stimulant (1).	ct, rs, ap,	pod, dec, inf,	35	0.0376
<i>Laurus nobilis</i> L. HUMPOM025	شجرة سيدنا موسى	n° 922, 965, 1065, 1619	N 34°50'30.1" W 002°21'28.8" E = 724 m	S / Ph / R / SH	Anti-inflammatory (2), hypertension (3), dental care (4), liver disorders (2), pancreas ailments (1), cosmetic (4) and digestive problems (7).	lv, fr,	dec, inf, oil,	19	0.0204
LINACEAE <i>Linum usitatissimum</i> L.* HUMPOM235	زريعة الكتان	n° 279, 933, 1885	N 32°09'58.8" W 001°24'39.3" E = 980 m	C / Th / H	Diabetes (3), hypertension (2), allergy (1), renal diseases (3), laxative (1), antitussive (1), cosmetic (1), skin infections (1), diuretic (1) and urinary problems (1).	sd,	pod, mac, inf, oil,	7	0.0075 0.0075
LYTHRACEAE <i>Lawsonia inermis</i> L. HUMPOM236	الحنى	n° 719, 899, 1658, 2309	-	C / Nph / SH	Diabetes (1), headache (1), hair care (4), kidney stones (1), vomiting (1), antifungal (1) and hypertension (1).	lv, ct, wp,	pod, dec, mac,	5	0.0054
<i>Punica granatum</i> L. HUMPOM237	الرمان	n° 494, 1048, 1058, 2144	N 34°50'33.1" W 002°10'28.6" E = 1184 m	C / Nph / T	Diabetes (4), renal diseases (1), intestinal antiseptic (5), hemostatic (1), ulcers (2), eczema (3), eye allergy (1).	ct, pr,	pod, dec, inf,	16	0.0172
MALVACEAE <i>Abelmoschus esculentus</i> (L.) Moench ^a HUMPOM238	ملوخية	n° 229	-	C / Hem / H	Lose weight (3).	fr,	mac, fod,	3	0.0032
<i>Malva sylvestris</i> L. HUMPOM239	خبيز، بقولة	n° 752	N 35°13'34.1" W 003°38'16.7" E = 244 m	C / Hem / H	Laxative (1), cystitis (1), asthma (1), cough (1), colds (1), cosmetic (1) and analgesic (1).	lv, rt,	dec, inf, cat, raw,	5	0.0054
MOLLUGINACEAE <i>Corrigiola telephiifolia</i> Pourret * (<i>Corrigiola litoralis</i> subsp. <i>telephiifolia</i> (Pourr.) Briq.) HUMPOM052	سرغينة	n° 250, 1170	N 35°13'31.2" W 003°38'13.4" E = 246 m	S / Hem / H	Lung problems (2), hair care (3), rheumatism (5), diuretic (4), stomach ache (8), allergy (1), diarrhea (5), nervous problems (1), antibacterial (3) and sterility (1).	wp, rt,	pod, dec,	31	0.0333 0.0333
MORACEAE <i>Ficus carica</i> L. HUMPOM240	شريحة، كرموس	n° 352, 439, 1272	-	C / Ph / T	Diabetes (5), laxative (2), sedative (1), narcotic (1), digestive problems (8) and cardiovascular diseases (4).	fl, lv,	dec, raw, pod,	16	0.0172 0.0102

<i>Morus alba</i> L.* ^α HUMPOM241	توت	n° 434, 1679	-	C / Ph / T	Diabetes (1), diuretic (1), anemia (1) and aphrodisiac (1).	fr, lv, inf,	3	0.0032	
MYRTACEAE <i>Eucalyptus torquata</i> Luehm. HUMPOM243	كالبيتوس	-	N 34°50'30.2" W 002°10'25.7" E = 1182 m	C / Ph / T	Diabetes (2), hypertension (1), hair care (1), respiratory problems (2), fever (4), cough (2), influenza (3) and bronchitis (1).	lv, fr, dec, inf,	11	0.0118	
<i>Syzygium aromaticum</i> (L.) Merr. & L. M. Perry HUMPOM276	عود النوار، القرنفل	n° 1748	N 34°50'36.3" W 002°10'27.1" E = 1190 m	I / Nph / T	Anti-inflammatory (1), insomnia (1), hair care (1), aphrodisiac (1), menstrual pains (1), diabetes (1), hypertension (1), dental analgesic (3), headache (2), digestive (4), circulatory (1) and urinary problems (1).	fl, sd, lv, fr, cv, pod, dec, inf, cat,	13	0.0140	0.0322
<i>Myrtus communis</i> L.* HUMPOM057	ريحان	n° 69, 890	N 34°50'32.9" W 002°10'28.8" E = 1198 m	S / Nph / SH	Allergy (4), diabetes (23) diarrhea (12), hair care (2), hypertension (18), bronchitis (10) and aphrodisiac (1).	lv, dec, inf, pod,	66	0.0709	
NITRARIACEAE <i>Peganum harmala</i> L.* HUMPOM084	حرملة	n° 650, 943	N 33°57'44.1" W 003°02'39.9" E = 1536m	S / Ch / H	Diabetes (11), hypertension (14), skin problems (6), anti-inflammatory (3), respiratory problems (17), digestive problems (25), nervous problems (1), fever (6), sterility (1), emmenagogue (1) and jaundice (1).	sd, wp, rt, dec, pod, inf, fmg,	81	0.0870	0.0870
OLEACEAE <i>Fraxinus angustifolia</i> Vahl HUMPOM181	توزالت، أدردار	-	N 34°47'62.9" W 002°24'15.2" E = 890 m	S / Ph / T	Diabetes (1), aphrodisiac (1), laxative (1), diuretic (1), rheumatism (1), fever (3), nervous (1) and skin problems (2).	lv, ct, fl, sd, fr, dec, inf,	8	0.0086	
<i>Olea europaea</i> L. HUMPOM182	زيتون	n° 1140, 1141, 1146, 1415	N 34°47'68.1" W 002°24'21.0" E = 892 m	S / Ph / T	Diabetes (29), hypertension (18), cardiovascular diseases (20), stomach ache (15), mouth hygiene (1), liver pains (5), cosmetic (16), skin infections (12), influenza (8), cough (13), helminthiasis (1), otitis (3) and respiratory problems (9).	fl, lv, sd, fr, oil, dec, inf, pod,	142	0.1525	0.0548
<i>Phillyrea angustifolia</i> L. HUMPOM183	مليسة، تمونلة	n° 1513	N 34°54'10.1" W 003°47'32.4" E = 925 m	S / Ph / SH	Skin infections (1), antibacterial (1), nervous problems (1), digestive problems (1) and appetizer (1).	lv, rt, wp, dec, inf,	3	0.0032	
PALMACEAE <i>Chamaerops humilis</i> L.* HUMPOM163	دوم	-	N 35°23'09.1" W 002°58'27.2" E = 349 m	S / Nph / SH	Hepatitis (1), diabetes (1) and digestive problems (1).	lv, fr, sd, dec, raw,	2	0.0021	
<i>Phoenix dactylifera</i> L.* HUMPOM244	النخل	n° 284, 342, 425, 492, 512, 834, 910, 1043, 1397, 1473, 1541, 1757, 1794, 1955	N 32°06'25.6" W 001°13'37.3" E = 912 m	C / Ph / T	Digestive problems (3), respiratory problems (1), diabetes (4) and hypertension (3).	fr, fl, lv, sd, pl, dec,	9	0.0097	0.0059

PAPAVERACEAE <i>Papaver rhoeas</i> L.* HUMPOM033	بنعمان	n° 795, 2209	N 34°56'11.3" W 003°48'34.5" E = 507 m	S / Th / H	Diabetes (1), cosmetic (2), sedative (1), sterility (1), menstrual pains (1), cough (3), bronchitis (2), insomnia (1), warmer (1), analgesic (1), spasmolytic (3) and allergy (1).	fl, lv, sd, pt,	dec, inf, mac,	17	0.0183	0.0134
<i>Papaver somniferum</i> L.* HUMPOM032	خرخاشة	n° 116, 462, 794, 951, 2181	N 34°56'12.6" W 003°48'35.3" E = 508 m	S / Th / H	Analgesic (5), insomnia (2) and anxiety (3).	fr,	dec,	8	0.0086	
PEDALIACEAE <i>Sesamum indicum</i> DC. HUMPOM245	جنجلان	n° 499, 1066, 1218, 963	-	C / Ch / H	Diabetes (1), antispasmodic (3), cardiovascular diseases (1), stress (1) and insomnia (1).	sd, fr,	pod, dec, inf,	7	0.0075	0.0075
PINACEAE <i>Cedrus atlantica</i> (Endl.) Manetti ex Carrière ^α HUMPOM017	أرز, إديل	n° 1317	N 34°50'36.6" W 002°10'29.8" E = 1198 m	S / Ph / E / T	Skin problems (2), intestinal antiseptic (1) and rheumatism (1).	cd,	oil,	4	0.0043	
<i>Pinus halepensis</i> Miller. ^α HUMPOM018	دباغ, الصنوبر	n° 433 bis, 1021, 1114, 1417, 1581, 1806, 1835, 1919	N 34°50'38.5" W 002°10'30.7" E = 1182 m	C / Ph / T	Rheumatism (1), cough (2), bronchitis (2), boils (1), digestive (4) and circulatory problems (1).	bk, rs,	dec,	10	0.0107	0.0381
<i>Pinus pinaster</i> Aiton HUMPOM019	تايدة, الصنوبر	n° 433 bis, 1021, 1114, 1417, 1581, 1806, 1835, 1919	N 34°50'39.8" W 002°10'29.3" E = 1195 m	C / Ph / T	Cosmetic (3).	ct, lv,	pod,	3	0.0032	
PIPERACEAE <i>Piper cubeba</i> L. f. ^α HUMPOM277	كبابية	n° 1879	-	I / Ch / H	Urinary infections (1), aphrodisiac (1), cosmetic (1), rheumatism (1), sexual impotence (1), diarrhea (1), and intestinal antiseptic (1).	fr,	raw,	6	0.0064	0.0048
<i>Piper nigrum</i> L. ^α HUMPOM278	ليبزار لكحل	n° 239, 1696, 1699, 1993, 1994	-	I / Ph / SH	Cough (1) and colds (3).	fr,	dec,	3	0.0032	
PLANTAGINACEAE <i>Globularia alypum</i> L.* HUMPOM187	عين لرنب	n° 139, 1246, 1611, 1636	N 34°47'59.8" W 002°24'01.7" E = 889 m	S / Ch / H	Diabetes (5), allergy (2), laxative (4), cholagogue (1), stomachache (9), hypoglycemia (3), vomiting (1) and wounds healing (1).	lv, wp,	dec, inf, pod,	26	0.0279	
<i>Plantago coronopus</i> L. ^α HUMPOM179	تمزورت-نتيخسي	n° 39, 266, 778, 1005, 1892, 2022	N 34°47'68.1" W 002°24'21.4" E = 889 m	S / Hem (Th) / H	Digestive problems (2).	wp, rt,	dec, raw,	2	0.0021	0.0114
<i>Plantago major</i> L. ^α HUMPOM178	المصاصة	n° 39, 266, 778, 1005, 1892, 2022	N 34°47'61.1" W 002°24'17.2" E = 889 m	S / Hem (Th) / R / H	Cancer (1) and boils (3).	lv,	cat,	4	0.0043	
POACEAE <i>Arundo donax</i> L. ^α HUMPOM186	لقصب, غنيم	n° 1798	N 34°52'64.7" W 002°07'44.1" E = 506 m	S / GR / H	Hair care (1) and cosmetic (1).	rh, ap,	cat,	2	0.0021	
<i>Avena sativa</i> L. ^α HUMPOM246	خرطال	n° 747, 775, 1779, 2256	N 33°03'15.2" W 002°00'23.7" E = 1443 m	C / Th / H	Diabetes (1), laxative (1) and mouth hygiene (1).	sd,	pod,	3	0.0032	0.0050
<i>Cynodon dactylon</i> (L.) Pers.* HUMPOM013	نجم, رجل لغراب	n° 109, 458, 1577, 2214, 2215	N 33°03'05.9" W 002°00'12.4" E = 1451 m	S / GR; Hem / H	Renal diseases (1), diuretic (1), hypertension (1) and circulatory problems (1).	rt, lv, wp,	dec, inf,	3	0.0032	

<i>Elymus repens</i> (L.) Gould ^α HUMPOM044	نجم	n° 109, 458, 1577, 2214, 2215	N 34°25'08.7" W 002°54'04.2" E = 391 m	S / Th / H	Respiratory problems (2).	rt, rh, dec,		2	0.0021	
<i>Hordeum vulgare</i> L. HUMPOM247	زرع، شعير	n° 1255, 1321	N 34°47'68.2" W 002°24'06.2" E = 892 m	C / Th / H	Diabetes (1), fever (1), hypertension (1), urinary problems (1), allergy (1) and diuretic (1).	sd, ct, fr,	pod, dec,	6	0.0064	
<i>Oryza sativa</i> L. ^α HUMPOM248	روز	n° 42	-	C / Th / H	Hypercholesterolemia (1) and diabetes (1).	fr,	-	1	0.0011	
<i>Sorghum bicolor</i> (L.) Moench HUMPOM249	بشنة	n° 460, 996, 1477	-	C / Th / H	Allergy (1), diabetes (1) and digestive problems (5).	sd,	pod, inf, dec,	7	0.0075	
<i>Stipa tenacissima</i> L. HUMPOM185	الحلقة	n° 686	N 33°57'42.2" W 003°02'37.8" E = 1535m	S / Hem / H	Diabetes (4) and digestive problems (9).	wp, lv,	dec, inf, mac,	13	0.0140	
<i>Triticum aestivum</i> L. HUMPOM250	القمح	n° 272, 715, 954	N 34°47'72.6" W 002°24'16.4" E = 893 m	C / Th / H	Digestive problems (1), allergy (1) and diabetes (1).	ct, sd, lv,	pod, dec, inf,	1	0.0011	
<i>Zea Mays</i> L. HUMPOM251	الذرة، الكبال	-	-	C / Th / H	Diabetes (2), kidney diseases (3), diuretic (1), allergy (1), hypertension (2) and hypercholesterolemia (2).	sd, st,	dec, inf, dri, scr,	9	0.0097	
POLYGONACEAE <i>Rumex vesicarius</i> L. ^α HUMPOM088	الحميضة، وسميم	n° 698, 699, 703, 1208, 1515	N 34°56'12.9" W 003°48'37.8" E = 508 m	S / Th / H	Skin infections (1), laxative (1), diuretic (1) and antispasmodic (1).	lv, rt, wp,	inf,	3	0.0032	0.0032
POLYPODIACEAE <i>Adiantum capillus-veneris</i> L. ^α HUMPOM012	قصبيرالساقية	n° 256, 490	N 35°06'14.8" W 002°21'06.3" E = 9 m	S / GR / H	Asthma (1), respiratory infections (1), urinary infection (1), diarrhea (1), genital infection (1), bronchitis (1), pancreas ailments (1), hair care (1) and boils (1).	ap, wp,	inf, pod,	6	0.0064	0.0064
PORTULACACEAE <i>Portulaca oleracea</i> L. ^{* α} HUMPOM051	رجلة، تفريئة	n° 313, 327 bis, 328, 783, 1035, 1680, 1954 bis	N 35°56'09.7" W 002°20'41.5" E = 147 m	S / Th / H	Diabetes (3).	ls, ap,	dec,	3	0.0032	0.0032
RANUNCULACEAE <i>Clematis cirrhosa</i> L. ^{* α} HUMPOM028	النارالباردة	n° 1506	N 35°12'07.8" W 003°05'58.1" E = 604 m	S / Ph / SH	Cancer (1), rheumatism (2), eye infection (1), dental problems (3) and boils (2).	lv, ap,	-	9	0.0097	
<i>Nigella sativa</i> L. [*] HUMPOM279	سانوج، الحبة السوداء	n° 573, 941, 1351, 1972	-	I / Th / H	Diabetes (19), allergy (6), carminative (12), cancer (2), menstrual pains (1), tonic (8), abortive (1), antitussive (11), asthma (15) and rheumatism (7).	sd, fl, lv,	pod, dec, inf,	76	0.0816	0.0456
RESEDACEAE <i>Reseda luteola</i> L. ^α HUMPOM161	إسليش، رغوة الخروف	n° 67, 345	N 35°14'47.6" W 003°37'31.2" E = 56 m	S / Th / H	Digestive problems (2) and intestinal infections (1).	rt,	-	3	0.0032	0.0032
RHAMNACEAE <i>Rhamnus alaternus</i> L. ^{* α} HUMPOM076	أمليس	n° 5, 1278, 140	N 35°23'08.5" W 002°58'28.4" E = 349 m	S / Nph (Ph) / SH	Anemia (1), digestive problems (1) and hypoglycemia (1).	rt, lv,	dec,	1	0.0011	0.0182

<i>Ziziphus lotus</i> (L.) Lam. HUMPOM077	السدرة، الننيق	n° 1116, 1165, 1594	N 33°03'05.7" W 002°00'13.9" E = 1451 m	S / Nph (Ph) / RR / SH	Diabetes (13), urinary infections (5), hair care (7), circulatory problems (1), antispasmodic (8), respiratory problems (10) and renal diseases (4).	fl, lv, rt,	dec, pod, inf,	47	0.0505	
<i>Ziziphus jujuba</i> Mill. ^α HUMPOM252	زفيزف	n° 1116, 1165, 1594	N 35°12'23.4" W 003°05'58.9" E = 606 m	C / Nph / SH	Skin problems (3).	lv, fl,	pod,	3	0.0032	
ROSACEAE <i>Crataegus monogyna</i> Jacq. ^α HUMPOM177	أدمام	n° 123	N 34°54'06.9" W 003°47'21.8" E = 920 m	S / Nph (Ph) / SH	Hypertension (4), genital, urinary (2) problems, laxative (1), diarrhea (4) and respiratory problems (6).	fl, lv, fr, ap,	dec,	15	0.0161	
<i>Cydonia oblonga</i> Mill. ^α HUMPOM259	صفرجل	n° 908, 1192	-	C / Ph / SH	Diabetes (7).	fr,	raw, fod,	7	0.0075	
<i>Eriobotrya japonica</i> (Thunb.) Lindl. HUMPOM253	المزاح	-	N 34°50'28.3" W 002°21'24.1" E = 713	C / Ph / T	Diabetes (2), allergy (1), cardiovascular diseases (1), diarrhea (1), and colds (1).	lv, fr,	dec, inf,	4	0.0043	
<i>Malus sylvestris</i> (L.) Mill. HUMPOM254	تفاح	n°417, 1255	N 34°54'16.4" W 003°47'27.7" E = 922 m	C / Ph / T	Cosmetic (10), lose weight (7) and hypertension (13).	fr,	vng,	28	0.0301	
<i>Prunus dulcis</i> (Miller) D. A. Webb* HUMPOM255	اللوذ	n° 926, 927, 1412, 2040	N 34°50'42.7" W 002°12'13.5" E = 1256 m	C / Ph / T	Diabetes (2), headache (1), cosmetic (2), tonic (1), hair care (1) and skin problems (1).	sd, fr,	pod, oil, dec,	5	0.0054	
<i>Prunus armeniaca</i> L. HUMPOM256	المشمش	n° 274, 419, 929, 2136	N 34°54'26.3" W 003°47'25.7" E = 882 m	C / Ph / T	Cancer (1), aphrodisiac (1) and cosmetic (1).	lv, fr, sd,	dec, oil, pod,	2	0.0021	0.0084
<i>Prunus cerasus</i> L. ^α HUMPOM257	حب الملوك	n° 480, 1749	N 34°54'82.8" W 003°47'28.3" E = 812 m	C / Ph / T	Renal diseases (2) and diuretic (1).	fr,	-	3	0.0032	
<i>Prunus persica</i> (L.) Batsch ^α HUMPOM258	الخوخ	n° 420, 830, 864, 930	N 34°54'36.4" W 003°47'29.8" E = 817 m	C / Ph / T	Cosmetic (3).	fr,	-	3	0.0032	
<i>Rosa canina</i> L. ^α HUMPOM180	الورد البلدي	n° 498, 1579, 2222, 2281	N 34°50'26.6" W 002°21'23.9" E = 723 m	S / Nph / ?? / SH	Anemia (1), antibacterial (1), diuretic (1) and laxative (1).	lv, fr,	mac,	4	0.0043	
<i>Rosa centifolia</i> Mill. HUMPOM006	الورد	n° 503, 729, 877, 911, 912, 962, 2274	N 34°50'29.1" W 002°21'27.2" E = 724 m	C / Nph / SH	Cosmetic (4), hair care (2), face care (2) and laxative (1).	fl, lv,	dec, inf, pod,	7	0.0075	
RUBIACEAE <i>Coffea arabica</i> L. HUMPOM280	القهوة	-	-	I / Ch / SH	Cardiovascular diseases (1), stress (1) and headache (1).	fr,	dec, pod,	3	0.0032	0.0089
<i>Rubia peregrina</i> L. HUMPOM007	الفوة بتروية	n° 1530, 1710	N 35°12'02.2" W 003°05'43.2" E = 600 m	S / Ch (G) / H	Aphrodisiac (1), diarrhea (3), hepatitis (1), anemia (1), renal diseases (2), circulatory problems (1), diabetes (3), fever (4), colds (2) and appetizer (1).	bl, lv, sd, rt,	inf, dec, pod,	14	0.0150	

<i>Rubia tinctorum</i> L.* ^α HUMPOM015	الفوة	n° 1530, 1710	N 35°12'00.9" W 003°05'54.2" E = 603 m	C / G / H	Diabetes (2), hypertension (1), cardiovascular diseases (2), renal diseases (1), digestive problems (1), aphrodisiac (1) and analeptic (1).	rt,	dec,	8	0.0086	
RUTACEAE <i>Citrus aurantium</i> L.* HUMPOM260	الرنج	n° 2204	N 35°56'22.1" W 002°20'57.9" E = 138 m	C / Ph / T	Diabetes (3), hypertension (2), headache (1), allergy (1) and cosmetic (2).	fr, fl, lv,	inf, oil, pod,	9	0.0097	
<i>Citrus limon</i> (L.) Osbeck HUMPOM261	الحامض، الليم	n° 16, 421, 870, 945, 2086	N 35°56'16.3" W 002°20'42.8" E = 147 m	C / Ph / T	Hypertension (12), antiseptic (3), diarrhea (2), angina (1), cosmetic (7), face care (2), headache (5), fever and diabetes (9).	fr, fl, lv,	juc, dec, inf, mac, cat,	36	0.0387	
<i>Citrus sinensis</i> (L.) Osbeck HUMPOM263	لتشين	n° 2204	N 35°56'10.2" W 002°20'48.3" E = 152 m	C / Ph / T	Sedative (1), hemostatic (1), analgesic (1), carminative (1), headache (1), fever (2) and face care (1).	lv, fl, fr,	dec, juc,	4	0.0043	0.0133
<i>Ruta chalepensis</i> L. HUMPOM264	فيجل	n° 905, 999, 1166, 1413, 1718	N 35°56'22.7" W 002°20'69.2" E = 141 m	C / Ch / H	Hypoglycemia (2), abortive (1), rheumatism (1), liver diseases (1), vitiligo (1), sterility (1), epilepsy (1), fever (1), hair care (1), anti-inflammatory (1) and respiratory problems (1).	lv, ap, wp,	inf, dec, pod, raw,	8	0.0086	
<i>Ruta montana</i> (L.) L.* HUMPOM265	اورمي	n° 905, 999, 1166, 1413, 1718	N 35°56'19.6" W 002°20'57.4" E = 143 m	C / Ch / H	Diabetes (1), ear infection (1), rheumatism (1), diuretic (1), headache (1) and abortive (1).	ap, ifl, lv,	inf, pod,	5	0.0054	
SALICACEAE <i>Populus nigra</i> L. HUMPOM124	صفصاف	n° 104, 724, 725	N 35°56'12.9" W 002°20'49.6" E = 150 m	C / Ph / T	Rheumatism (1), anti-inflammatory (1), digestive (1) and respiratory problems (1).	lv, wp	dec, inf, pod, cat,	4	0.0043	0.0037
<i>Salix alba</i> L. HUMPOM129	عودالماء	n° 102, 237, 344, 369, 815, 914, 1631	N 35°56'10.6" W 002°20'45.1" E = 148 m	S / Ph / T	Anti-inflammatory (1) and mouth hygiene (2).	lv, ec, wp,	pod, dec,	3	0.0032	
SANTALACEAE <i>Viscum album</i> L.* HUMPOM061	لنجبار	n° 848	N 34°54'08.7" W 003°47'28.9" E = 922 m	S / Ch(-p) / RR	Diabetes (1), digestive problems (1) and appetizer (1).	sd,	pod, dec,	3	0.0032	0.0032
SAPOTACEAE <i>Argania spinosa</i> (L.) Skeels HUMPOM164	أركان	n° 56, 1145, 2041	N 35°56'12.3" W 002°20'49.8" E = 150 m	S / Ph / E / V / T	Cosmetic (7), hair care (4), skin infections (5), aphrodisiac (1), ulcers (2), colds (1), eczema (2) and diabetes (5).	fr, sd, lv, rt,	oil, inf, cat,	25	0.0269	0.0269
SALVADORACEAE <i>Salvadora persica</i> L.* ^α HUMPOM281	سواك، عود الأراك	n° 50, 271, 1608, 1882	-	I / Ph / SH	Dental hygiene (3) and bad breath (3).	rt,	raw,	3	0.0032	0.0032
SCROPHULARIACEAE <i>Verbascum sinuatum</i> L.* ^α HUMPOM184	صلاح النظر	n° 38, 375, 1263, 1704, 2162	N 35°12'41.1" W 003°38'44.7" E = 274 m	S / Th-b (Hem) / H	Hemorrhoids (1), toothache (1), ulcers (1), boils (1), eye infections (2) and colds (1).	fl,	inf, dis,	6	0.0064	0.0064

SOLANACEAE <i>Atropa belladonna</i> L.* ^α HUMPOM138	زبيب ليدور -		N 34°56'13.6" W 003°48'39.8" E = 510 m	S / Hem / RR / H	Appetizer (4), sexual stimulant (2) and aphrodisiac (2).	fr, fl, rt, dec,	8	0.0086	
<i>Capsicum annuum</i> L.* ^α HUMPOM266	الفلفل الحمر -		-	C / Ch / H	Tonic (1), warmer (1), sexual impotence (1) and respiratory problems (1).	fr, pod,	4	0.0043	
<i>Datura stramonium</i> L.* ^α HUMPOM133	شديق الجمل -	n° 316, 527, 2120	N 34°50'61.5" W 002°12'20.6" E = 1347 m	S / Th / H	Respiratory problem (14), narcotic (1), sedative (2), vomiting (4), asthma (13), cough (7), weakness (5), jaundice (1) and hypertension (9).	lv, sd, fl, fmg tis, dec, inf, cat,	53	0.0569	
<i>Hyoscyamus albus</i> L.* ^α HUMPOM132	الكنكيط , بونرجوف -	n° 356, 937, 1262	N 33°57'44.8" W 003°02'40.4" E = 1535m	S / Th / H	Sedative (1), dental analgesic (6) and hemorrhoids (8).	sd, inf,	13	0.0140	0.0146
<i>Lycium schweinfurthii</i> Damm.* ^α (<i>Lycium intricatum</i> Boiss) HUMPOM136	الغردك ,انزركي -	n° 680, 831, 1632, 1720, 1901, 2049	N 35°06'15.8" W 002°21'01.2" E = 9 m	S / Nph; Ch / E / RR / SH	Digestive problems (3), skin inflammation (1), intestinal parasites (1) and sterility (1).	sd, dec,	5	0.0054	
<i>Lycopersicon esculentum</i> Mill.* ^α HUMPOM267	مطيشة -		-	C / Ch / H	Cardiovascular diseases (10) and cancer (1).	sd, fr, raw,	11	0.0118	
<i>Solanum americanum</i> Mill.* ^α HUMPOM135	عنب الديب ,تيدبلا -	n° 450, 582, 1027, 1589	N 35°23'04.3" W 002°58'24.4" E = 349 m	S / Th / H	Eczema (4), skin burns (7), wounds healing (3), edema pregnancy (2) and vomiting (1).	fr, lv, st, ap, pod, dec, inf, cat,	16	0.0172	
<i>Solanum sodomaeum</i> L.* ^α HUMPOM134	لحدج, مطيشة الحمير -		N 35°23'09.1" W 002°58'26.9" E = 350 m	S / Nph / SH	Women sterility (1), digestive (5) and skin problems (3).	fr, inf,	9	0.0097	
<i>Solanum tuberosum</i> L.* ^α HUMPOM268	بطاطا -		-	C / Th / H	Skin infections (3).	tb, raw,	3	0.0032	
STYRACACEAE <i>Styrax benzoin</i> Dr.* ^α HUMPOM282	الجاوي -		-	I / Ph / T	Boils (2) and skin infections (3).	rs, fmg,	4	0.0043	0.0043
TAMARICACEAE <i>Tamarix aphylla</i> (L.) H. Karst HUMPOM120	تكويت ,تمايت -	n° 17, 245, 399, 572, 1455, 1523, 1929, 2228	N 32°06'22.9" W 001°13'34.1" E = 911 m	S / Ph / T	Hair care (5), diuretic (6), liver diseases (3), and diarrhea (10).	lv, ap, dec,	21	0.0226	0.0226
THEACEAE <i>Camellia sinensis</i> (L.) Kuntze HUMPOM283	أتاي -		-	I / Nph / T	Digestive problems (1), skin problems (1), hypertension (1), hemorrhoids (1) and diabetes (1).	lv, inf, dec, pod, cat,	5	0.0054	0.0054
THYMELAEACEAE <i>Daphne gnidium</i> L.* HUMPOM054	لزاز ,أزاز -	n° 457, 577, 1390, 1916, 2087	N 34°52'58.3" W 002°07'39.6" E = 506 m	S / Ch / SH	Diabetes (14), hair care (8), abortive (1), fever (9) and headache (5).	lv, fr, pod, mac, inf, dec,	36	0.0387	0.043
<i>Thymelaea hirsuta</i> (L.) Endl.* HUMPOM056	مثنان ,فتيتيشة -		N 34°20'37.2" W 002°07'24.1" E = 1182 m	S / Nph / V / SH	Respiratory problems (23), diabetes (10), dental problems (8) and laxative (5).	lv, sd, dec, inf,	44	0.0473	
TILIACEAE <i>Tilia sylvestris</i> Desf. HUMPOM097	الزيرفون -		N 35°12'07.9" W 003°05'59.5" E = 605 m	C / Ph / T	Headache (2), respiratory problems (5), fever (3), colds (2) and hypertension (1).	wp, fl, dec, mac, inf,	12	0.0129	0.0129

URTICACEAE <i>Parietaria mauritanica</i> Durieu ^α HUMPOM036	الحريكة الملصا	-	N 35°12'05.7" W 003°05'57.2" E = 603 m	S / Th / H	Diabetes (3).	ifl, inf,	3	0.0032	
<i>Urtica dioica</i> L.* HUMPOM037	الحريكة، تيزينات	n° 160, 363, 478, 940, 1773	N 34°25'05.8" W 002°54'03.8" E = 391 m	S / GR / RR / H	Diabetes (13), hypertension (9), diuretic (1), eczema (5), cholagogue (1), renal diseases (3), digestive problems (16), depurative (1), hair care (1), rheumatism (3), diarrhea (2) and allergy (4).	wp, lv, pod, dec, inf,	55	0.0591	0.0311
VERBENACEAE <i>Aloysia citriodora</i> Palau HUMPOM269	اللوزية	-	N 34°25'14.5" W 002°54'08.1" E = 349 m	C / Hem / H	Digestive problems (40), hypertension (27), diabetes (15), nervous problems (2), headache (1), colds (7) and depurative (5).	lv, wp, sd, inf, dec, pod,	96	0.1031	0.1031
VITACEAE <i>Vitis vinifera</i> L. HUMPOM078	الدالية	n° 93, 186, 820, 863, 1078, 1084, 1105, 1483, 1571, 1595, 1903, 2143, 2200	N 34°25'04.6" W 002°54'02.7" E = 388 m	C / Nph / SH	Hypertension (2), boils (1), headache (3), allergy (1) and anemia (1).	lv, fl, dec, inf, mac,	7	0.0075	0.0075
XANTHORRHOACEAE <i>Aloe succotrina</i> Lam.* HUMPOM284	الصبار	n° 1388, 2159	-	I / Hem / H	Cancer (1), skin infections (7), diabetes (5) and laxative (3).	ct, lv, dec, oil, juc,	13	0.0140	
<i>Aloe vera</i> (L.) Burm. f. HUMPOM285	ألوي فيرا	-	-	I / hem / H	Skin problems (11), cosmetic (8) and diabetes (3).	lv, raw,	20	0.0215	0.0147
<i>Asphodelus microcarpus</i> Salzm. & Viv. HUMPOM150	البروغ	n° 88, 277, 826	N 35°12'12.1" W 003°05'58.6" E = 603 m	S / GR / H	Diabetes (1), vitiligo (1), rheumatism (1), skin problems (1), digestive problems (3), dental problems (2) and eczema (1).	rt, st, rh, dec,	8	0.0086	
ZINGIBERACEAE <i>Aframomum melegueta</i> K.Schum. ^α HUMPOM262	الكوزة الصحراوية	-	-	I / GR / H	Colds (30) and menstrual pains (1).	sd pod	31	0.0333	
<i>Alpinia officinarum</i> Hance HUMPOM105	خودنجال	n° 829	-	I / GR / H	Antitussive (2), colds (2), rheumatism (2), sexual impotence (1), respiratory problems (4), warmer (2), menstrual pains (1), depurative (1), and anti-inflammatory (3).	ct, st, rt, wp, dec, pod, inf,	14	0.0150	0.0238
<i>Curcuma longa</i> L. ^α HUMPOM224	الخرقوم	n° 1525, 1917, 2254	-	I / GR / H	Digestive problems (3), appetizer (1), aphrodisiac (1) and anemia (1).	rh, pod	5	0.0054	
<i>Elettaria cardamomum</i> (L.) Maton HUMPOM189	قعقولة	n° 838, 1342 bis, 1355, 1722, 1783, 2247, 2268	-	I / GR / H	Aphrodisiac (2) and digestive problems (1).	sd, inf, pod,	3	0.0032	
<i>Zingiber officinale</i> Roscoe HUMPOM190	زنجبيل، سكينجيبير	n° 1125	-	I / GR / H	Diabetes (11), colds (23), cough (16), and respiratory problems (13).	rt, ct, st, pod, dec, inf,	58	0.0623	

ZYGOPHYLLACEAE <i>Fagonia cretica</i> L. ^a HUMPOM085	- تمشكلة , سديرية	N 34°01'17.3" W 002°01'42.5" E = 935 m	S / Ch / H	Digestive problems (1).	wp,	inf, pod,	1	0.0011
<i>Tetraena gaetula</i> (Emb. & Maire) Beier & Thulin HUMPOM089	- عكابة	N 32°31'53.1" W 001°57'16.2" E = 1168 m	S / Ch / E / H	Diabetes (9), hypertension (12), appetizer (4), eczema (4), diarrhea (10), analgesic (2), intestinal antiseptic (8), tonic (3), hepatitis (1), rheumatism (9), boils (3) and cosmetic (5).	lv, ap, wp, ct,	inf, pod, dec, tis,	67	0.0720

Ecological status: **S:** Spontaneous; **C:** Cultivated; **I:** Imported; **E:** Endemic; **R:** Rare; **RR:** Very rare, number of localities ≤ 5; **R?:** Suspected rare; **??:** Taxon on extinguished or dubious presence.; **V:** vulnerable (or Seems being), in Way of regression and could to become rare at short term.

Life forms: **Ph:** Phanerophyte; **Nph:** Nanophanerophyte; **Ch:** Chamaephyte; **Hem:** Hemicryptophyte; **G:** Geophyte; **GB:** Geophyte with bulb; **GR:** Geophyte with rhizome; **GT:** Geophyte with tuber; **HyF:** Hydrophyte fixed; **Th:** Therophyte; **Th-b:** Therophyte biennial; **(-l):** Lianescentes; **(-p):** Parasites. **Herbaceous life form:** **H:** herb; **SH:** Shrub; **T:** Tree.

Part used: **ap:** Aerial part; **bk:** Bark; **br:** Branch; **bl:** Bulbs; **cd:** Cade; **cp:** Capitules; **cv:** Clove; **cn:** Cone; **ct:** Cortex; **ec:** Ecorce; **fl:** Flowers; **fr:** Fruits; **gl:** Gall; **ifl:** Inflorescence; **lt:** Latex; **ls:** Leafily Stem; **lv:** Leaves; **pr:** Pericarp; **pt:** Petal; **pl:** Pulp; **rs:** Resin; **rh:** Rhizome; **rt:** Roots; **rb:** Rubber; **sd:** Seeds; **st:** Stem; **sg:** Stigma; **tb:** Tubers; **up:** Underground Part; **wp:** Whole Plant; **w:** wood.

Mode of preparation: **cat:** Cataplasm; **dec:** Decoction; **dis:** Distillation; **dri:** Dried; **fod:** Food; **fmg:** Fumigation; **inf:** Infusion; **inh:** Inhalation; **juc:** Juice; **mac:** Maceration; **oil:** oil; **pod:** Powder; **raw:** Raw; **scr:** Scorched; **tis:** Tisane; **vng:** Vinegar. **UV:** Use Value. **FUV:** Family Use Value. **NC:** Number of citations. *: Toxic plant. -: Does not exist. ^a: **New** plant reported in the region of study.