



Original Article

Ethnobotanical survey of herbal remedies traditionally used in El Hammadia (Southern region of the province of Bordj Bou Arreridj, Algeria)

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ABSTRACT

This work is devoted to the study of medicinal plants in the southern region of BordjBouArreridj (communes of the Daïra of El Hammadia), and their different uses in traditional medicine. A series of surveys were conducted in the study area with inhabitants and herbalists, to acquire more informations about the therapeutic uses of medicinal plants practiced by the local–population. The analysis of the results allowed us to identify 78 species belonging to 36 families, the most represented are: Apiaceae (13.92%), Lamiaceae (12.65%), Asteraceae (11.39%) and Liliaceae (5.06%). The most commonly parts used from these plants are respectively: the leaves (34.21%), the stems (17.54%), the fruits (12.28%), the roots (10.52%) and the seeds (8.77%). Medicinal plants are prepared and used as powder, infusion, especially as decoction and poultice. The most used is the decoction. The main common health problem treated are; digestive disorders (29.81%), respiratory disorders (10.55%), skin inflammations (9.17%), urinary inflammations (8.25%), liver diseases (6.88%) and neurologic problems (6.42%). El Hammadia has good ethnobotanical potential of medicinal plants. This study is the first contribution to the ethnobotany of this region. We have gathered from this province some considerable knowledge about local medicinal plants for treating diseases.

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1. Introduction

Through the centuries, human traditions have developed the knowledge and use of medicinal plants. If some medical practices seem strange and magical, on the contrary, it seems sounder, more effective. Yet all are aimed at overcoming suffering and improving the health of humans [1]. The use of plants for therapeutic purposes is reported in ancient Arabic, Chinese, Egyptian, Hindu, Greek, and Roman literature. The therapeutic power of plants was known to our ancestors empirically [2]. In

fact, worldwide there are about 500000 plant species, 80 000 species are considered medicinal plants and many drugs are developed from their active ingredients. The great majority of the world's developing countries (80%) uses medicinal plants for health purposes and for the treatment of pain [3, 4]. The World Health Organization (WHO) considers that in many less developed countries, plants and their components are the primary sources of remedy [5,6]. In the African region, knowledge and

practices regarding traditional medicine have been passed from one generation to the next as oral tradition. Traditional medicine is well developed in Algeria, but the use of conventional medicine has led to the neglect of these ancestral practices, which risk being forgotten [7]. Currently medicinal plants occupy a very important place in agrarian production and in industry. They present a very fine economic sector and care in producing countries. Medicinal plants are the main sources of the active ingredients used in the pharmaceutical field for the production of drugs. They are also often used in the field of manufacture of cosmetics, detergents and others [8]. Ethnobotany and ethnopharmacology bring together the knowledge of traditional doctors and current scientific knowledge. It should be emphasized that the purpose of ethnopharmacology and ethnobotany is therefore to understand the practices applied in traditional pharmacopoeia. Our work contribute to the valorization of local flora used in traditional medicine from ethnopharmacological surveys carried out in the southern region of Bordj Bou Arreridj exactly in the commune of El Hammadia, in order to produce a catalog of these plants and to gather as much informations as possible about the therapeutic uses practiced by the local population. Indeed, it is very important to transfer this traditional knowledge into scientific knowledge in order to revalue it, to preserve it and to use it in a rational way.

2. Materials and Methods

2.1. Presentation of the study area

The study area is the Daïra of El Hammadia situated in the southern region of Bordj Bou Arreridj (Latitude, 35.9835° N; longitude, 4.7795° E), it develops in a very varied natural environment between the mountains of Hodna and the plains of the wilaya of Bordj Bou Arreridj (BBA), is located in the southern part of the Willaya of Bordj Bou Arreridj (Algeria) about 10 km from the chief place of the province, it covers an geographical area of about 679.2km² including 64915 inhabitants, with a density of 516 inhabitants per km² [9]. This area is characterized by a very varied natural environment between the mountains of Hodna and the plains of the wilaya of BordjBouArreridj (BBA) [9].

The climate belongs to the semi-arid bioclimatic stage, with cool winter and dry/hot summer, the rainfall is between 300 and 600 mm/year. This Daïra includes

the following communes: El Hammdia, El Euch, Rabta, and K'sour (Fig.1). The study area is limited to the south by the province of M'Sila, BordjBouArreridj chief place to the north, Daira of Mansourah to the west, and Daïra of BordjGhedir to the east. The southern region of Bordj Bou Arreridj is considered among the steppe areas, it consists of light soils agropastoral vocation. However, a sub-zone crossed by the wadi Lakhdar allows the practice of vegetable crops and the fruit arboriculture in irrigated [9].

The forest area within the group is essentially composed of the following species: *Pinus halepensis*, *Quercus ilex* and *Cedrus atlantica*. Besides, this study area includes also a rich: *Stipa tenacissima*, *Artemisia herba*, *Ampilodisma mauritanica*, *Atriplex halumus* and *Astragale* (*Astralgus harmatus*, *Lygeum spartum*, and *Peganum harmala*) [9].

2.2. Methodology

An ethnobotanical study of medicinal plants was carried out in order to establish the catalog of medicinal plants and gather all the informations concerning the therapeutic uses practices practiced by the local population in the southern region of the wilaya of Bordj Bou Arreridj. This study was carried out from 149 ethnobotanical surveys (Appendix 1) conducted from March to April 2015 with a random population sample of all the communes. The time spent on each interview was about half an hour. The informations collected concerned the profile of the interviewee (age, sex, intellectual level, family situation and adress). The ethno-pharmacological data for each plant include the common local name, the uses, the part (s) used, the method of preparation (Appendix 1), based on the semi-structured interview method [10]. The identification of the harvested material was done first in the field and completed at the ethnobotany and natural substance laboratory, ENS of Kouba, Algiers. The determination of the scientific nomenclature was carried out at the species level, based on the documents: Nouvelle flore d'Algerie [11]. We also collected samples of the medicinal plant species of the region in order to verify their local names with several interviewees.

The data are processed from a statistical analysis using ANOVA test at a threshold of 5%. The presentation of the data and its processing are done using EXCEL 2007 software.

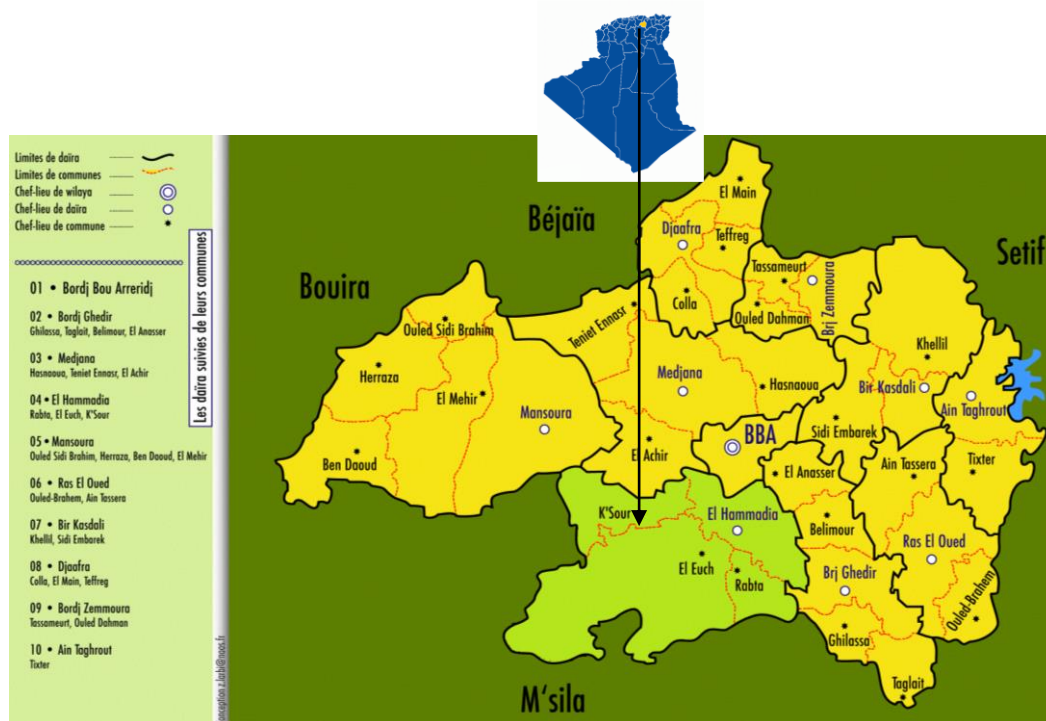


Fig 1. Geographical location of the Daïra of El Hammadia.

3. Results and Discussion

3.1. Use of medicinal plants

Among the population questioned, those aged 20-39 years were the most prevalent, at 40%, followed by those aged 40-59 years at 30%, then the over 60 year-olds, at 25% (Fig. 2). The highest proportion of ethnobotanical surveys was carried out with men (43%), women (57%) (Fig.3). The illiterate interviewees are the most presented with a percentage of 35% then the secondary level (22%) (Fig.4). More than half of the population questioned was married at 76.51%, than single people (23.48%) (Fig.5). Unemployed person accounted for 65% (18 people) (Fig. 6). The accumulated experience with age is the main source of information at the local population about the use of plants in traditional medicine. There is also a loss of informations about medicinal plants, which is explained by the mistrust of some people, particularly young people, who tend to no longer believe in this traditional medicine. Knowledge of the uses of medicinal plants and their properties are generally acquired following a long accumulated experience and transmitted from one generation to the next [12]. In this region, men and women are concerned with the use of medicinal plants. However, medicinal plants are used more by women. This may explain the use of medicinal plants by women in other areas than therapy and their responsibility as

mothers, it is they who give first aid especially for their children.

These results are similar to the ethnobotanical work by Rebbas *et al.* [7] in the region of Ouennougha (M'sila, Algeria), which showed that women are more holders of traditional herbal knowledge. This is explained by the fact that women are concerned with the collection of medicinal plants, drying, storing and preparing recipes for the care of family members, this can be explained by their responsibility as mothers.

The unemployed persons are the most users of medicinal plants than the workers because they allow them to avoid or minimize the material charges required by the doctor and the pharmacist, also because the plants are available year-round in their environment, and are cheaper compared to medicines. Medicinal plants are much more used by married people than by single. As these allow them to avoid or minimize the physical burdens required by the doctor and pharmacist and also the fact that they are responsible as parents to give first aid especially for their children. The vast majority of medicinal plants users are illiterates. While those with a university level use very little of the Medicinal plants. This clearly high illiteracy rate among medicinal plant users can be a real obstacle to local development.

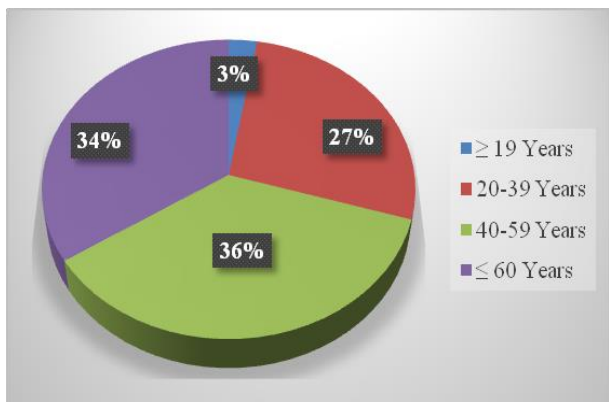


Fig 2. Distribution of frequency of use by age.

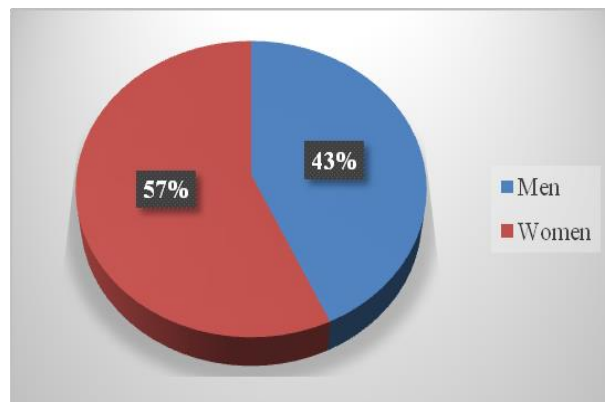


Fig 3. Distribution of frequency of use by sex.

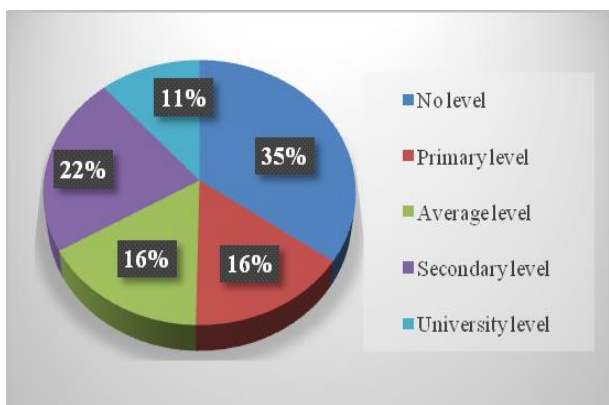


Fig 4. Distribution of frequency of use by study level.

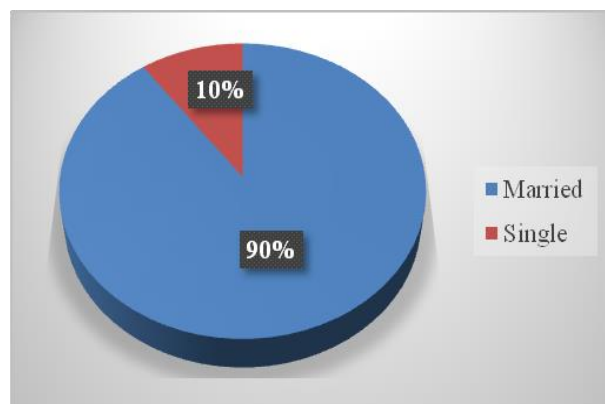


Fig 5. Distribution of frequency of use by family situation.

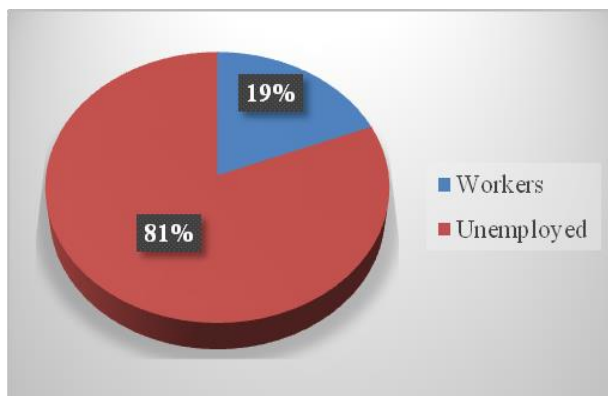


Fig 6. Distribution of the frequency of use by to the profession.

3.2. Traditional use of harvested medicinal plants

Among the different parts that are used in traditional medicine, there are 11 parts met by these ethnobotanical surveys in the study area (leaves, stems, roots, seeds, flowers, bulbs, fruits, bark, resin, flower buds, and the whole plant). The percentage of use of these different parts shows that the leaves are the most used (33.62%), the stems and the fruits occupy the second place with percentages of 16.81% and 12.38% respectively, then the roots (10.61%), the seeds (8.84%), the whole plant (5.30%) and the flowers (3.53%). However, for the other parts, we note the same rate for the resin and the bark (2.65%), bulbs (1.76%) and finally the flower buds (0.88%) (Fig.7). Each part of the plant has therapeutic properties. For this, medicinal plants can be used whole, or in parts (leaf, stem, root, bark, fruit) [13]. In order to facilitate the administration of the active biomolecules, several methods of preparation are used namely: decoction, infusion, fumigation, poultice, maceration, powder. We

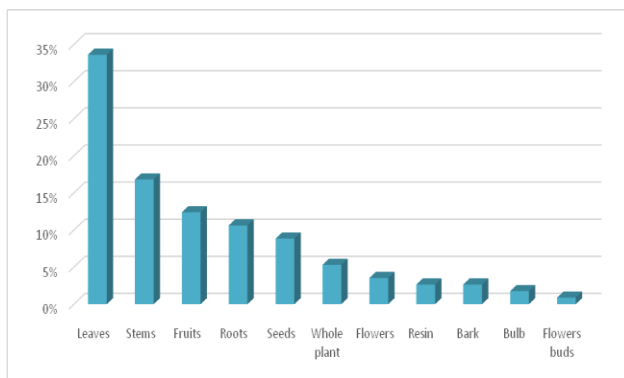


Fig 7. Distribution of different parts used in the care of diseases.

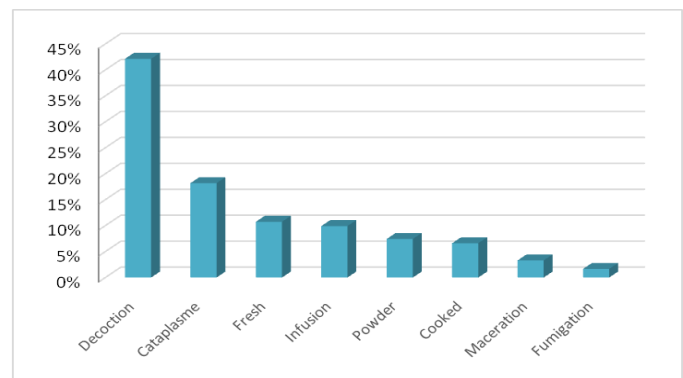


Fig 8. Distribution of different methods of preparation.

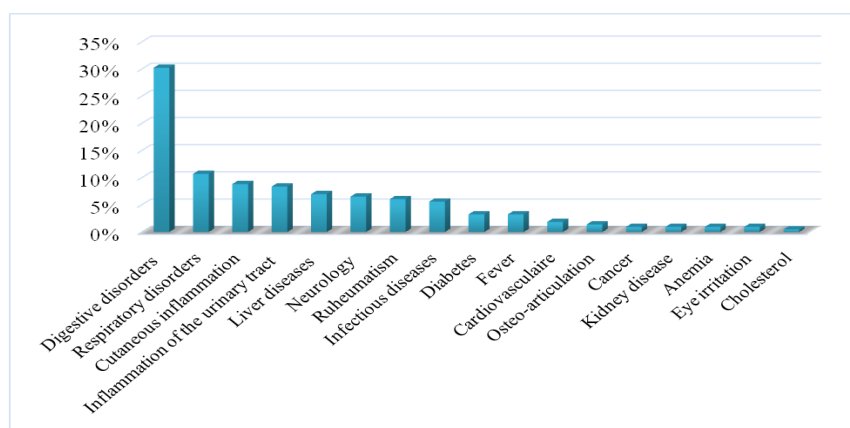


Fig 9. Distribution of diseases treated by registered medicinal plants.

3.3. Florestic analysis of harvested medicinal plants

On the basis of 149 surveys carried out in the southern region of Bordj Bou Arreridj, an ethno-floristic catalog has been drawn up (Appendix 2). For each plant listed, we give the scientific name, the french name,

can also use the medicinal plants in the raw state or cooked. The decoction and the poultice are the two most usable methods of preparation with a rate of 42% and 18% respectively. The direct use of medicinal plants (at rawstate) occupies the second place with a percentage of 11%, followed by the infusion (10%), powder and cooked (7%), maceration (3%) and finally the fumigation (2%) (Fig.8). Medicinal plants are listed with their therapeutic practices in the Appendix 2 below. All the information practices collected are presented in the form of a catalog. The majority of the listed species in the region are indicated in the treatment of the following diseases: digestive disorders (30.23%), respiratory disorders (10.69%), cutaneous inflammations (8.83%), urinary inflammations (8.37%), liver diseases (6.97%), neurologic troubles (6.51%), rheumatism (6.04%), infectious diseases (5.58%), kidney diseases, diabetes and fever have the same percentages (3.25%). The rest includes other diseases with a rate of (6.5%) (Fig.9).

vernacular names, the family, the used part(s), the therapeutic effects and the method of preparation adopted by the local population, as well as the frequency of use. The floristic analysis of the listed plants shows that 76 species are used in traditional medicine. They are distributed into 37 botanical

families of which only 4 species belong to the branch of the Gymnosperms (Cupressaceae and Pinaceae including 3 species and one species respectively).

The angiosperms taxon is represented by 75 species including 9 Monocotyledons species and 65 Dicotyledons species (11.52% and 81.96%,

respectively). Of the 36 families encountered, six families dominate very clearly, this flora alone totals 40 species, 51.24% of the total number with: 11 species of *Apiaceae* (14.1%), 9 species of *Lamiaceae* (11.53%), 9 species of *Asteraceae* (11.53%), 4 species of *Liliaceae*, (5.12%), 4 species of *Poaceae* (5.12%) and 3 species of *Cupressaceae* (3.84%) (Fig.10).

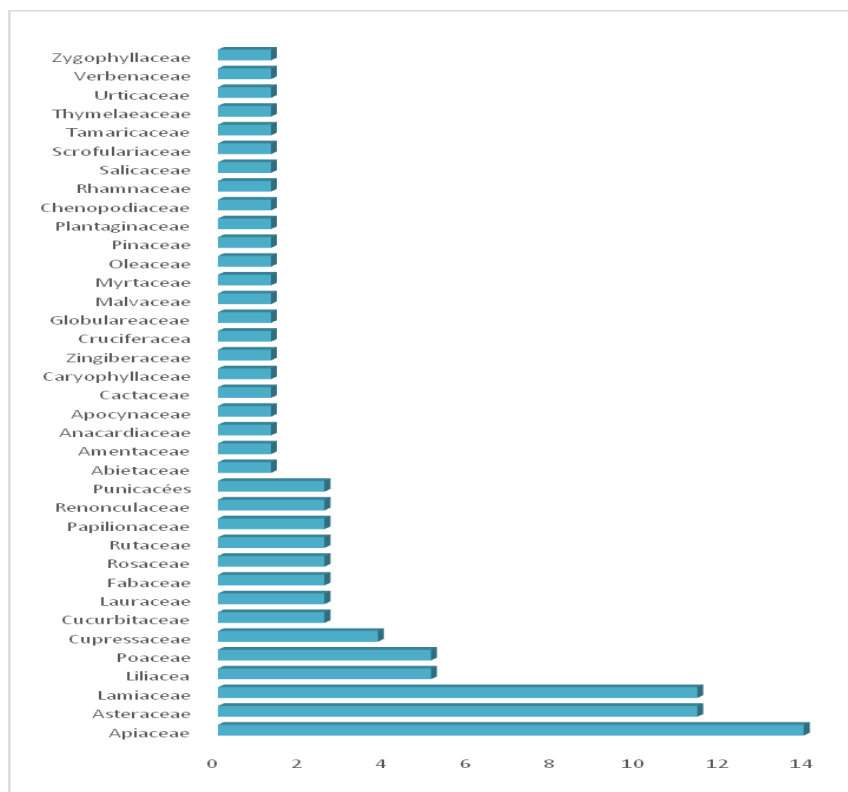


Fig 10. Distribution of species according to botanical families.

Conclusion

The ethnopharmacological approach is of great importance in the identification of medicinal plants that are used in the treatment of diseases. The purpose of this work is to sensitize the medical profession on the use of medicinal plants among the population of the southern region of Bordj Bou Arreridj. Despite the socio-economic development, this population is proud of its heritage in the field of traditional medicine. At the end of this work, we group seventy-eight identified plants that are supposed to possess therapeutic properties. The majority of medicinal plants used in the traditional pharmacopoeia in the southern region of Bordj Bou Arreridj are spontaneous. The dominant substrate in the preparation of remedies is water as the appropriate substance to extract the active biomolecules of medicinal plants. This study allowed us to reveal the relative importance given to traditional

herbal medicine in the health system to the region studied, and to confirm that the use of medicinal plants in the therapeutic field persists despite the Revolution in medical technology. Similarly, the collection and analysis of the collected data has made it possible to transform the popular oral knowledge in this region into knowledge transcribed by the establishment of a catalogue of medicinal plants and their therapeutic use.

Aknowledgements

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Conflict of Interest

The authors declare that they have no conflict of interest.

Appendix

Appendix 1. Questionnaire on the ethnobotanical survey of plants commonly used in the study area.

Date	Area	Sexe		Classe of Age	Educationallevel					Informants			
		Man	Woman		Illiterate	Primary	Intermediary	Secondary	Academic	Herbalist	Healer	Villager	
Botanicalname					Scientificname					Vernacular name :Arabic/ Amazigh/Targui/Others			
Type of disease													
Plants associated													
Method of utilisation (period, mode, nature, amount ...)													
Mode of use					Infusion	Decoction	Powder	Cream	Bath	Plaster	Fumigation	Maceration	Other
Part (s) used					Leaves	Fruits	Flowers	Seeds	Aerial parts	Plant whole	Bark	Roots	Other

Appendix 2. Medicinal plants and their therapeutic uses in the study area

N	Vernacularname	Englishname	Scientificnames	Family	Therapeuticeffects
1.	Aklil	Rosemary	<i>Rosmarinus officinalis</i> L.	Lamiaceae	Against hepatic disorders, intestinal gas, relieves migraine, leg pain, due to fatigue, antiseptic and antispasmodic for the stomach
2.	Aligue	Bramble	<i>Rubus fruticosus</i> L.	Rosaceae	Antidiabetic, depurative, against diarrhea and stomach ulcer
3.	Arar	Juniper	<i>Juniperus phoenicea</i> L.	Cupressaceae	Tonic of the stomach, treats lung diseases, depurative and antiseptic
4.	Asalk	Spinach	<i>Spinacia oleracea</i> L.	Chenopodiaceae	Against anemia and intestinal gases
5.	Babonige	Chamomile	<i>Matricaria recutita</i> L.	Asteraceae	treated cutaneous and intestinal irritations
6.	Bellout	Oak	<i>Quercus ilex</i> L.	Amentaceae	Against diarrhea, treats intestinal ulcer and wounds
7.	Beloiz	Asphodel	<i>Asphodel microcarpus</i> L.	Liliaceae	Treats all forms of abscess and against rheumatic pains
8.	Besbase	SweetFennel	<i>Foeniculum officinale</i> MILL	Apiaceae	Against colic, stomach spasms and flatuositities, tonic and stimulating
9.	Bounnafaa	Smooth Thapsia	<i>Thapsia garcanica</i> L.	Apiaceae	Treat rheumatic pains and bronchitis
10.	Calitous	Australian Fever Tree	<i>Eucalyptus globulus</i> Labille L.	Myrtaceae	Against influenza
11.	Chair	Barely	<i>Hordeum vulgare</i> L.	Poaceae	Facilitates digestion, treats renal affection and antiseptic
12.	Chedjretmeriem	Wormwood	<i>Artemisia absinthium</i> L.	Asteraceae	Treat the digestive atony, intermittent fever and intestinal diseases
13.	Chendgoura	Ivette Musky	<i>Ajugaiva</i> L.	Lamiaceae	Treats headaches and rheumatic pains, vulnerable, antiseptic and astringent
14.	Chih	Wormwood	<i>Artemisia herba-alba</i> Asso.	Asteraceae	Facilitates digestion, stomachic, Antidiabetic, Calmliverdisease, antispasmodic, vermifuge and emmenagogue
15.	Commoune	Cumin	<i>Cuminum cyminum</i> L.	Apiaceae	Facilitates digestion, against intestinal gas and stomach colic, sudorific and galactogenic
16.	Defla	Oleander	<i>Nerium oleander</i> L.	Apocynaceae	Against certain diseases of the skin, treats injuries and chronic back pain

17.	Djida	Feltygermander	<i>Teucrium polium</i> L.	Lamiaceae	Treat wounds, stomachic, vermifuge and cholagogue
18.	Dora	Maize	<i>Zea mays</i> L.	Poaceae	Against dysentery and stimulates the rise of milk in lactating women
19.	Elbasla	Onion	<i>Allium cepa</i> L.	Liliaceae	Treats headaches and respiratory tracts
20.	Eldarou	Mastic tree	<i>Pistachia lentiscus</i> L.	Anacardiaceae	Treats stomach ulcer, against diarrhea and heals wounds
21.	Elhaba souda	Small Garden Fennel	<i>Nigella arvensis</i> L.	Renonculaceae	Relieves cough, intestinal gas, colds, headaches, and otitis
22.	Elhadja	Bitter cucumber	<i>Citrullus colocynthis</i> L.	Cucurbitaceae	Treated chronic skin affections, inflammations of the urinary tract, antirheumatic, laxative and vermifuge
23.	Elhba	Melissa	<i>Melissa officinalis</i> L.	Lamiaceae	Treats headaches, migraine, against intestinal gas, antispasmodic, stimulant and sudorific
24.	Elkharoub	Carobtree	<i>Ceratonia siliqua</i> L.	Papilionaceae	Against diarrhea and infantile enteritis
25.	Elkhorchaf	Artichoke	<i>Cynara cardunculus</i> L.	Asteraceae	Renal affections, the troubles of hepatic origin, jaundice, diabetes, diuretic, stomachic and cholagogue
26.	Elmaadnouse	Parsley	<i>Petroselinum crispum</i> L.	Apiaceae	Diuretic, stomachic, carminative, emmenagogue and expectorant
27.	ELnadjam	Wheatgrass	<i>Triticum repens</i> L.	Poaceae	Treats affections of the kidneys, digestive, troubles, diuretic and bile duct
28.	Fagouselhmir	SquirtingCucumber	<i>Ecballium elaterium</i> Rich	Cucurbitaceae	Used to treat jaundice, regulates the heart rate and lowers blood pressure
29.	Fijal	Commun Rue	<i>Ruta graveolens</i> L.	Rutaceae	Emmenagogue, vermifuge, diuretic, sudorific and antiseptic
30.	Fliou	Mint	<i>Mentha pulegium</i> L.	Lamiaceae	Treats headaches, colds, intestinal gas, stomachic, antiseptic and sudorific
31.	Fogaa el djmal	Field eryngo	<i>Eryngium campestre</i> L.	Apiaceae	Treats affections of kidneys, increases secretion of urine, cholagogue and sudorific
32.	Haberrachad	Garden cress	<i>Lepidium sativum</i> L.	Cruciferaeae	Treats headaches, cough, antiseptic, against febrile states, vermifuge and relieves skin ulceration
33.	habathlawa	Anise	<i>Pimpinella anisum</i> L.	Apiaceae	Against intestinal gas, vermifuge and antispasmodic
34.	Halba	Fenugreek	<i>Trigonella foenum-graecum</i> L.	Papilionaceae	Favors appetite, facilitates digestion treats boils and tumors and galactogen
35.	Halfa	Espartograss	<i>Stipa tenacissima</i> L.	Poaceae	Lowers cholesterol levels in the blood and treats the chronic ulcer
36.	Harmel	Wild rue	<i>Peganum harmala</i> L.	Zygophillaceae	Used to alleviate rheumatic pains, sudorific, emmenagogue and diuretic
37.	Hindi	PricklyPear	<i>Opuntia ficus indica</i> L.	Cactaceae	Treated intestinal inflammations and emollient
38.	Horrig	StingingNettle	<i>Urtica dioica</i> L.	Urticaceae	Used to treat rheumatic pains
39.	Kafour	Camphortree	<i>Cinnamomum camphora</i> L.	Lauraceae	Against cough, bronchitis and flu, stimulant, cardi tonic and vermifuge
40.	Karwiya	Meridian fennel	<i>Carum carvi</i> L.	Apiaceae	Against rheumatism, intestinal gas and stomach colic, facilitates digestion and stimulates the rise of milk in lactating women
41.	Kassar El Hadjer	Redsandspurry	<i>Spergularia rubra</i> L.	Caryophyllaceae	Treats kidney Affections (eliminates kidney stones), inflammations of the urinary tract and diuretic
42.	Khoubeize	Common Mallo	<i>Malva sylvestris</i> L.	Malvaceae	Heals boils and cutaneous affections (tumor, insect bites ...), treats inflammations of the urinary tract and the digestive tract, antiseptic, astringent and soothing
43.	Kosber	Coriander	<i>Coriandrum sativum</i> L.	Apiaceae	Against intestinal gas, facilitates digestion, stimulating, antispasmodic, emmenagogue and vermifuge
44.	Krafas	Celery	<i>Apium graveolens</i> L.	Apiaceae	Facilitates digestion, against diabetes and rheumatism, treats renal diseases and urinary tract inflammation and diuretic
45.	Ladad	Pine thistle	<i>Atractyllis gummifera</i> L.	Asteraceae	Wormer, treated skin wounds and boils
46.	Laymoun	Lemon	<i>Citrus limon</i> L.	Rutaceae	Treatscolds, influenza, febrile states, sore throats, facilitates digestion, depurative
47.	Magraman	Viscous Inule	<i>Inula viscosa</i> L.	Asteraceae	Stops haemorrhages, antirheumatic, treats stomach ulcer, sudorific and depurative
48.	Massasa	RatstailLantain	<i>Plantago major</i> L.	Plantaginaceae	Heals wounds and insect bites
49.	Methnane	Spurflax	<i>Thymelaea hirsuta</i> L.	Thymelaeaceae	Purgative and resolving

50.	Mezir	Lavender	<i>Lavandula staechas</i> L.	Lamiaceae	Against liver disorders
51.	Mlilas	Mediterranean Buckthorn	<i>Rhamnus alaternus</i> L.	Rhamnaceae	Uses to cure jaundice, laxative
52.	Naanaa	Mint/piperita	<i>Mentha piperita</i> L.	Lamiaceae	Against the influenza, facilitates digestion, treats neuralgia and antispasmodic
53.	Om El mdamade	Great burnet	<i>Sanguisorba officinalis</i> L.	Asteraceae	Treats wounds, boils and skin conditions and cancerous diseases
54.	Rend	Bay Laurel	<i>Laurus nobilis</i> L.	Lauraceae	Facilitates digestion, against intestinal gas and depurative
55.	Roumane	Pomegranate Tree	<i>Punica granatum</i> L.	Punicaceae	Against debility of the stomach, diarrhea and anemia, astringent and tonic
56.	Rtem	Retam	<i>Retamaraetam</i> L.	Fabaceae	Healing used in skin affections, treats eye irritation, diarrhea, feverish diseases and solitary worms and lowers blood sugar levels
57.	Safsaf	Black Poplar	<i>Populus nigra</i> L.	Salicaceae	Treats kidney affections, against catarrh of the respiratory tract, intermittent fevers, rheumatism, sciatica problems, diuretic, sudorific and astringent
58.	Sakoum	Sparrowgrass	<i>Asparagus officinalis</i> L.	Liliaceae	Treats affections of kidneys and increases secretion of urine
59.	Saroil	Mediterranean cypress	<i>Cupressus sempervirens</i> L.	Cupressaceae	Treat rheumatic pains, cold and cough, astringent and antispasmodic
60.	Sedra	Jujube	<i>Ziziphus lotus</i> L.	Pinaceae	Heals lung diseases and jaundice and emollient
61.	Snowber	Aleppo Pine	<i>Pinus halepensis</i> L.	Abietaceae	Antiseptic urinary tract, respiratory tract, wounds and vermifuge
62.	Tagga	Oxycedre/Juniper	<i>Juniperus oxycedrus</i> L.	Cuperssaceae	Facilitates digestion, increases urine secretion, sudorific, stimulating and antiseptic
63.	Talgouda	Black cumin	<i>Bunium mauritanium</i> L.	Apiaceae	Facilitates digestion, against intestinal gas and stomach colic, diuretic and stomachic
64.	Talma	Scorzonera	<i>Scorzonera undulata</i> Vahl	Asteraceae	Softening, depurative, diuretic, laxative and tonic
65.	Tamariwat, Meriout	White Horehound	<i>Marrubium vulgare</i> L.	Lamiaceae	Treats respiratory tract conditions, febrile states at children's yellows, against liver diseases and stomachic
66.	Tarfa	Tamarisk	<i>Tamarix articulata</i> L.	Tamaricaceae	Against diarrhea, astringent and diuretic
67.	Taselgha	Globe Daisy	<i>Globularia alypum</i> L.	Globulareaceae	Facilitates digestion, depurative, astringent, cholagogue, laxative, stomachic and sudorific
68.	Tilfaf	Sowthistle	<i>Sonchus oleraceus</i> L.	Asteraceae	Cholagogue, depurative, diuretic, laxative, tonic and resolutive
69.	Tisana / Raaielhamam	Vervain	<i>Verbena officinalis</i> L.	Verbenaceae	Diuretic, emmenagogue, stimulant and anti-diarrhea
70.	Toufelat	Great mullein	<i>Verbascum thapsus</i> L.	Scrofulariaceae	Heals the lung diseases, bronchitis, gout and hemorrhoids
71.	Toum	Garelic	<i>Allium sativum</i> L.	Liliaceae	Against diabetes, jaundice, toothache, antiseptic, cholagogue, hypotensive, exerts anti-cancer and preventive action by disinfecting the intestine
72.	Zaarour el barri	Hawthorn	<i>Crataegus oxyacantha</i> L.	Rosaceae	Regulates the heart rate and lowers blood pressure
73.	Zaater	Garden Thyme	<i>Thymus vulgaris</i> L.	Lamiaceae	Against influenza and rheumatic pain
74.	Zaroudia	Carrot	<i>Daucus carota</i> L.	Apiaceae	Promotes visual acuity and the crepuscular vision, treated inflammations of the digestive tract and the respiratory system and against tonsillitis to children
75.	Zenzou	Jungle bells	<i>Clematis cirrhosa</i> L.	Renonculaceae	Treats neuralgia and rheumatic pains
76.	Zitoune /Azebbouje	Olive tree	<i>Olea europea</i> L.	Oleaceae	Treats toothaches, lowers blood pressure, astringent, diuretic, tonic and febrifuges

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