



## Ethnobotanical Survey of Some Plants Used in Tessala Region, Algeria

[Bellifa NAZIM\\*](#) , [Toumi HOUARI](#) , [Benhaddou ISMAIL](#) 

Department of Pharmacy, Pharmacognosy Laboratory, Faculty of Medicine, University of Djilali Liabes,  
Postal code 22000, City Sidi Bel Abbes-Algeria

\*Corresponding author : [nazim.bellifa@univ-sba.dz](mailto:nazim.bellifa@univ-sba.dz)

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### Abstract

The area of Tessala is home to very diverse vegetation between forest and steppe species more than 1000 meters high, there are aromatic plants thus participating in the economy of the region this wealth is not exploited where the interest of our study in the framework of the valorization of the natural resources by an inventory of the flora and an ethnobotanical investigation using a standardized survey dedicated to the tradipraticiens. Subsequently, this work was complemented by the identification of field samples at the Botanical Laboratory of the faculty of medicine using flora and herbaria available to translate this traditional folk knowledge into scientific knowledge. Thus, the scientific knowledge of the medicinal flora of the region studied allowed us to gather the maximum of information concerning the therapeutic uses practiced by the local population. As a result of the floristic inventory a total of 80 medicinal plants, distributed in 50 genera, were collected and identified. Plant family with the highest medicinal plants in the study area used for various diseases treatment was Lamiaceae. The survey revealed more than 40 species used for several pathologies ranging from simple dermatological disease to hypertension and diabetes while Pistacia, *Marrubium*, and Myrtus were the most frequently utilized plant, However, to save medicinal plants from further loss, involving local communities in the cultivation of the most utilized medicinal plants is recommended.

**Key Words:** Aromatic plants, Ethnobotanical study, Flora, Inventory, Medicinal plants, Traditional, Valorization

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### 1. Introduction

Nature is a huge deposit of active molecules of plant origin, and the resources of the flora are far from being fully inventoried. Around the world, we continue today to look for plants that can be used as a basis for new treatments. Today, the search for new drug molecules of natural origin continues to be an urgent necessity and is based on the quality of medicinal plants and on ethnobotanical studies that make it possible to make

inventories of plants of a region, by determining their quality. by phytochemical and pharmacological studies (Guedira and Goetz, 2008). In Algeria species of spontaneous flora constitutes a significant part of local genetic resources with pastoral, forage, food, aromatic and/or medicinal value (Adrar, 2015).

Therefore, to make an appreciable contribution to the knowledge of this plant biodiversity and development of the natural

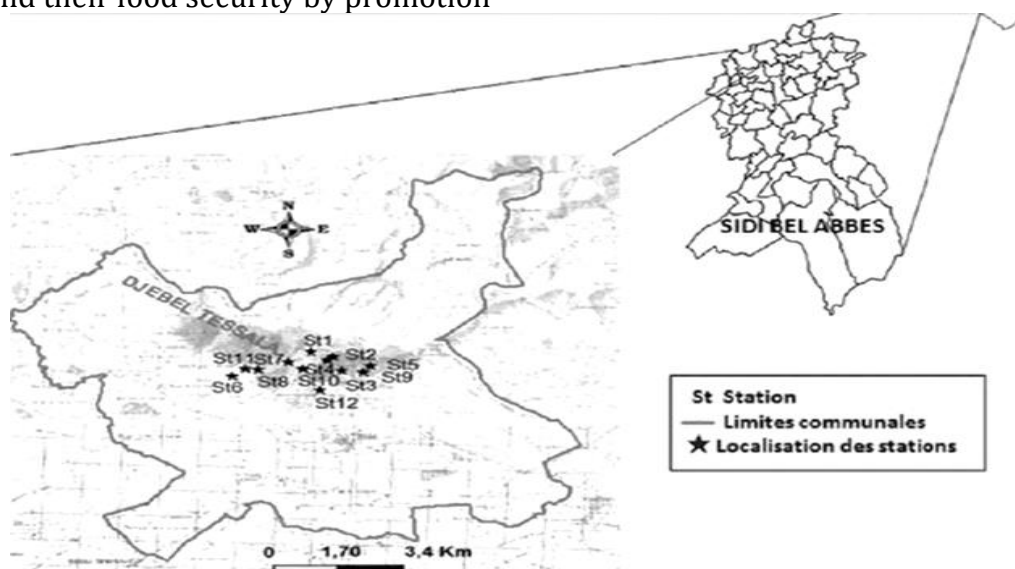
resources of Tessala, Western Algeria it has been considered useful to do a floristic and ethnobotanical study. In addition to the programs of some international organizations such as (IUCN), which aims to promote the conservation of biodiversity and the sustainable use of natural resources in North Africa and the involvement of local communities in the conservation of biodiversity, our laboratory is trying to carry out floristic, phytochemical and ethnobotanical research of medicinal plants in different regions of Sidi bel abbes, this work also aims to support the rural poor by strengthening their identity, their sources of income and their food security by promotion

of the use of neglected species. (Belkhadar, 1997).

## 2. Material and Method

### 2.1. Ethnobotanical data collection and analysis

First a floristic inventory, then an ethnobotanical survey was carried out in the region of Tessala near traditional healers based on a questionnaire developed and standardized according to the pharmalex platform to draw up a list of plants with the scientific name, the family, vernacular name, usage and method of preparation.



**Figure 1.** Presentation of the area of study

The survey carried out concerned the commune of Tessala the location of the different survey environments was identified by stratified sampling techniques. These techniques seemed appropriate for conducting ethnobotanical surveys varied from one area to another in this study. We sought to delimit and explore the maximum areas of the region. For this, two field campaigns were planned during the years 2018 and 2019. And using 40 questionnaire sheets that were prepared and rectified, we carried out ethnobotanical surveys in the region studied (Figure 1) to have as much information as possible about the use of

medicinal plants by the local population. For the identification and determination of species, we used the new flora of Algeria and the southern desert regions (Paul Ozenda, 1991) and the flora of North Africa (Quezel and Santa, 1962) and the flora of the laboratory of the pharmacognosy of the faculty of medicine of Sidi bel abbes. Also, an herbarium has been made and stored in the Tlemcen pharmacognosy laboratory, an electronic version of which is available.

### 2.2. Presentation of the area study

The mountains of Tessala are located in the north of western Algeria, and more precisely

north of Sidi Bel Abbés (Figure 1). Composed of sedimentary rocks, they form an elongated massif, which belongs to the Tellian Atlas. They culminate at Djebel Tessala which reaches 1061 m of altitude. Most soils (Benyahia et al., 2001) belong to the class of raw mineral soils: lithosols and regosols of

the French classification. There are also some rendzines Calcium brown soils are rare, the climate is the Mediterranean. Rainfall is concentrated in autumn and winter, while the drought period is 6 months, from April to September (Ferka-Zazou, 2006).

**Table1.** List of plants identified in the ethnobotanical survey

Scientific name	Vernacular name	Traditional use	Preparation method
<i>Ajuga-iva</i>	chendgoura	Diabetes	Decoction
<i>Ampelodesma mauritanicus</i>	Diss	Digestion	Decoction
<i>Aristidi pungens</i>	retam	Multiple uses	Powdre aerial part
<i>Arthrophytum scoparium</i>	Remeth	Hepatitis	Decoction
<i>Artemisia herba-alba</i>	Chih	Emmenagogue	Decoction
<i>Asparagus acutifollus</i>	Sekoum	Gout disease	Drop fruit
<i>Asphodelus microcarpus</i>	Belouz	Cold snap	Tubercule comestibl
<i>Atractylis gummifera</i>	Addad	Dermatological affaction	Root
<i>Atriplex halimus</i>	Guettaf	Emmenagogue	Decoction
<i>Rhamnus alaternus</i>	meliles	Ictere, jaundice	Bark decoction
<i>Bellis annua</i>	Hallala	Furunculosis	Cataplasm
<i>Bourrago officinalis</i>	Lessan elferd	Diuretic	Flower
<i>Chamerops humilis</i>	Gaze	Digestive	Fruit comestibl
<i>Cistus</i>	tanghoust	Rheumatism	Maceration
<i>Calycotome spinosa</i>	Guendoul	Cardiovascular	Infused flower
<i>Coronilla valentina</i>			
<i>Daphne gnidium</i>	Lazez	Sinusitis	Maceration,cataplasm
<i>Euphorbia helioscopia</i>	Tabera	Vomitingt, aphthae	Roots
<i>Globularia alypum</i>	Tesselra	Constipation	Infusion
<i>Kundmaninia</i>	Zeyata	Diabetes Obesity	Root
<i>Marubium album</i>	Merioua	Urinary infection	Decoction
<i>Myrtus communis</i>	Rayhan	Antiseptic	Fumigation
<i>Lavandula stoechas</i>	Halhal	Dyslipidemia	Infusion
<i>Olea europea</i>	Zitoun	Hypertension and diabetes	Dried leaves
<i>Phillyrea angustifolia</i>	Ktem	Hair	Tinctorial
<i>Pinus halepensis</i>	Zenin	Cough	Fumigation, oil
<i>Pistachia lentiscus</i>	Darou	Hypertension and diabetes	Oil, decoction, dried leaves
<i>Plantago longopus</i>	Lalema	Kidney calcul	Infusion
<i>Quercus coccifera</i>	Belout	Diarrhea, hernia	Decoction Bark
<i>Rosmarinus officinalis</i>	Iklil el jabel	Hepatoprotective Painful menstruation	Infusion
<i>Ruta chalepensis</i>	Fidjela	Emmenagogue	Leaves
<i>Salvia verbenaca</i>	keyata	Healing	Leaf application
<i>Salvia argentea</i>	Ferachet e neda	Healing	Fresh leaf
<i>Saxifragas globulifera</i>	Fetat el hejer	Calculation of the kidneys	Decoction
<i>Scolymus hispanica</i>	Guernina	pains	Powder
<i>Tetraclinis articulata</i>	Araar	Antiseptic	Fumigation
<i>Thapsia garganica</i>	Deryas	Rheumatism	Bulbe maceration with olive oil
<i>Teucrium polium</i>	Latay el khela	Dyslipidemia	Maceration
<i>Thymus vulgaris</i>	Zaater	Cough, flu, allergy	Infusion, decoction, cataplasm
<i>Thymelaea hirsuta</i>	Metnan	Pain	Decoction, infusion

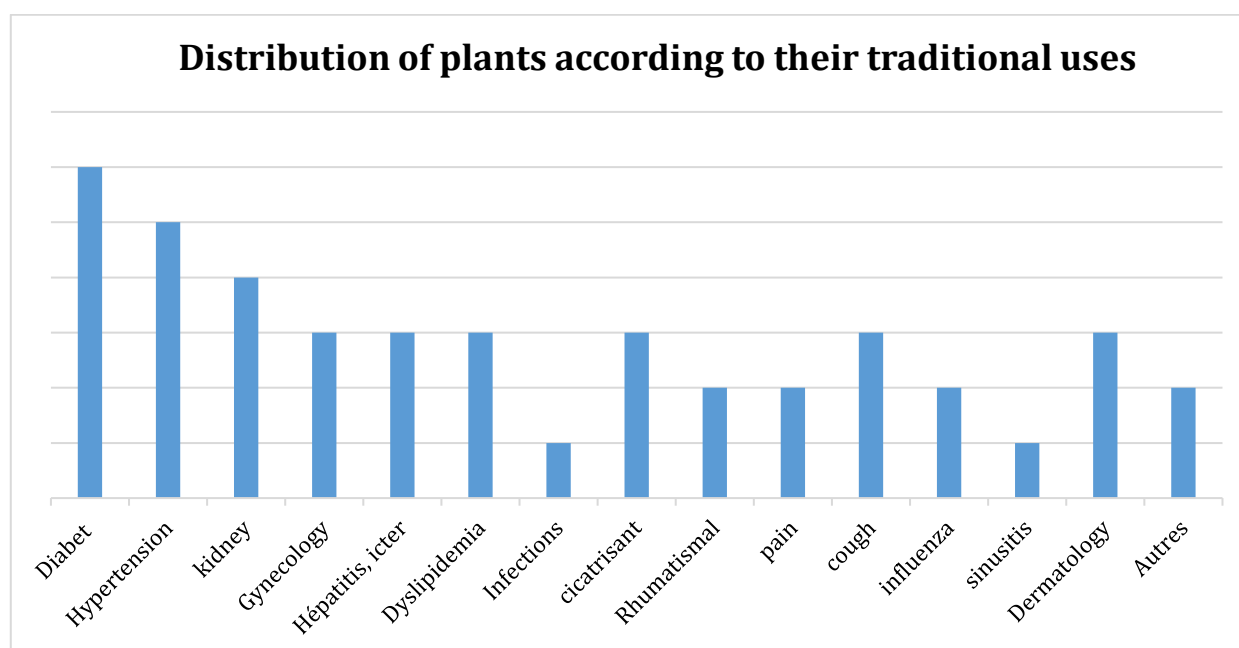
### 3. Results and Discussion

The floristic inventory has collected more than 50 genera and 80 species distributed throughout the study area, while the survey allowed for a table with more than 40 species to better understand the relationships between species and types of diseases, we initially limited ourselves to medicinal plants with a relatively high frequency of use. In the Tell there is mainly the Aleppo Pine which is well adapted to the region, next to it there are other secondary species: The *Holm and kermes, Thuya, Juniperus*.

The undergrowth includes various *Cistus Pistacia, Filaria, Olea europea, Arbutus, Cysts, Rosemary, Dwarf Palm, Alfa, Diss (Ampelodesmos tenax)*, next to it The *Alfa* dominates the rocky steppe, in stony soils with shallow soils. Associated with alfa, we find a range of perennial or annual plants: *Bromus squarrosus, Bromus bordaceas, Thymus ciliatus, Asphodelus, Astragalus, Rosmarinus, Cistus, Libanotus,*

*Echinariacapitala, Avena alba, Galium, Alfa* is exploited by herds of sedentary or semi-nomadic inhabitants of the region. And a steppe to *Artemesia herba alba*: It occupies not only the previous areas but the southern area of the region. The white sagebrush, which is frequently mixed with the esparto grass (*Lygeum spartum*) and the whitish plantain (*Plantago albicans*), is continuous and homogeneous for tens of kilometers and only disappears in the dahyas (small closed depressions, sometimes filled with water, during heavy rains) or dominate graminaceous vegetation, including sedge bromus divided. (Quezel and Santa, 1962)

The ethnobotanical survey has made it possible to draw up a table with more than 40 species described below with several pathologies treated from a simple mycosis to kidney stones and hepatitis. The Lamiaceae family is largely predominant with more than 8 genera followed by the family. Asteraceae Apiaceae, Fabaceae, Oleaceae.



**Figure 2.** Distribution of plants according to their traditional uses

For the preparation method, the decoction is predominant but we also note poultices fumigations, for the traditional use diabetes

is very concerned then kidney stones with 4 recommended plants, then dyslipidemia and cardiovascular diseases and finally the other

indications whose hepatitis, gastric disorders, gynecological, rheumatism, flu, sinusitis, dermatological disorders.

The most utilized species in the treatment of respiratory diseases (Table 1), we note the massive use of *Myrtus* for its phytotherapeutic properties particularly flu, colds, coughs, and lung diseases. It is also recognized as a plant par excellence of the diseases of winter that is to say the cooling of all kinds. We also note the use of *Slavia argentea* and its excellent qualities especially for its ability to heal wounds and burns, *Marrubium album* in the treatment of urinary infections against women and Ruta in the preparation of a meal for women suffering from amenorrhea which is accompanied by hot buffets, *Daphne gnidium* and *Phillyrea angustifolia* to prepare a tincture in cases of hair loss giving good results. These results confirm those of Belkhadar, 1997; Dif et al., 2015 and Khitri and Lardjam, 2018), notably in Morocco Hseini and Kahouadji and al (Tahri et al., 2012).

#### 4. Conclusion

The region of Tessala with its abundant and varied flora is a real reserve with several species with great therapeutic potential and unveiled through this ethnobotanical survey, the species *Phillyrea angustifolia* L. is considered the preferred plant for the hair with the *Daphne*. It has also been noticed that *Artemisia* is a medicinal plant very much appreciated by women, because of its emmenagogues properties. The species *Marrubium album* L. is well known in the region studied for its effective action in the therapy of the urinary tract, in the end, the genus *Salvia* used for the preparation of poultice for its healing power very famous.

These species have a comparative advantage over other crops in adapting to environmental conditions, medicinal value, and resistance to adverse climatic conditions. Besides, their safeguarding is important for

the protection of local identities, cultural traditions, and local know-how, for the promotion of traditional medicine by local populations of their potential. This popular knowledge, considered as an inheritance, can constitute a platform for the exchange of experiences, knowledge, and information concerning the traditional use of medicinal plants.

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#### Conflict of Interest

The authors declare that they have no links of interest.

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