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# BIOLOGICAL SCIENCES

## PHYSIOLOGY & MOLECULARBIOLOGY

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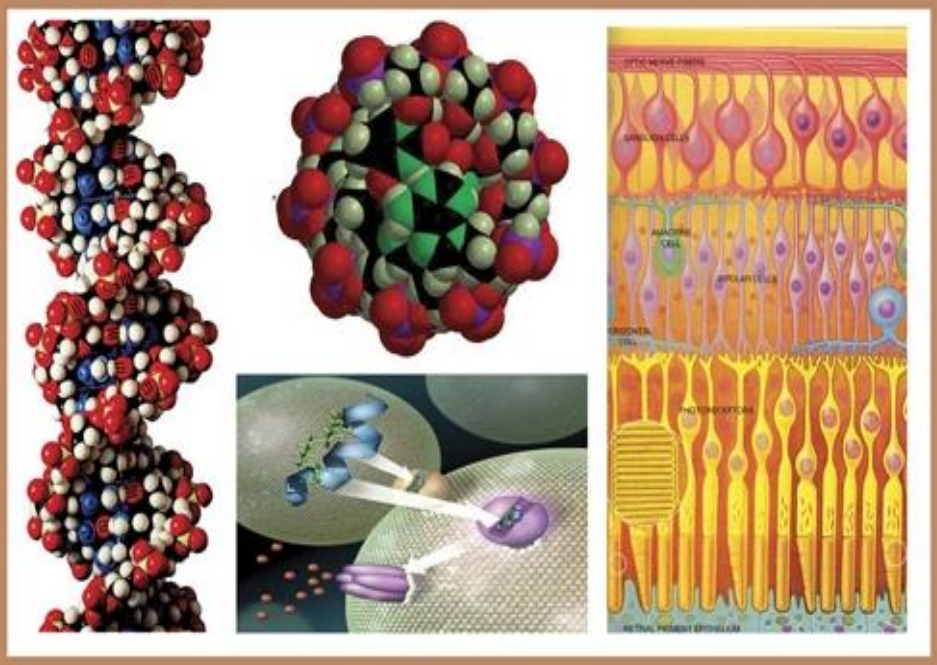

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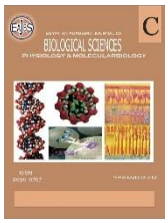

# Ethnobotanical Study of Medicinal Plants in The Lagarmi Zone (Wilaya of El Bayadh - Algeria, West)

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**ABSTRACT**

Algerian arid zone presents a rich diversity of medicinal plants and ethnoecological knowledge. Ethnobotanical study of medicinal plants was carried out in the Wilaya of el bayadh (Laguermi Zone). The purpose of this study is to compile a catalog of medicinal plants, to gather all the information concerning the therapeutic uses practiced by the local population in the region studied. A survey was carried out among the elderly in homes, and the annex of the National Biological Resource Development Center of Laguermi, one hundred (100) questionnaire sheets for two months. The results helped to identify medicinal plants divided into twenty-eight 28 families among which the Lamiaceae and the Asteraceae are the most for the majority of remedies. The results are a valuable source of information for both the study area and the national medicinal flora; it could be a database for further research in phytochemistry and pharmacology fields to search for new natural substances.

## INTRODUCTION

Ethnobotanical knowledge has a growing significance in developed and emerging countries for the traditional systems of medicine, in particular for the medicinal plants that are an alternative to conventional synthetic drugs and their attendant side effects. The physiotherapy study in society is evidenced by ethnopharmacology. It allows us to translate popular know-how into scientific knowledge. Therefore, Ethnobotanical studies have become a reliable approach for ancestral knowledge exploration. Moreover, it approaches the study of traditional medicines and their pharmacopeia, provided by the richness and diversity of the many disciplines that make it up. (Belakhdar,2018)

According to the WHO (World Health Organization), in some developing countries in Asia, Africa, and Latin America, 80% of the population depends on traditional medicine, especially in rural areas. Because of the proximity and accessibility of this type of care at an affordable cost. And above all lack of access to modern medicine for this population, (WHO,2004). The purpose of the current research is to conduct an ethnobotanical study to document medicinal plants used to treat diseases of humans in the Lagarmi zone (Wilaya of El Bayadh - Algeria, west).

## MATERIALS AND METHODS

The Laguermi annex (El-Bayadh) (**Fig. 1**) (33 ° 37'N. 1 ° 08'E) is located 13 km from the capital of the Wilaya of El-Bayadh and on the national road 47 (El-Bayadh - Aflou). It occupies an area of 16 ha of which 6000m² is built (Fig. 1). (Mechri et kabbar, 2018)

Ethnobotanical data were collected between March and April 2021 in the region of Elbayadh region according to the medicinal plant used in "Laguermi zone ". We used a survey with specifically asked questions for practitioners of medicinal plants of different ages and sex. We carried out a simple random sample on the center wilaya of the El Bayadh population with the Lagarmi area. Using Microsoft Excel, the presentations of descriptive statistics were performed.

The reported medicinal plants were collected from Lagarmi zone. Vegetation voucher specimens were collected, pressed, and deposited in herbarium in the laboratory of plant biology in El Bayadh UniversityCenter.

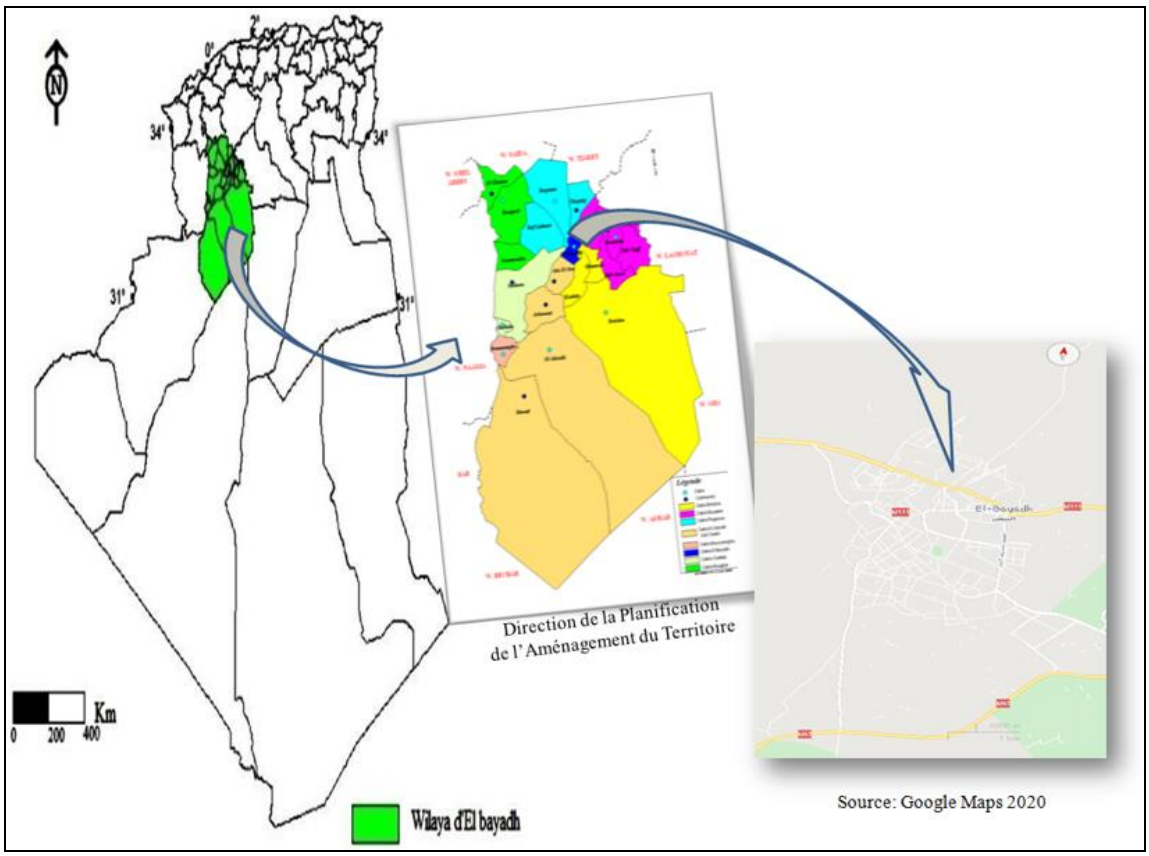


**Fig. 1:** Location map of the study area (El Bayadh Wilaya**).**

## RESULTS AND DISCUSSION

### Variation in Results According to Informants:

### 1. Distribution of Information by Sex:

During our ethnobotanical survey and the site study, we found that both sexes (men and women) practice traditional medicine (Fig. 2). However, the female sex predominates with a percentage of 60%. By the way, a rate of 40% in males, explains that women are more concerned with the herbal treatment and preparation of herbal recipes.

Several studies have shown the same result, in the regions of Aurès (Algeria); Kénitra (Morocco) and Kabyle (Adaouane, 2016; Benkhnigue, 2011), respectively. On the other hand, several works show a different result; the male sex uses plants more than the female sex, in

Marrakech region (Morocco) (Ait ouakrouch,2015), respectively. This difference could be due to several factors: cultural, social, geographical, or financial.

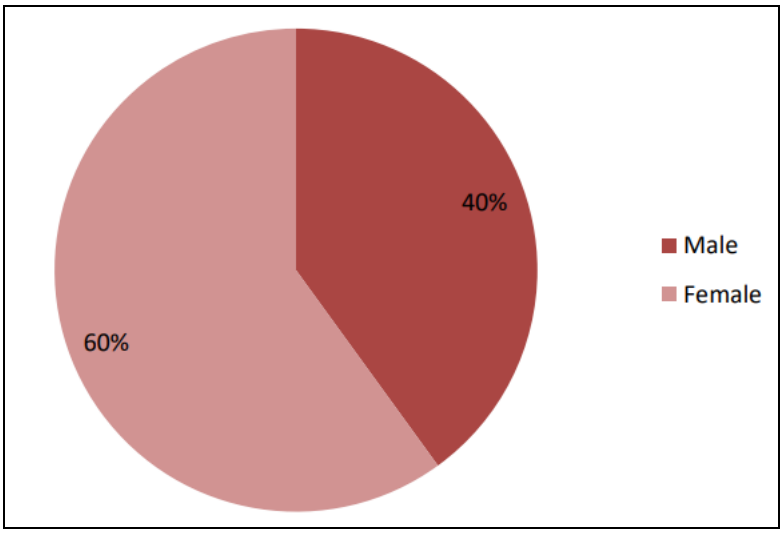


**Fig. 2:** Pie chart represents the use of herbal medicine by both sexes

**2. Distribution of Informants by Age Category:**

The survey of our population touched on different age groups. (Fig. 3). The results obtained vary in the age group of 18 to 70 years. The dominant age group is 50-60 years old. Then, some people are between 40-50 and make 24% of the population. The age group over 60 represents 21%: that result shows that wanton people are interested in herbal medicine at the level of the Laguermi region. Several studies show that the oldest people use plants better than the new generation (Boutabia *et al.*, 2010) in Zitouna Wilaya of El Tarf-Algeria.

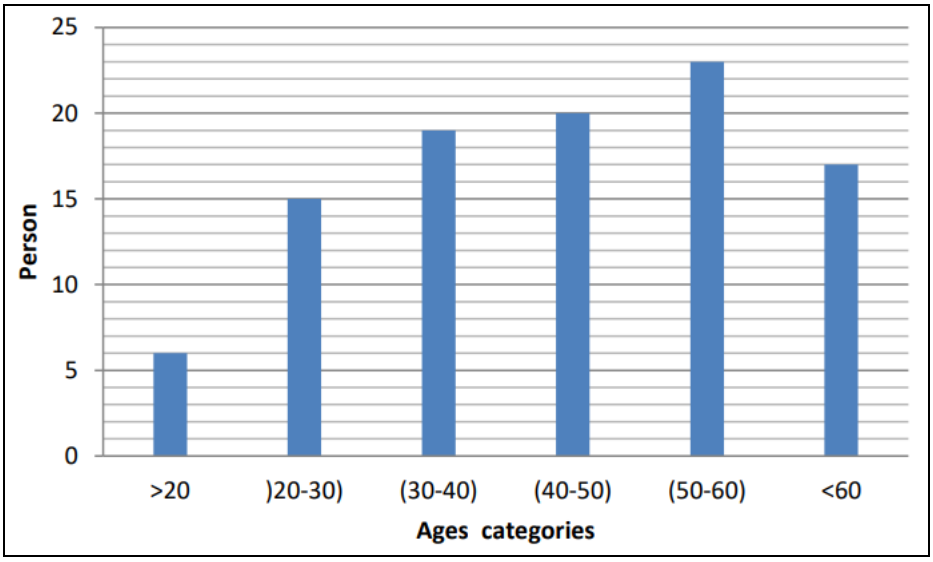


**Fig. 3:** Histogram represents the distribution of informants by age category

**3. Distribution of Informants by Level of Study**:

In the study area, the vast majority of users of medicinal plants are those with a university-level (Fig. 4), with a percentage of (41%). This percentage is a sign of the confidence of the intellectual part of the importance of herbal medicine. However, people with secondary education have a significant rate of herbal

medicine use (20%), while those with illiterates and a primary school level use fewer medicinal plants (22% and 7% respectively) because the larger part of surveys was with the level of university studies. In other regions, herbal medicine is widely used by illiterate people and people with university education (El hilah *et al.*, 2016).

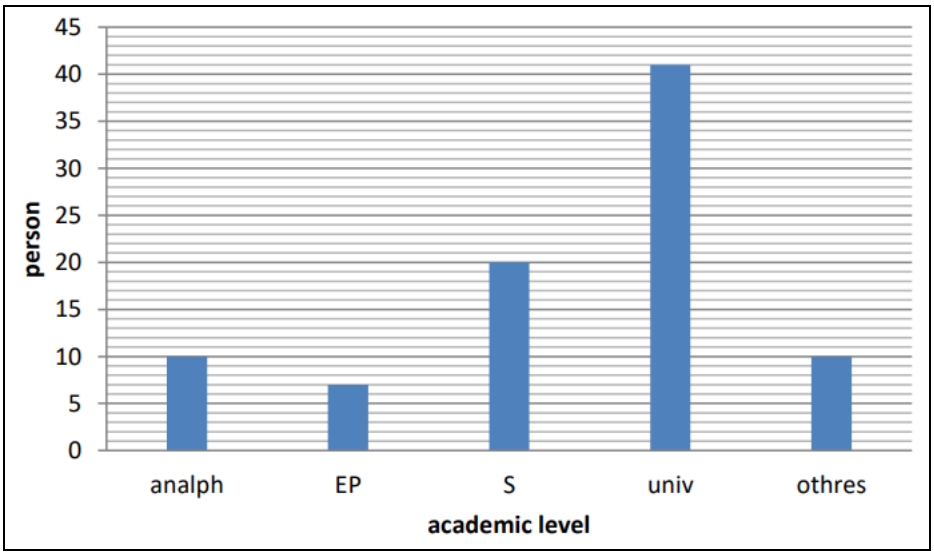


**Fig. 4:** Pie chart represents the distribution of informants by level of education.

**4. Distribution of Informants According to Family Situation**:

Medicinal plants are used much more by married people (59%) (Fig. 5) than by single people (17%) because they allow them to avoid or minimize the material costs required by the doctor and the pharmacist. Today modern medicine has become a heavy burden on small families. The same results were found in several studies, such as in Benin (Dougnon *et al.*, 2016).

**5. Distribution of Informants by Type of Collector:**

Medicinal plants are used much more by sedentary people (Fig. 6) (63%) than by farmers (14%).

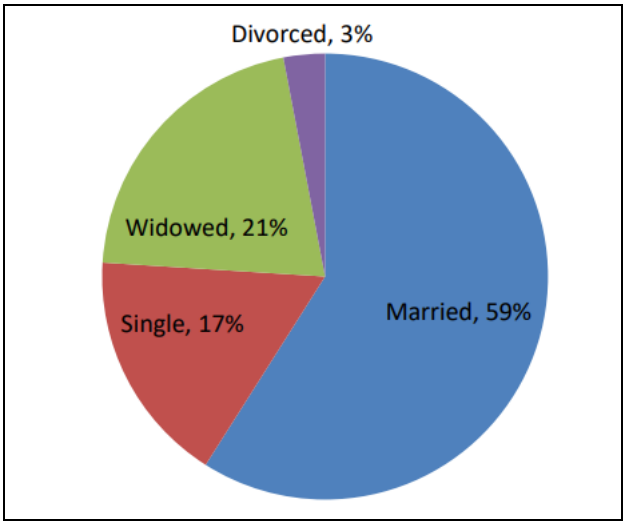


**Fig 5:** Pie chart represents the distribution of informants by family situation.

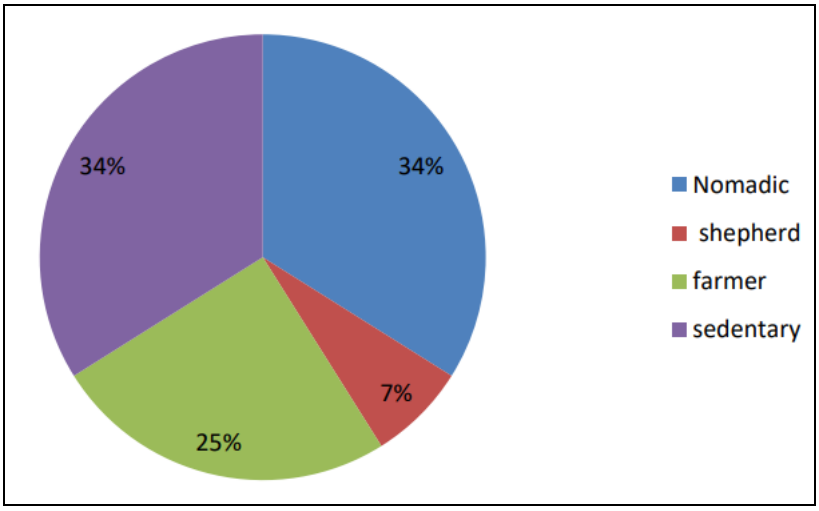


**Fig. 6:** Pie chart represents the distribution of informants by type of collector.

**6. Distribution of Informants by Source of Information:**

This figure represents the variation in the origin of the information (Fig. 7) on the plants used in our study site. We notice that; the information origin is based on the other ones' experience with a rate of 51%. It shows that traditional knowledge is preserved. However, reading, Achab and the pharmacist present low values (24%, 16%, and 9%) that could be explained by our society's neglect of scientific information.

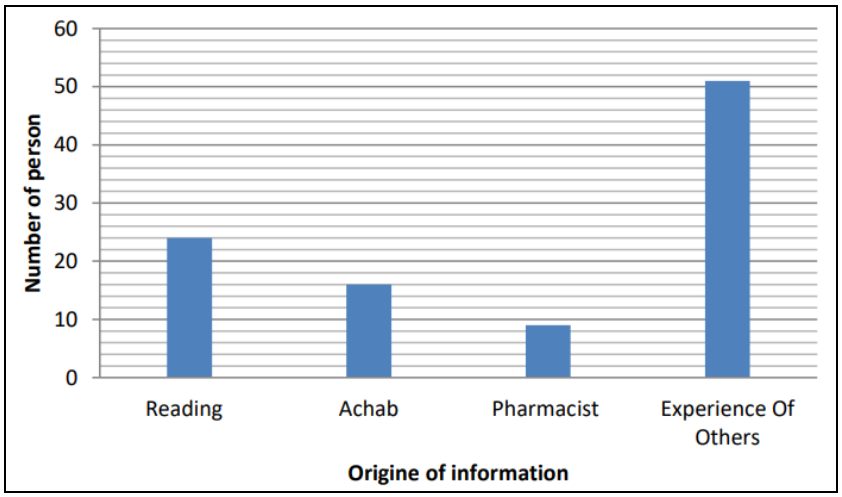


**Fig. 7:** Bar chart showing the origin of the plant information**.**

**Variation of Results Depending on The Plants Used:**

**1. According to the Botanical Families**:

According to the results (Table 1) of the ethnobotanical survey carried out in the study region (Fig. 8), we were able to draw up a list of 70 medicinal plants spread over 24 botanical families. The most represented: are the *Lamiaceae* (20 species); the Asteraceae (13 species); the *Apiaceae* (11 species), the *Rhamnaceae* (10 species); the Fabaceae and the *Cupressaceae* (8 species), and the other families have a low number, this use could be explained by the fact that the *Lamiaceae* family is the most representative in our study region. Our result is the same demonstrated by (Kadri et al., 2018) in the Wilaya of Adrar (Algeria) and (Ait Ouarkach 2015) in Marrakech (Morocco).

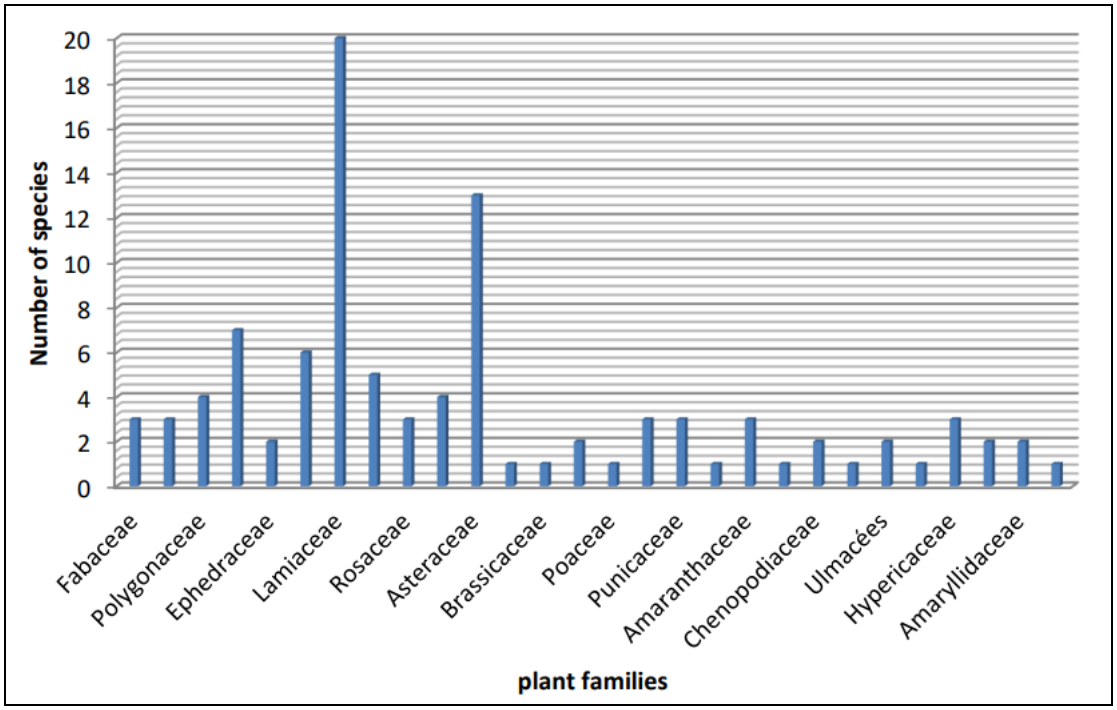


**Fig. 8:** Bar chart showing the variation of botanical families used in herbal medicine.

**2. Depending on the Disease Treated**:

The different diseases treated by medicinal (Fig. 9) plants in the study region are illustrated in figure 09 and table 1. We can observe that the pathologies of the digestive system are the most treated (34%), followed by the diseases of the circulatory system (25%), genital system (17%), skin (16%), and other diseases that present in small percentages. That shows the diversity of diseases treated by plants in our society.

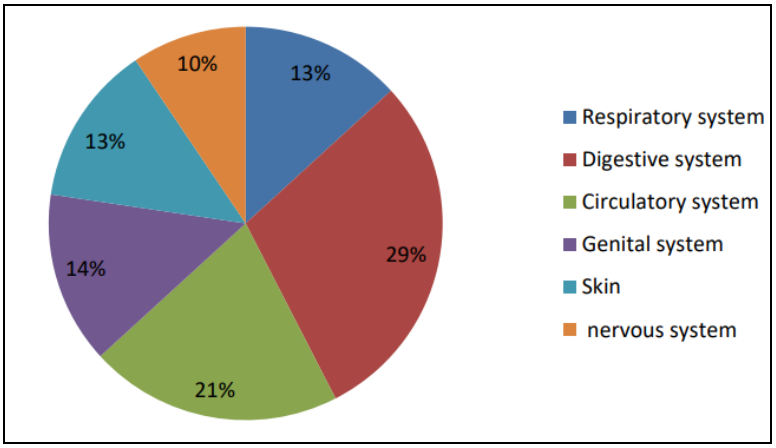


**Fig. 9:** Pie chart represents diseases treated with herbal remedies in the study.

**3. Depending on The Preparation Method**:

To make the administration of the active ingredient fluent (Fig. 10 and Table 1), we used several therapeutic practices, namely: the decoction, the infusion, the powdered fumigation, or the maceration. We found that the decoction mode is the most used (49%), followed by powder (21%); the least is fumigation (07%) (Figure 09). Many ethnobotanical studies have found the same result (Laifaoui and Aissaoui 2019) in the Wilaya of Bouira (Algeria).

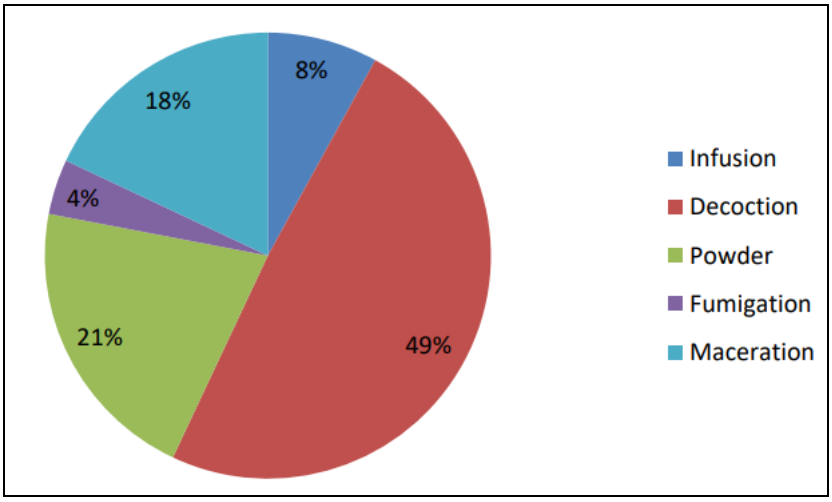


**Fig. 10:** Pie chart represents the mode of use of medicinal plants.

**4. Depending on the Part Used**:

Information on the distribution mode of medicinal plants and their therapeutic properties (Fig. 11 and Table 1) may differ from one person to another one for the same plant. During our investigation, we found that most of them use the leaves (55%) than the stem (23%); fruit (16%); the root system (4%), and the seeds and the flower (1%), seemingly results are found (Amroune 2018) in the Wilaya of Constantine (Algeria).

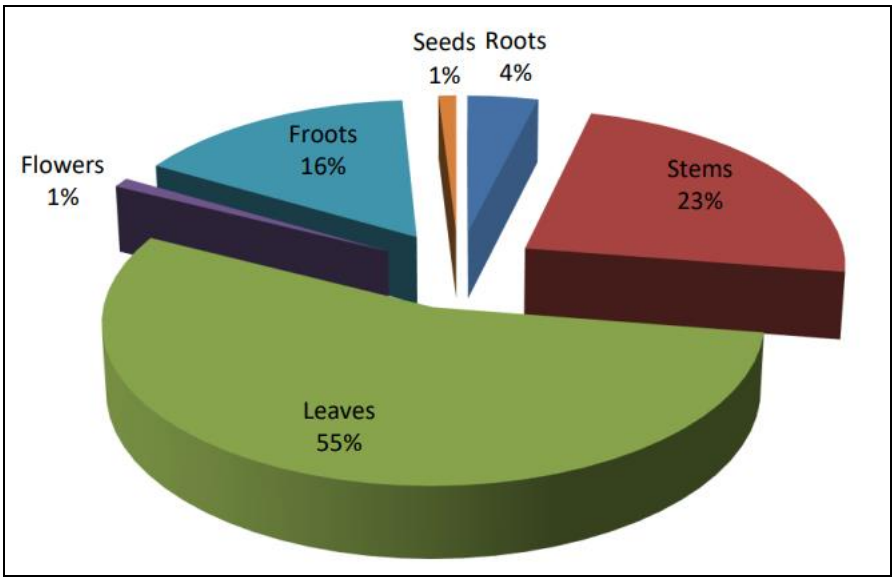


**Fig. 11:** Sector diagram represents the percentage of vegetative parts of medicinal plants

**5. Depending on the Collection Period:**

The spring period dominates in the results found in (Fig.12 and Table 1), **a** rate of (51%) followed by the whole year period: autumn, summer, and winter (27%, 5%,1% respectively). These results can be linked to previous results (the majority of surveyed people use the leaf; the leaves are richer in substances in the spring).

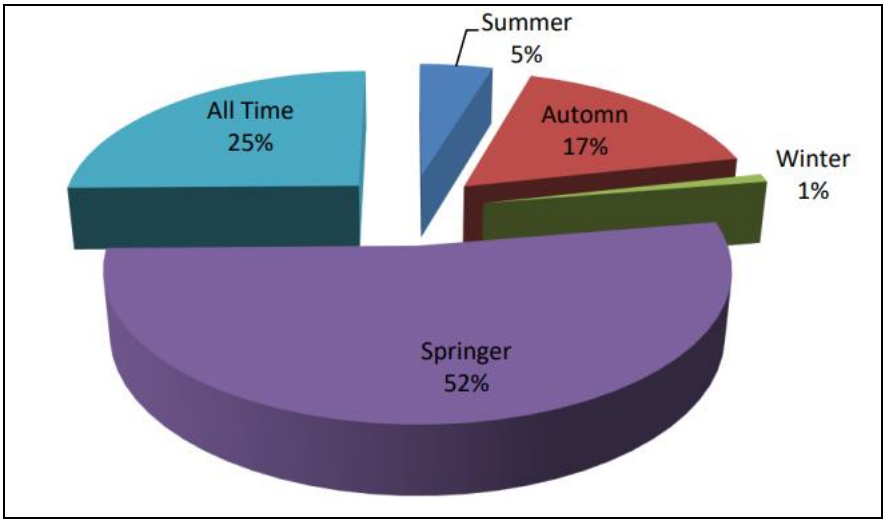


**Fig. 12:** Pie chart represents the period of collection of medicinal plants in the study **.**

## Conclusion

With all the development of the chemical drug industry, herbal medicine remains a source of remedy par excellence and especially with fewer side effects. The questionnaire was randomly distributed to a heterogeneous audience; it provided us with an important opinion on the use of medicinal plants. The public survey carried out in the Laguermi region enabled us to inventory seventy 70 medicinal plants that the local population uses today. The survey helps us identify 28 families, the Lamiaceae family being the most represented. Either seventy 70 plant species used in traditional medicine have been identified. The leaf is the most used part; decoction and powder are the most used forms.

We also found that most of the respondents in the region studied are widely used in influenza treatment and gastric problems. The use of this wealth in a sustainable manner could be a way for this natural heritage conservation, awareness of the new generation to exploit the field of herbal medicine: is a way of population health protection.

## Table 1:Uses of medicinal plants mentioned in the Lagarmi region

| Vernacular names of plants | *Cash* | Sickness | Method of Preparation | Part used | Collection Period | Buy / Harvest | Family |
|---|---|---|---|---|---|---|---|
| Mentha | *Mentha longifolia* | Voltage Menstrual Cycle Pain | Decoction | Leaves And Stem | Spring And Autumn | To buy | *Lamiaceae* |
| Bitter Almond | *Prunus dulcis* | Skin And Hair Cancer Diseases | Oil Or Powder | Fruit | Autumn | harvests | *Rosaceae* |
| Leather | *Rhus coriarial* | Diseases Of The Genital System | Decoction | Sheets | Spring | harvests | *Anacardiaceae* |
| Wild Chamomile | *Matricaria chamomilla* | Allergic Colon Pain Hair Dye Digestion | Decoction | Sheets | Spring | To buy | *Asteraceae* |
| Daily | *Thapsia garganica* | For Broken Bones | Decoction | Roots | All Year | Harvests With Care | *Apiaceae* |
| Germander | *Teucrium polium* | Gastric Pain | Decoction | Sheets | Autumn | Harvests | *Lamiaceae* |
| Pistachio trees | *Pistacia sp* | Prevention Against Cancer And Bone Pain | Powdered And Mix With Olive Oil | Fruit | All Year | To buy | *Anacardiaceae* |
| Coriander | *Coriandrum sativum* | Voltage | Decoction | Leaves And Roots | Autumn And Spring | To buy | *Apiaceae* |
| Basil | *Ocimum basilicum* | Infection Of The Genital And Respiratory System | Overfow | Sheets | And Spring | To buy | *Lamiaceae* |
| Parsley | *Petroseelinum crispum* | Filtering Nothing | Decoction | Leaves And Roots | All Year | To buy | *Apiaceae* |
| Plantago | *Plantago medium* | For Acnes | Overfow With Oil | Sheets | All Year | Harvests | *Plantaginaceae* |
| Rhaponitic | *Rhaponticum acaule* | Digestion | Eat Fresh | Internal Core | Spring | Harvests | *Asteraceae* |
| Rocket | *Eruca sativa* | Digestion And Hair Strengthening | Eat Fresh | Sheets | Spring | To buy | *Brassicaceae* |
| Cinquefoil | *Potentilla reptans* | Cleaning The Uterus | Decoction | Leaves And Stem | Spring | To buy | *Rosaceae* |
| Rosemary | *Rosmarinus officinalis* | The Respiratory Apparatus Prevention Against Colon Cancer | Decoction | Sheets | Spring Autumn | Harvests | *Lamiaceae* |
| Pampas Grass | *Cortaderia selloana* | Herniated Disc And Diabetes | Decoction | The stems | Spring Autumn | Harvests | *Poaceae* |
| Mint Pouliot | *Mentha pulegium* | Anti Constipation Stomach Pain | Decoction Or Powdered | Leaves | Spring | Harvests | *Lamiaceae* |
| Ruta | *Ruta chalepensis* | Headache Uterine cleaning | Decoction Or Powdered | Leaves | Spring | Harvests | *Rutaceae* |
| Grenade | *Punica granatum* | The animated | Eat Fresh | Pomegranate Pellets | Autumn | To buy | *Punicaceae* |
| SilybumMarianum | *Echinops spinosissimus* | Keep Cholesterol | Decoction | The top part | Spring | Harvests | *Asteraceae* |
| Bugle | *Ajuga chamaepitys* | Gastric Dressing | Decoction | Leaves | Spring | To buy | *Lamiaceae* |
| Ofcinal sage | *Salvia officinalis* | Uterine Pain | Decoction | Leaves | All Year | Harvests | *Lamiaceae* |
| Laurel | *Laurus nobilis* | Relieve Pain & Tension | Decoction | Leaves | Spring | To buy | *Lauraceae* |
| Haloxylon | *Haloxylon salicornicum* | Prevention Against Tumors And Toxication | Powdered or Decoction | Sheets | Autumn | Harvests | *Amaranthaceae* |
| Pine | *Pinus sp* | Infuenza | Powdered Or Decoction | Granules | All Year | Harvests | *Pinaceae* |
| Thyme | *Thymus vulgarises* | Respiratory apparatus Soften The Intestines | Decoction | Leaves And Stem | Spring | To buy | *Lamiaceae* |

## REFERENCES


Adouane, S., (2016) Ethnobotanical study of medicinal plants in the southern region of the Aurès. Dissertation with a view to obtaining the master's degree in agronomic sciences. Mohamed Khider–Biskra University.195p.

Ait ouakrouch, I., (2015) Ethnobotanical survey about medicinal plants used in the traditional treatment of type II diabetes in Marrakech. Thesis for obtaining the doctorate in medicine. Cadi Ayyad University-Marrakesh.92p

Amroune. , S .(2018) Phytotherapy and medicinal plants .Master's thesis University of the Mentouri Brothers Constantine

Benkhnigue, O., Zidane, L., Fadli, M., Elyakoubi, H., Rochdi, A. and Douira, A., 2011. Ethnobotanical study of medicinal plants in the region of Mechraa Bel Ksiri (Gharb region from Morocco). *Acta Botanica Barcinonensia*, 53, 191-216.

Boutabia L., Telailia, S., Cheloufi, R. and Chefrour, A., (2011) The medicinal flora of the forest massif of Oum Ali (Zitouna-wilaya of El Tarf-Algeria). *Inventory and ethnobotanical study Annales de l'INRGREF,* 15, Special issue, 201-213.

Dougnon, TV, Attakpa, E., Bankolé, H., Hounmanou, YMG, Dèhou, R., Agbankpè, J., De Souza, M., Fabiyi, K., Gbaguidi, F. and Baba-Moussa, L.,( 2016) Ethnobotanical studies of medicinal plants used against a contagious skin disease: Human Gal in southern Benin CAMES Review – Pharm Series. *African medical translation,*18(1): 16-22.

El Hilah, F., Ben Akka, F., Bengueddour, R., Rochdi, A. and Zidane, L., (2015). Ethnobotanical study of medicinal plants used in the treatment of respiratory system infections in the Moroccan central plateau. *Journal of Animal & Plant Sciences*, 2015. Vol.25, Issue 2: 3886-3897, 3886-3897.

Jamal, B (2018). The Maghreb through its plants: plants, plant productions and traditions in the Maghreb. le Fennec Editions, Casablanca, pp.10-12

Kadri, Y., Moussaoui, A. and Benmebarek, A., (2018) Ethnobotanical study of some medicinal plants in a hyper-arid region of southwestern Algeria "Case of Touat in the wilaya of Adrar". *Journal of Animal & Plant Sciences,* Vol.36, Issue 2: 5844-5857

Laifaoui, A., Aissaoui. , M. (2019) Ethnobotanical study of medicinal plants in the southern region of the wilaya of Bouira (Sour Elghozlane and Bordj Oukhriss) master's thesis akli mohand oulhadj – bouira university. Algeria

Mecheri, C., Kabar.H., (2019) Conservation biology, ecology and phytochemistry of medicinal plants from the Lagarmi Protected Area. Master's thesis Nour Bachir el Bayadh University Center

World Health Organization. (2004). WHO guidelines on developing consumer information on proper use of traditional, complementary and alternative medicine. *World Health Organization,*.pp 14-1.