

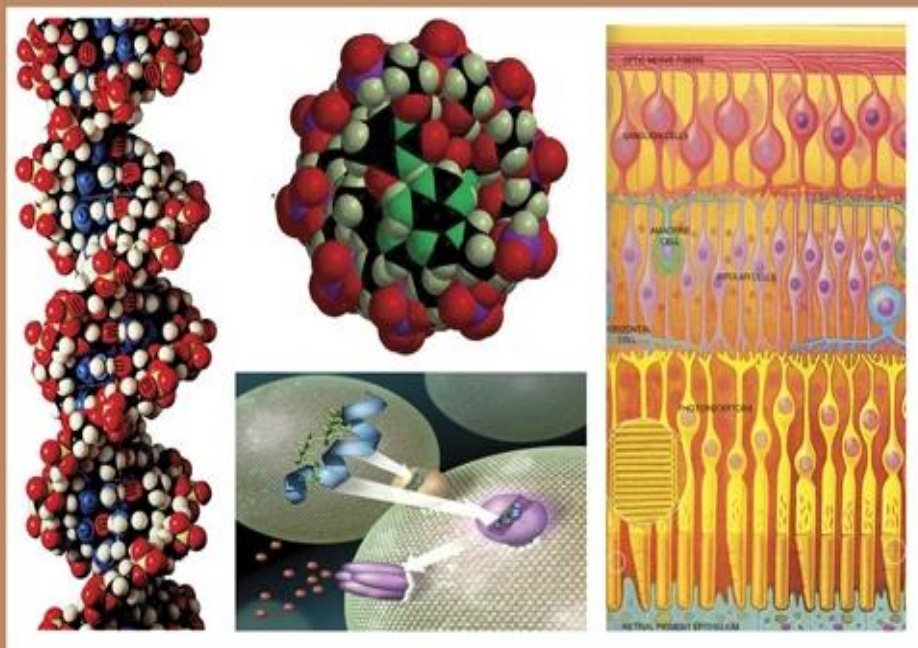


C

EGYPTIAN ACADEMIC JOURNAL OF

BIOLOGICAL SCIENCES

PHYSIOLOGY & MOLECULAR BIOLOGY



ISSN
2090-0767

WWW.EAJBS.EG.NET

Vol. 14 No. 1 (2022)



Ethnobotanical Survey on The Use of Ten Medicinal Plants in The Region of Saida (Western Algeria)

Deramchia nawel¹, Ammam Abdelkader² and Belmamoun Ahmed Reda³

1-Laboratory of Structure, elaboration and application of molecular materials, University of Mostaganem 27000, Algeria

2-University of Dr Moulay Tahar, Saida, 20000 ; Algeria.

3-Laboratory of Process, materials and environment engineering, Djillali Liabes University, BP 22000, Sidi-Bel-Abbes, Algeria.

*E. Mail: vetokadi@yahoo.fr

ARTICLE INFO

Article History

Received:28/2/2022

Accepted:11/4/2022

Available:17/4/2022

Keywords:

Medicinal plants,
biological activity,
Phytotherapy,
Survey

ABSTRACT

This study is a descriptive and analytical ethnobotanical approach that aims to contribute to the determination of the properties and phytotherapeutic effects (uses and treated diseases) of the inventory of ten medicinal plants found in Algeria. An ethnobotanical survey was carried out by a questionnaire on a population of 100 people using medicinal plants and 17 herbalists. It appears that people know the phytotherapy, the foliage constitutes the most used part of the plant, the majority of the remedies are prepared in the form of infusion. Of all the diseases treated, pain, respiratory problems, digestive disorders and dermatological problems represent the most common diseases.

INTRODUCTION

Man has always been interested in plants to treat and cure all kinds of diseases. About 65-80% of the world's population relies on traditional medicine to meet their primary health care needs, due to poverty and lack of access to modern medicine (Nesrine, B. 2018). Despite the development of the pharmaceutical industry that allowed modern medicine to treat a large number of diseases that were often fatal, medicinal plants and the remedies that could be derived from them were never totally abandoned and people never stopped using traditional medicine, which led to keeping alive a therapeutic tradition known since our ancestors (Amitouche, D.2012). This means that at least one of its parts (leaf, stem, root, etc.) can be used for healing purposes. Their effectiveness is due to their compounds, which are very numerous and varied according to the species, and which are as many different active principles (Antih, J. 2014). Our approach was essentially inspired by the natural richness of the Algerian flora. For that, we selected ten medicinal plants: *Atriplex halimus*, *Opuntia ficus-indica*, *Ricinus communis*, *Eucalyptus globulus*, *Chamaerops humilis*, *Syzygium aromaticum*, *Aloe Barbadensis* Miller, *thymus numidicus*, *mentha pulegium*, *Lavandula angustifolia*; This work aims to contribute to the determination of the properties and beneficial effects of plants on human health, we try thereafter to highlight the therapeutic activities of these plants and help to choose the plants best suited to our general health or to treat diseases.

To carry out our study, an ethnobotanical survey was carried out, the survey is based on a questionnaire previously established, containing questions relating to the vernacular name of the plant, the part used, and the mode of use, another survey was intended for the herbalists.

The objectives of this study are: Inventory of medicinal plants in Algeria, recall the therapeutic properties and traditional use of medicinal plants. Study of the biological activity of medicinal plants.

MATERIALS AND METHODS

The ethnobotanical study of medicinal plants in Algeria was carried out with the help of a questionnaire form distributed to 100 people using medicinal plants and another questionnaire distributed to 12 herbalists.

Through the ethnobotanical study conducted among the population, it appears that there is a diversity of practices, as for the species, treated symptoms, parts used, doses of preparation and mode of use. As well as a diversity of information concerning the people surveyed; sex, age group, place of residence, level of study.

The first part of our questionnaire consists in identifying the different categories of the interviewed individuals (sex, age, place of residence, intellectual level...).

The second part of our questionnaire concerns the knowledge of medicinal plants and the use of phytotherapy and the ten plants studied, in the daily life of individuals.

RESULTS

- Sex: out of the 100 people interviewed 63% are female.
- Age of people: 61% of these people are young.
- Place of residence: the majority of the interviewed subjects live in the city.
- Intellectual level: the intellectual level of the people shows that 11% are high

school students and 83% university, the others are of a secondary level.

- 76% of people know about herbal medicine.
- The majority of people use herbal medicine for their health and well-being; more than 79.8% of the cases questioned answered yes, which shows that herbal medicine is very much answered in society.
- 80.4% of the people surveyed use thyme, 68% for clove, 61.9% for eucalyptus, and 46.4% for arroche.
- The pathologies treated are colds, flu and fever, stomach pain, colon problems, diarrhea, dysmenorrhea, dermatological problems (acne), cysts, insomnia, inflammation, urinary infection, tooth pain, diabetes.

From these results we see that :

- The use of phytotherapy in certain affection is very answered which are:
 - Respiratory infections (flu, cold, seasonal allergy).
 - Colopathies and gastric affections.
 - We notice that the use of plants is even in incurable and chronic diseases (diabetes, rheumatism).
 - We notice the use of phytotherapy for beauty problems, for slimming especially in women.
 - 65,2 % of the persons use the dosage of the plants a spoon.
 - 18.2% handle and 16.7% by pinch.
 - medicinal plants are used in the form of herbal tea 83.8%, inhalation 16.2% cream 14.7%, oil 30.9.
 - 95.4% of the individuals felt an improvement after using the plants.
 - 60,9 % of the individuals follow treatment, the medicinal plants are used in the case as a compliment.
 - 64,3 % of the interviewed subjects do not know the counter-indications of the plants, and 35,7 % know the side effects of their use.
 - 14,7 % of the people had complications because of the plants.

Addressed To the Herbalists:

Question 01: Since when do you practice this profession?

period	Number of answers
Under 7 years old	3
From 7 to 15 years old	7
15+ years old	2

Most of the salespeople have been in the business for more than 7 years.

Question 02: Have you done any training in the field of herbal medicine?

answers	Number of answers
Yes	1
No	11

We notice that the majority of the salesmen of phytotherapy are not trained in phytotherapy.

Question 03: do you give herbal remedies to your clients?

Answers	Number Of Answers
Yes	12
No	0

We can see that all herbalists give herbal remedies to their clients even though they are not trained in this field. Knowing that the customers who ask for these remedies.

Question 04: Do the people from 'Quality Control and Packaging' come to check your products?

Answer	Number of answers
Yes	7
No	5

Most of the sellers declare that the quality control and packaging agents come to check their stores.

The frequency of visit is between two (02) and three (03) times a year.

Question 05: Are the people who buy from you more female or male?

Answer	Number of answers
--------	-------------------

Women	10
Men	2

The salespeople interviewed stated that customers in general are both male and female.

Question 06: Do you sell herbal products for incurable diseases?

Answer	Number of answers
Yes	10
No	2

70% of the interviewed sellers state that they sell herbal products for incurable and chronic diseases. Most of the sellers state that quality control and packaging agents come to check their stores.

The frequency of visits is between two (02) and three (03) times per year. We notice that all the herbalists give herbal remedies to their customers despite the fact that they are not trained in this field. Knowing that the customers who ask for these remedies.

We notice that the majority of the sellers of phytotherapy are not trained in phytotherapy. Most of the salesmen have been working in this field for more than 7 years.

DISCUSSION

Population Using Medicinal Plants: Knowledge of Herbal Medicine:

Our result is close to that of Amroun, 2018 in Constantine he found 92% of respondents know phytotherapy.

Use of Phytotherapy:

Our result is close to that of Louffar, 2016 in Tizi Ouzou she found 88% of people use herbal medicine and Benghanou, 2012 in Chlef he found 91%.

Among These Plants Which You Have Already Tested:

Thyme (family of Lamiaceae): our result is close to that of Ait Ouakrouch, in 2015 in Marrakech she found 70% of people use this family.

Clove and Eucalyptus (family myrtaceae): unlike El Hilah, 2015 in

Morocco she found only 14.45% of people use the species of this family.

Type of Disease Treated:

The ethnobotanical study carried out by Lazli *et al.*, 2018 in the region of Bougous - El Kala - show the same diseases treated found in our study as : respiratory disease, digestive problems, liver problems, rheumatism ... etc. These data are comparable to that of Hamel *et al.*, 2018 in the population of the north of Algeria who note that fever and skin diseases are the dominant treatments.

The Used Part of The Plants:

Our result approaches that of Rhattas, 2016 in Morocco shows that 71.75% of people use the leaves, and Bouremel, 2019 in Setif with 40.23% of people use the leaves (more than the other parts), and Hamel, 2018 in northern Algeria with 62.6%, and Hamad in Tizi Ouzou with 68.08% of people who use the leaves

Form of Use:

We confirm our results by those of Bouremel, 2019 in Setif she found 53% of people used the plants as herbal tea and also has Amroune, 2018 in Misserghin with 71% for herbal tea.

Mode of Use:

Our results are close to that of Amroun, 2018 in Misserghin who found 48% use the spoon (the mode most used).

Duration of Treatment:

Our results are close to those of Amroun in 2018 in Misserghin who found 52% of people stay one week to heal.

Improvement After the Use of Plants:

Our results are confirmed by those of Bakiri *et al.*, 2015 in M'sila who showed that 87.6% of people felt an improvement, and Fligha, 2019 in Setif shows that 57.5% of people believe that the use of plants allow a total cure of diseases treated and 42, 5% believe that plants allow an improvement, and Kadri, 2017 in Adrar who finds 57.65% of respondents believe strongly in the power of medicinal plants while 21.76% of people think that medicinal plants have a

soothing effect.

Association of Medicinal Plants with Medical Treatment:

The results obtained at Fillali indicate that 58% of people associated medicinal plants with medical treatment, and Amroun finds 58%.

Knowledge Of Side Effects:

Our results are not compatible with those of Amroun 69% of the respondents know the contraindications of plants, they are aware that in high doses they can be toxic, and 31% do not know any side effects of their use.

Complications Caused by Medicinal Plants:

Our result is reinforced by that of Ait Ouakrouch, 2015 in Merrakech who states "no adverse effects associated with the use of these recipes have been reported" . and Hamad finds that the vast majority of treatments with medicinal plants have no side effects, i.e., 91%, while 9% of the other plants listed have side effects during anti-hypertensive treatments such as vomiting, nausea, diarrhea, weakness.

Herbalists:

Training In the Field of Herbal Medicine:

Our results are reinforced by those of Sebai, 2012 in Chlef which indicates that 80% of herbalists have not graduated in herbal medicine or made an internship in the field. Ait Ouakrouch finds that the majority of herbalists 63.6% acquire information through the experiences of other herbalists.

The Visit of Quality Control and Packaging People:

Our results are close to those of Sebai, 2012 in Chlef which indicates that 80% of the herbalists declare that the agents of quality control and packaging come to check their stores.

The Customers:

Our results are reinforced by those of Boudali, 2012 in Chlef indicates that the majority of customers are women with 60%.

The Sale of Products to treat Incurable Diseases:

The results are comparable to those of Sebai, 2012 in Chlef who found that 70% of herbalists who were interviewed declare that they sell herbal products for incurable and chronic diseases.

Conclusion:

Phytotherapy is very answered in the Algerian society (Saida), all use plants and their extracts to cure. Our country is endowed with immense plant biodiversity, which remains to be discovered and a great part of this flora is constituted by medicinal species. The general objective of this thesis is to study the biological activity of ten medicinal plants, more precisely their therapeutic effects. We have found that the studies made on these plants indicate that there is a great diversity of therapeutic effects. The questionnaire carried out was distributed to a heterogeneous public has allowed to have an important opinion on the knowledge and the use of the medicinal plants. It emerges from this study that the treatment with the plants is very answered; 76% of the population know about herbal medicine and 79.8% declared to have used it. This survey allowed us to highlight the medicinal plants most known by the population and their virtues, we cite among them: the arroche halime to treat hyperglycemia, ovarian cysts, dysmenorrhea and urinary inflammation; prickly pear against rheumatism, parasitic infection, and other diseases. Rheumatism, intestinal parasitic infection and hyperlipidemia; castor oil for dermatological diseases such as skin dehydration and hair loss, headaches and liver problems; Eucalyptus for allergies and respiratory problems, colds, toothache, rheumatism, and eucalyptus for allergies and respiratory problems, colds, toothache, rheumatism; Saw palmetto for high blood pressure, diarrhea, prostate problems; clove for intestinal infections, kidney stones, and other problems. Aloe vera to heal burns, gastrointestinal

disorders, to relieve eczema and psoriasis; thyme against bronchitis and respiratory ailments, flu and colds, seasonal allergies; Mint Pouliot to lower fever, for cardiovascular diseases, against insomnia and gastric acidity; Lavender to fight vaginal infections and endometritis, against muscle spasms.

This work also allowed to specify the methods and the most known forms of the use of the plants as well as the categories of the treated diseases, as regards the various forms of use and the parts used, the majority of the individuals use the medicinal plants in the form of herb tea, the most used is the sheets. In any case, any advice in phytotherapy can be personalized according to the patient and must be accompanied by hygienic and dietary rules specific to the disease. As we have seen, the same plant can be used for several purposes. The right choice and use of the plant is therefore essential.

REFERENCES

- Ait Ouakrouch, I. (2015). Enquête ethnobotanique à propos des plantes médicinales utilisées dans le traitement traditionnel du diabète de type II à Marrakech. *Université Cadi-Ayyad. Faculté de médecine et de pharmacie. Marrakech.*
- Ait Ouakrouch, I. (2015). Enquête ethnobotanique à propos des plantes médicinales utilisées dans le traitement traditionnel du diabète de type II à Marrakech. *Université Cadi-Ayyad. Faculté de médecine et de pharmacie. Marrakech.*
- Amitouche, D., & Chemloul, L. (2012). *Contribution à l'évaluation de l'huile essentielle et des extraits d'Artemisia herba-alba algérienne* (Doctoral dissertation, UMMTO).
- Antih, J. (2014). *Flore médicinale d'Amérique latine dans la médecine européenne: étude d'une sélection de plantes*

- décrites entre le XVIème et le XVIIIème siècle (Doctoral dissertation, Université de Lorraine).
- Bakiri, L., Macho-Maschler, S., Cusic, I., Niemiec, J., Guio-Carrion, A., Hasenfuss, S. C., ... & Wagner, E. F. (2015). Fra-1/AP-1 induces EMT in mammary epithelial cells by modulating Zeb1/2 and TGFβ expression. *Cell Death & Differentiation*, 22(2), 336-350.
- BeIdjilali, A., Idir, O., Saidi-Amroun, N., Saidi, M., & Moulai, H. (2018). Electrical and physicochemical properties and transient charging currents in mineral and vegetable oils mixtures. *IEEE Transactions on Dielectrics and Electrical Insulation*, 25(5), 1739-1748.
- Boudali, O., & Economou, A. (2012). Optimal and equilibrium balking strategies in the single server Markovian queue with catastrophes. *European Journal of Operational Research*, 218(3), 708-715.
- El Hilah Fatima, F. B. A., Dahmani, J., Belahbib, N., & Zidane, L. (2015). Étude ethnobotanique des plantes médicinales utilisées dans le traitement des infections du système respiratoire dans le plateau central marocain. *Journal of Animal & Plant Sciences*, 25(2), 3886-3897.
- Hoogewerff, J. A., Reimann, C., Ueckermann, H., Frei, R., Frei, K. M., Van Aswegen, T., ... & Zomeni, Z. (2019). Bioavailable ⁸⁷Sr/⁸⁶Sr in European soils: A baseline for provenancing studies. *Science of The Total Environment*, 672, 1033-1044.
- Kadri, T., Rouissi, T., Brar, S. K., Cledon, M., Sarma, S., & Verma, M. (2017). Biodegradation of polycyclic aromatic hydrocarbons (PAHs) by fungal enzymes: A review. *Journal of environmental sciences*, 51, 52-74.
- Kenouz, c. (2020). Extraction et séparation chromatographique de l'espèce centaurea montana. *Mémoire de Projet de Fin d'Etude 2ème Année Master*.
- Lazli, A., Benmetir, S., Bediaf, S., Mazni, S., Messai, Z., & Iboud, T. (2018). L'avifaune aquatique hivernante du lac Oubeira (Nordest algérien). *État actuel et intérêt patrimonial. Alauda*, 86(2), 95-108.
- Lee, R. M., Bouremel, Y., Eames, I., Brocchini, S., & Khaw, P. T. (2019). The implications of an ab interno versus ab externo surgical approach on outflow resistance of a subconjunctival drainage device for intraocular pressure control. *Translational Vision Science & Technology*, 8(3), 58-58.
- Lee, R. M., Bouremel, Y., Eames, I., Brocchini, S., & Khaw, P. T. (2019). The implications of an ab interno versus ab externo surgical approach on outflow resistance of a subconjunctival drainage device for intraocular pressure control. *Translational Vision Science & Technology*, 8(3), 58-58.
- Louffar, i., & mahdjoub, s. (2016). Enquete ethnobotanique sur les plantes medicinales dans la wilaya de boumerdes. *Mémoire de fin d'étude Département de Pharmacie [162], université mouloud maameri*.
- Marelli, C., Hamel, C., Quiles, M., Carlander, B., Larrieu, L., Delettre, C., ... & Guissart, C. (2018). ACO2 mutations: A novel phenotype associating severe optic atrophy and spastic paraplegia. *Neurology Genetics*, 4(2).
- Marelli, C., Hamel, C., Quiles, M.,

- Carlander, B., Larrieu, L., Delettre, C., ... & Guissart, C. (2018). ACO2 mutations: A novel phenotype associating severe optic atrophy and spastic paraplegia. *Neurology Genetics*, 4(2).
- Nesrine, B. (2018). Extraction de la curcumine du Curcuma, étude de ses propriétés par DFT et évaluation de ses activités antibactérienne, antioxydante et anti inflammatoire. Mémoire de fin d'étude, Département de Technologie, Université Djilali Bounaâma de Khemis Miliana.
- Rhattas, m., douira, a., & zidane, l. (2016). Etude ethnobotanique des plantes médicinales dans le parc national de talassemtane (rif occidental du maroc). *Journal of applied biosciences*, 97, 9187-9211.
- Zelzouli, K., Guizani, A., Sebai, R., & Kerkeni, C. (2012). Solar thermal systems performances versus flat plate solar collectors connected in series, 4(12).