

Therapeutic Potential of Traditional Medicinal Plants from Algeria for Treatment of Liver Diseases

Djahra Ali Boutlelis^{1}, Chrait Sabrina¹, Benkaddour Mounia¹,
Benkherara Salah², Laib Ibtissam¹, Benine Chaima¹*

¹Laboratory of Biology, Environment, and Health, Faculty of natural and life sciences, University of El Oued, Algeria.

²Department of Biology, Faculty of natural and life sciences and Earth Sciences, University of Ghardaia, Algeria.

ABSTRACT

The objective of our study is to conduct an ethnobotanical investigation of traditional medicinal plants used by people in El-Oued state, southeast Algeria, for the treatment of liver diseases. We collected data through personal interviews and questionnaires. In total, we conducted interviews with 156 respondents, the majority of whom were aged 50 or older. Our study of medicinal plants used for treating liver diseases led to the discovery of 78 species from 41 families and various genera, including 52% of medicinal plants found in the wild. Approximately 77% of these plants were primarily used in dried form for remedy preparation. The most commonly employed preparation method was decoction. Interestingly, 70% of the participants mentioned *Zizyphus lotus* (L.) Lam., *Silybum marianum* L., and *Atriplex halimus* L. as sources for treating liver illnesses. This investigation revealed that many people in the research region still rely on herbal remedies to treat liver disorders. Moreover, the present study provides valuable ethnobotanical data on medicinal plants, serving as a foundational resource for future extensive research in this field.

Keywords: Ethnobotanical, Pharmacopeia, Medicinal plants, Liver diseases, El-Oued.

INTRODUCTION

The use of medicinal plants has long been recognized for its health benefits and curative properties, and it continues to play a significant role in healthcare, particularly at the therapeutic level¹. Furthermore, the therapeutic advantages of many medicinal plants, which have been empirically used for millennia, have only been scientifically validated in recent decades. Despite the advancements in synthetic chemistry, medicinal plants have maintained their prominence due to their effectiveness in various therapeutic procedures². The World Health Organization estimates that over 80% of

African populations rely on traditional pharmacopoeia for treating health issues. The African continent is rich in medicinal plants, with an abundance of diverse species. Out of the 300,000 plant species documented worldwide, over 200,000 are found in the tropical countries of Africa and possess medicinal properties³.

Medicinal plants continue to serve as a source of medical care, particularly in developing countries where modern therapeutic systems may be lacking. These medicinal species constitute a vast and diverse group, containing bioactive substances that are employed not only for immediate liver protection^{4,5} but also in the pharmaceutical and cosmetic industries⁶.

Algeria, due to its biogeographic position, boasts significant ecological diversity. It is a Mediterranean country with a rich medical tradition rooted in traditional knowledge of medicinal plants. While various studies have

*Corresponding author: Djahra Ali Boutlelis

djahra_ab@yahoo.fr

Received: 25/11/2022 Accepted: 23/02/2023.

DOI: <https://doi.org/10.35516/jjps.v16i3.685>

been conducted, a majority of them have centered around wetlands and their avifauna, with only a few dedicated to the study of flora. Consequently, the available documentation often provides general descriptions of the region, supplemented primarily by inventories of flora and fauna⁷.

The knowledge of Algerian flora, particularly the Saharan flora, remains primarily empirical. In this context, an ethnobotanical study seeks to emphasize the role of herbal medicine within the traditional healthcare system for the treatment of liver diseases in El-Oued state, situated in southeastern Algeria.

MATERIALS AND METHODS

Study area

The El-Oued region is a large state located in southeastern Algeria, situated between latitudes 33° to 34° N and longitudes 6° to 8° E. It is approximately 620 km away from the capital, Algiers. The region is bounded by Ouargla, Djelfa, Biskra, Khenchla, Tebessa, and Libya, and to the west, it is delimited by the chott of Oued Righ. To the north, it is bordered by the chotts Merouane, Melghir, and Rharsa, and to the east, it is adjacent to the Tunisian chott El-Djerid (see Figure: 01)^{8,9}.

The soil in the El-Oued region shares many characteristics with other Saharan soils. It is sandy in texture and structure, has low organic content, and offers high water permeability. Additionally, El-Oued experiences high temperatures and significant temperature

fluctuations due to its continental location and proximity to the equator, resulting in scorching summers⁸.

Regarding the plant cover in the open study area, there is a notable variation in density and diversity among indigenous plants. These plants are characterized by their rapid growth, small size, and adaptation to the region's specific soil and climatic conditions⁹.

Methods:

Face-to-face interviews were conducted exclusively with individuals who possessed knowledge of medicinal plants. The interviews involved over 150 respondents, both male and female, ranging in age from 25 to 60. These respondents had diverse educational backgrounds. The purpose of these interviews was to gather ethnobotanical data on the use of medicinal plants for the treatment of liver diseases, encompassing numerous types of data such: as the local name of plant species, growth forms (wild or cultivated species), parts of plants utilized in the traditional treatment, preparation condition (dry or fresh), preparation procedure of medicinal plants^{10,11,12}. To ensure the accuracy of the results, we presented plant specimens to multiple individuals after collecting them. Subsequently, the reported medicinal plant specimens were identified and verified by the expert, Professor Atef Chouikh from the Faculty of Natural and Life Sciences at the University of El Oued, Algeria. The scientific and authorship names of the medicinal plants were cross-referenced and validated using the database available at (www.theplantlist.org).

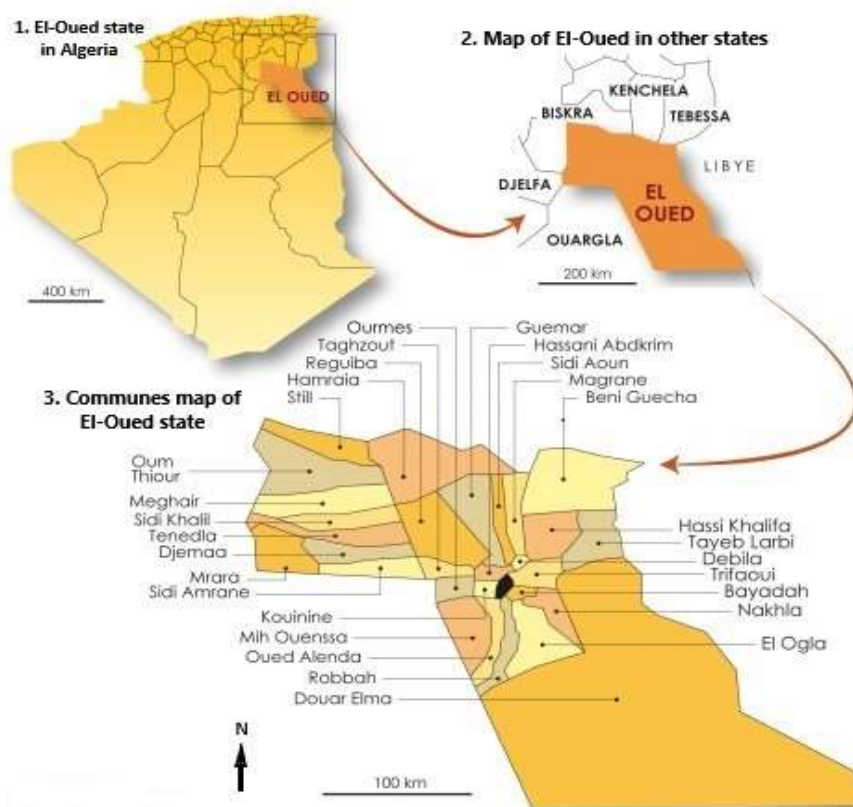


Figure 01: Map of the study area showing the El-Oued region

RESULTS

Demographic details of the informants:

The knowledge results categorized by age, gender, and educational level are presented in Table 01. Among the total informants, the majority (75%) were male, while the remaining (25%) were female due to cultural reasons.

Regarding age distribution, the study included participants in the age group ranging from 25 to 60. On average, male informants reported a higher number of medicinal plants compared to female informants. In terms of educational status, the informants varied from (10%) being illiterate to (90%) being literate.

Table 1: Demographic details of the informants.

Parameters	Gender		Age group (In years)		Educational status	
	Male	Female	25-40 Youngers	40-60 Elders	Illiterate	literate
Percentage (%)	75	25	29	71	10	90

Medicinal plants used in the study are:

The data collected identified seventy-eight (78) medicinal plants presented in Table: 02, from forty-one

(41) botanical families (Figure: 02), with the Asteraceae, Apiaceae, Lamiaceae, and Brassicaceae families having the highest representation.

Table 2: Medicinal plants used in the study area for treatments.

N°	Scientific name	Family	Local name	Part used
1	<i>Aegle marmelos</i> L.	Rutaceae	Kitha hendi	S
2	<i>Agave americana</i> L.	Asparagaceae	Hendi	Fr
3	<i>Ajuga iva</i> L.	Lamiaceae	Aljeada	St+F
4	<i>Alchemilla vulgaris</i> L.	Rosaceae	Rejel alasad	St
5	<i>Atriplex halimus</i> L.	Chenopodiaceae	Getaf	L
6	<i>Ammodavcus leucotrichus</i> Coss. & Durieu	Apiaceae	Oum deriga	St+S
7	<i>Anacyclus pyrethrum</i> L.	Asteraceae	Oude elatas	St
8	<i>Anagelica officinalis</i> L.	Apiaceae	Hashishet almalak	F
9	<i>Aquilaria malaccensis</i> Lam.	Thymelaeaceae	Shajret ellaud	F
10	<i>Arctium lappa</i> L.	Asteraceae	Alarkatioun	R
11	<i>Artemisia absinthium</i> L.	Asteraceae	Shajart mariam	F
12	<i>Artemisia herba alba</i> Asso.	Asteraceae	Shih	L
13	<i>Asparagus officinalis</i> L.	Asparagaceae	Helioun	St
14	<i>Berberis vulgaris</i> L.	Berberidaceae	Jarjir elbar	L
15	<i>Beta vulgaris</i> L.	Chenopodiaceae	Betrafi	R
16	<i>Brassica oleracea</i> var <i>botrytis</i> L.	Brassicaceae	Shoufleur	Fr
17	<i>Brassica napus</i> L.	Brassicaceae	Elefet	R
18	<i>Brassica oleracea</i> var <i>capitata</i> L.	Brassicaceae	Kromb	Fr
19	<i>Capparis spinosa</i> L.	Capparaceae	Shaouklhmar	Ep
20	<i>Carthamus lanatus</i> L.	Asteraceae	Zafran	F
21	<i>Centaurea cactitrapa</i> L.	Asteraceae	Shaoukejmal	S+Ep
22	<i>Centaurium erythraea</i> Rafn.	Gentianaceae	Kantarioun	F+L
23	<i>Cerasus mahaleb</i> L.	Rosaceae	Kamha	F
24	<i>Chamaemelum nobile</i> L.	Asteraceae	Babounj	F
25	<i>Chelidonium majus</i> L.	Papaveraceae	Ergasfar	R
26	<i>Cicer arietinum</i> L.	Fabaceae	Homos	L
27	<i>Cichorium intybus</i> L.	Asteraceae	Hindeba bary	F+St+L
28	<i>Citrus limonuna</i> Osbeck.	Rutaceae	Kars	Fr
29	<i>Commiphora myrrha</i> Nees.	Burseraceae	Elmor	St
30	<i>Camellia sinensis</i> L.	Theaceae	Tay	L
31	<i>Convolvulus arvensis</i> L.	Convolvulaceae	Laway	L
32	<i>Coriandrum sativum</i> L.	Apiaceae	Kozbor	L
33	<i>Cucurbita moschata</i> Duch.	Cucurbitaceae	Kabouya	Fr
34	<i>Curcuma longa</i> L.	Zingiberaceae	Kourkoum	R
35	<i>Cynara cardunculus</i> L.	Asteraceae	Khorshof bary	St+F
36	<i>Cynara scolymus</i> L.	Asteraceae	Garnoun	Fr
37	<i>Cyperus esculentus</i> L.	Cyperaceae	Habelaziz	Ep+R
38	<i>Daucus carota</i> L.	Apiaceae	Zrody	R+S
39	<i>Ecballium elaterium</i> L.	Cucurbitaceae	Fagous lhmir	R+F

N°	Scientific name	Family	Local name	Part used
40	<i>Equisetum arvense</i> L.	Equisetaceae	Danab elkhyl	St+L
41	<i>Ephedra alata</i> Decne.	Ephedraceae	Alanda	St+L
42	<i>Eruca sativa</i> Mill.	Brassicaceae	Jarjir	L
43	<i>Ficus carica</i> L.	Moraceae	Karmous	Fr
44	<i>Foeniculum vulgare</i> Mill.	Apiaceae	Besbes	R
45	<i>Fragaria vesca</i> L.	Rosaceae	Faraoula	Fr
46	<i>Glycyrrhiza glabra</i> L.	Fabaceae	Ergesous	L
47	<i>Helichrysum italicum</i> Roth.	Asteraceae	Elkhalda	S
48	<i>Hordeum vulgare</i> L.	Poaceae	Shair	S
49	<i>Jasminum grandiflorum</i> L.	Oleaceae	Yansoun	F
50	<i>Juniperus oxycedrus</i> L.	Cupressaceae	Elarar	L
51	<i>Laurus nobilis</i> L.	Lauraceae	Raned	L
52	<i>Linum usitatissimum</i> L.	Linaceae	Zreat elktan	S
53	<i>Bunium mauritanicum</i> L.	Apiaceae	Talghouda	S
54	<i>Melissa officinalis</i> L.	Lamiaceae	Mlailisa	L
55	<i>Mentha spicata</i> L.	Lamiaceae	Naanaa	L
56	<i>Spinach officianalis</i> L.	Amaranthaceae	Salk	L
57	<i>Nigella sativa</i> L.	Ranunculaceae	Kamoun asouad	S
58	<i>Onoprdon matracanthum</i> L.	Asteraceae	Khourshouf	L
59	<i>Petroselinum crispum</i> Mill.	Apiaceae	Maadnous	L
60	<i>Peumus boldus</i> Molina.	Monimiaceae	Shajrt elkabed	L+F
61	<i>Phonix dactylifera</i> L.	Arecaceae	Tamer	Fr
62	<i>Phyllanthus niruri</i> L.	Phyllanthaceae	Elamlaj	Ep
63	<i>Pistacia lentiscus</i> L.	Anacardiaceae	Darou	L
67	<i>Plantago lanceolata</i> L.	Plantaginaceae	Lsan elhamel	Ep
65	<i>Portulaca oleracea</i> L.	Portulacaceae	Bourtlag	L
66	<i>Raphanus sativus</i> L.	Brassicaceae	Fijel	L
67	<i>Zizyphus lotus</i> L.	Rhamnaceae	Sider	L
68	<i>Salvia rosmarinus</i> Spenn.	Lamiaceae	Eklil eljabal	F+St+L
69	<i>Salvia officinalis</i> L.	Lamiaceae	Mayramia	L
70	<i>Salix fragilis</i> L.	Salicaceae	Safsaf	St
71	<i>Senecio vulgaris</i> L.	Asteraceae	Jedla	St
72	<i>Silybum marianum</i> L.	Asteraceae	Shouiket mariam	S
73	<i>Tamarix articulate</i> L.	Tamaricaceae	Tarfaya	L
74	<i>Thymus vulgaris</i> L.	Lamiaceae	Zaatar	L
75	<i>Trigonella fornum graecum</i> L.	Fabaceae	Helba	S
76	<i>Urtica pillulifera</i> L.	Urticaceae	Kouraice	S
77	<i>Verbena officinalis</i> L.	Verbenaceae	Rejel Elhamam	Ep
78	<i>Zingiber officinale</i> Roscoe.	Zingiberaceae	Zanjabil	R

L: Leaves, S: Seed, R: Roots, F: Flower, St: Stems, Fr: Fruits, Ep: Entire plant.

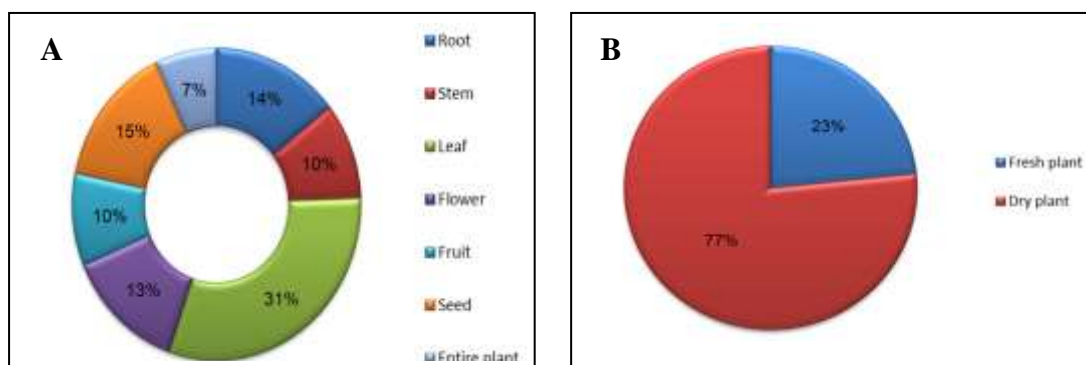


Figure 04: Percentage of parts used (A) and preparation condition of medicinal plants (B) used in the study area to treat liver diseases.

Preparation modes of medicinal plants:

Figure 05 displays the results obtained for the percentage of preparation modes (A) and the percentage of plant extraction methods used for medicinal plants (B) in the El-Oued state for the treatment of liver diseases. In this study, local people in the area use various modes of

preparing medicinal plants, such as Extraction (57.14%), Powder (36.45%), Oils (3.44%), Essential Oils (1.97%), and Capsules (0.98%) (Figure: 04 A). Regarding the percentage of plant extraction methods, people primarily use the decoction method (48%), followed by infusion (34%) and maceration (20%) (Figure: 04 B).

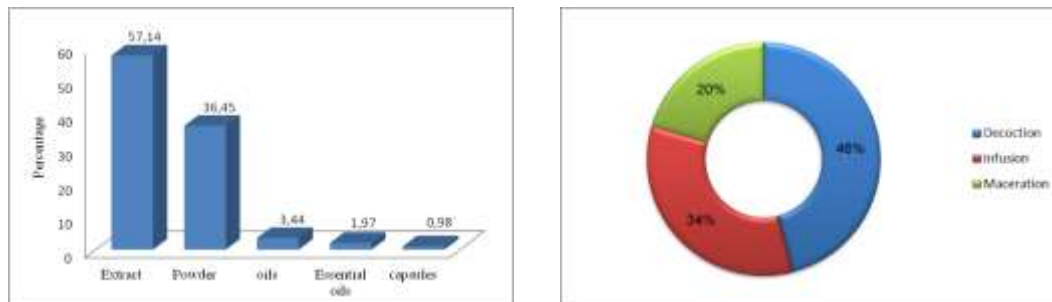


Figure 05: Percentage of preparation modes (A) and percentage of plant extraction methods of medicinal plants (B) used in the study area to treat liver diseases.

DISCUSSION

Traditional medicine is often a gender-specific practice, yet in certain cultures, both men and women engage in this activity¹³. Consequently, fewer female respondents were interviewed during the present study compared to male respondents. Ethnobotanical fieldwork is influenced by many aspects, including the cultural

context of society, on-ground situations, the willingness of informants, and associated socio-cultural boundaries¹⁴. In the current study, (71%) of the respondents were aged 40-50 years or older, and the majority (90%) of respondents were literate. Therefore, there appears to be a relationship between the age of informants and the number of species reported, with older respondents reporting a larger number

of species. Younger people showed a lower interest in learning about and using ethnomedical practices, possibly due to their exposure to modern education. Simultaneously, the rapid progress in science and technology is leading the younger generation towards new traditions^{15,16,26}.

According to the findings of this study, residents in El-Oued state, Algeria, employ 78 different species of medicinal plants to treat liver disorders. These medicinal plants are divided into 41 families. The most important family was Asteraceae, with 14 species, followed by Apiaceae (7 species), Lamiaceae (7 species), and Brassicaceae (5 species). The other families are represented by various species, ranging from 1 to 5. This result illustrates the significant taxonomic variety of medicinal plants in the research region and the extensive information related to their use in conventional liver treatment¹⁰. Additionally, our study reports that various liver disorders can be treated with some plants more often than others. *Zizyphus lotus* (L.) Lam., *Silybum marianum* L., and *Atriplex halimus* L. were cited by 70% of the participants as sources of treatment for liver illnesses. This observation is consistent with several previous studies^{17,18,19}.

The results regarding growth forms of plant species revealed that 52% of plants were found spontaneously in the wild, while 48% were cultivated species. Similarly, research conducted by Slimani et al.,²⁰ (2016) in the Zerhoun region, Morocco, showed that the use of spontaneous medicinal plants is significantly higher (90%) than cultivated species (10%) in the treatment of various liver illnesses. This finding concerning growth forms (59% wild plants and 41% cultivated species) has also been reported by other authors²¹. Consequently, the levels of bioactive compounds in medicinal plants can vary based on several factors. These levels may be influenced by factors such as growth and development conditions, soil type, genotype, maturity, storage conditions, and extraction methods. The time and season of plant harvest

can also affect its effectiveness²².

Traditional healers use various parts of medicinal plants for medication. Among these plant parts, leaves are the most frequently utilized in the treatment of liver diseases, followed by seeds, roots, flowers, fruits, stems, and the entire plant. Our results align with the findings of Gebeyehu et al.,²³ (2014) and Belayneh et al.,²⁴ (2012). Furthermore, the highest accessibility of traditional drug formulations was observed when derived from the leaves of medicinal plant species, primarily due to the ease of collection and preparation, as well as the presence of bioactive substances in these plant parts. Similarly, leaves are considered the most potent and influential source for preparing traditional herbal medicine, as these plant parts play a vital role in the life cycle of plant species⁸.

On the other hand, the results of the analysis regarding the condition of medicinal plant preparation, whether fresh or dry, indicated that the majority of medicinal plants were prepared from dried plant materials (77%), while 23% of medicinal plants were prepared from fresh plant material. These findings differ from those of several other studies^{25,26,27}.

Traditional medicine employs various preparation methods, including extraction, powder, oils, essential oils, capsules, and cataplasms. Users often seek the simplest ways to create herbal remedies. It is important to note that information regarding the use of medicinal plants and their therapeutic properties may vary from one person to another²⁸. Based on the recorded data, we found that most interviewees used aerial parts such as leaves in the form of extracts (57.14%) and powders (36.45%). However, decoction (46%) and infusion (34%) were the most commonly used preparation methods. Several studies also report the prevalence of decoction as a preferred mode of preparation for medicinal^{29,30}. According to researchers like Tahri et al.,³¹ the use of decoction by the population is considered the best method to warm and disinfect the body.

Furthermore, Salhi et al.,³² (2010) suggest that this

method can reduce toxicity when certain plants are combined. Some plants are used to create oils and ointments, especially for local applications. The consumption of fruits from certain plants, as well as the use of vegetable oil traditionally extracted from these fruits, were also noted²¹.

CONCLUSION

This study has revealed that numerous medicinal plants in the El-Oued state of Algeria have the potential to treat various liver ailments. We documented a total of seventy-eight plant species from 41 different families during our research, with Asteraceae being the most prevalent family. Among these species, the leaves of plants are predominantly used to address liver-related issues. Additionally, decoction emerged as the most common traditional method of

preparation in the region. The findings of this study underscore the continued use of traditional herbal remedies in El-Oued, despite the accessibility of modern healthcare and pharmaceuticals. Therefore, this research not only enriches local knowledge of medicinal flora but also establishes a valuable database for the exploration of new bioactive compounds with potential applications in pharmacology.

ACKNOWLEDGMENTS

The authors thank the reviewers for their invaluable assistance in conducting this research. The study was conducted as part of the D01N01UN390120230004 research project, funded by the Algerian Ministry of Higher Education and the Directorate General for Scientific Research and Technological Development.

REFERENCES

1. Djahra A.B. Etude phytochimique et activité antimicrobienne, antioxydante, antihépatotoxique du Marrube blanc ou *Marrubium vulgare* L. These. University of Annaba. Algeria. 2014 : 114p.
2. Volak J. & Stodola J. Plantes médicinales. 256 illustrations en couleurs. Published by Grund. Coll. La nature à livre ouvert. 1984; 399p.
3. Sofowora, A. Medicinal plants, and traditional medicine in Africa, 2 Spectrum Books Limited, Ibadan, Nigeria, 1993; 289.
4. Djahra AB, Benkaddour M, Benkherara S. Antioxydant and hepatoprotective Potential of *Coriandrum sativum* L. against hepatic injury by Lambda-cyhalothrin pesticide. *J. drug deliv. Ther.* 2020; 10(3-s): 182-188.
5. Zeghib K, Boutlelis DA, Menai S, Debouba M, Protective effect of *Atriplex halimus* extract against benzene-induced haematotoxicity in rats, *Ukr. Biochem. J.* 2021; 93(4): 66-76.
6. Tabuti, J.R.S., Lye, K.A. & Dhillion, S.S. Traditional herbal drugs of Bulamogi, Uganda: plants, use, and administration. *J. Ethnopharmacol.* 2003; 88: 19-44.
7. Sarri D. Étude de la végétation du Parc National d'El Kala: Forêt domaniale du djebel El-Ghorra (Algérie): Phytosociologie et proposition d'aménagement. Mém. Magister. Université Ferhat Abbas de Sétif. 2002; 119p.
8. Voisin P. Le Souf. Ed. El-Walide, *El-Oued.* 2004; 190 p.
9. Hlisse, Y. *Encyclopédie végétale de la région de Souf, Ed. El Walid.* 2007: p232.
10. Getnet Chekole. Ethnobotanical study of medicinal plants used against human ailments in Gubalafto District, Northern Ethiopia. *J Ethnobiol Ethnomed.* 2017; 13:55.
11. Giday M., Asfaw Z., Woldu Z., Teklehaymanot T. Medicinal plant knowledge of the Bench ethnic group of Ethiopia. An ethnobotanical investigation. *J Ethnobiol Ethnomed.* 2009; 5:34.
12. Wondimu T., Zemedede A., Ensermu K. Ethnobotanical study of medicinal plants around 'Dheeraa' town, Arsi Zone, Ethiopia. *J Ethnopharma.* 2007; 112: 152-161.

13. Djahra AB., Lmhanat I., Benkaddour M., Benkherara S., Laib I., Benine C. Traditional Herbal Remedies from Algeria for Treating Digestive Disorders, *J. drug deliv. ther.* 2023; 13(1): 84-92.
14. Zewdie K, Zemedede A., and Sebsebe D. A study conducted in Burkina Faso, An ethnobotanical study of medicinal plants in Sheka Zone of Southern Nations Nationalities and Peoples Regional State, *Ethiopia J Ethnobiol Ethnomed.* 2020; 16(7): 2-15.
15. Kidane L., Gebremedihin G., Beyene T. Ethnobotanical study of medicinal plants in Ganta Afeshum District, Eastern Zone of Tigray, Northern Ethiopia. *J Ethnobiol Ethnomed.* 2018: 14.64.
16. Beyi MW. Ethnobotanical Investigation of Traditional Medicinal Plants in Dugda District, Oromia Regio. *J. Med. Plants. Stud.* 2018; 2(1): 1007.
17. Bencheikh N., Bouhrim M., Kharchoufa L., Choukri M., Bnouham M., Elachouri M. Protective Effect of *Zizyphus lotus* L. (Desf.) Fruit against CCl4-Induced Acute Liver Injury in Rat. *Evid Based Complement Alternat Med.* 2019; 25. DOI: 10.1155/2019/6161593.
18. Guoyan J., Chunhong S., Xiaodong W., Jie M., Chen L., Honghong Z., Yixuan L., Yongjun Z., and Jingxin M. Hepatoprotective mechanism of *Silybum marianum* on nonalcoholic fatty liver disease based on network pharmacology and experimental verification, *Bioengineered.* 2022; 13(3): 5216-5235.
19. Zeghib K. and Djahra B.A. Preventive and Curative Effects of *Atriplex Halimus* L. Aqueous Extract on Benzene Provoked Hepatic Injury in Rats. *J. drug deliv. ther.* 2020; 10(3): 217-222.
20. Slimani I., Najem M., Belaidi R., Bachir L., EL Bouiamrine H., Nassiri L., and Ibijbijen J. *Int. j. res. sci. innov. appl. sci.* 2016; 15(4): 846-863.
21. Lazli A., Beldi M., Ghouri L., and Nouri N.E.H. Étude ethnobotanique et inventaire des plantes médicinales dans la région de Bougous (Parc National d'El Kala, Nord-est algérien) *Bull. Soc. R. Sci. Liege.* 2019; 88: 22-43.
22. Zang D., Hamauru Y. Phenolic compounds, ascorbic acid, carotenoids and antioxidant properties of grebe. Red and yellow bell peppers. *Food Agric Environ.* 2003; 2: 22-7.
23. Gebeyehu G., Asfaw Z., Enyew A., Raja N. Ethnobotanical study of traditional medicinal plants and their conservation status in Mecha Wereda West Gojjam Zone of Ethiopia. *Int J Pharm H Care Res.* 2014; 2(03): 137-54.
24. Belayneh A., Asfaw Z., Demissew S., Bussa NF. Medicinal plants potential and use by pastoral and agro-pastoral communities in Erer Valley of Babile Wereda, Eastern Ethiopia. *J Ethnobiol Ethnomed.* 2012; 8:42.
25. Teklehaymanot T., Giday M., Medhin G., Mekonnen Y. Knowledge and use of medicinal plants by people around Debre Libanos Monastery in Ethiopia. *J Ethnopharmacol.* 2007; 111: 271-83.
26. Giday M., Asfaw Z., Woldu Z. Ethnomedicinal study of plants used by Sheko ethnic group of Ethiopia. *J Ethnopharmacol.* 2010; 132: 75-85.
27. Yirga G. Assessment of traditional medicinal plants in Endata District, Southeastern Tigray, Northern Ethiopia. *African J Plant Sci.* 2010; 4(7): 255-60.
28. Serine H. Enquête ethnobotanique et inventaire des plantes médicinales de la région de haddada (Secteur de gestion Est du PNEK). *Mém. Ing. Centre universitaire d'El Tarf.* 2008 : 69p.
29. Jdaïdi H. and Hasnaoui B. Étude floristique et ethnobotanique des plantes médicinales au nord-ouest de la Tunisie : cas de la communauté d'Ouled Sedra. *J. Adv. Sci. Technol. Res.* 2016; 3(1): 281-291.
30. Charmat S. & Gharzouli R. Ethnobotanical Study of Medicinal Flora in the North East of Algeria - An Empirical Knowledge in Djebel Zdim (Setif). *J. Mater. Sci. Res.* 2015; A5 (1-2): 50-59.
31. Tahri N., El Basti A., Zidane L., Rochdi A., Douira A. Étude Ethnobotanique Des Plantes Médicinales Dans La Province De Settat (Maroc). *Kastamonu University Journal of Forestry Faculty.* 2012; 12 (2): 192-208.

32. Salhi S., Fadli M., Zidane L., Douira A. Études floristique et ethnobotanique des plantes médicinales de la ville de Kénitra (Maroc). *Lazaroa*. 2010; 31: 133-146.
33. Lafi, Z., Aboalhaja, N., Afifi, F., Ethnopharmacological Importance of Local Flora in the Traditional Medicine of Jordan: (A Mini Review). *Jordan j. pharm. sci.* 2022 ; 15, 132-144.
34. Brahmi, F., Khaled-Khodja, N., Bezeghouche, R., Bouharis, S., Elsebai, M. F., Madani, K., Boulekbache-Makhlouf, L. Ethnobotanical Study of the Most Lamiaceae Used as Medicinal and Culinary Plants by the Population of Bejaia Province, Algeria. *Jordan j. pharm. sci.* 2023; 16: 268-281.

الإمكانات العلاجية للنباتات الطبية التقليدية من الجزائر في علاج أمراض الكبد

جهرة علي بوتليليس^{1*}، شريط صبرينة¹، بن قدور منية¹، بن خرازة صالح²، العايب ابتسام¹، بنين شيماء¹

¹ مخبر البيولوجيا المحيط والصحة كلية علوم الطبيعة والحياة، جامعة الوادي، الجزائر .

² قسم البيولوجيا، كلية علوم الطبيعة والحياة وعلوم الأرض، جامعة غرداية، الجزائر .

ملخص

يتمثل هدف دراستنا في التحقيق العرقي النباتي للنباتات الطبية التقليدية التي يستخدمها الناس لعلاج أمراض الكبد في ولاية الوادي، جنوب شرق الجزائر. تم استخدام المقابلات والاستبيانات الشخصية لجمع البيانات. حيث أجريت مقابلات مع 156 مشارك، معظمهم في سن 50. سمحت دراسة النباتات الطبية لعلاج أمراض الكبد باكتشاف 78 نوعاً نباتي من 41 عائلة وأجناس نباتية مختلفة، بما في ذلك 52% من النباتات الطبية الموجودة في البرية. تم استخدام حوالي 77% من النباتات في المقام الأول في حالتها الجافة لتحضير العلاج. حيث كانت طريقة التغليف هي طريقة التحضير الأكثر استخداماً، واستشهد 70% من المشاركين بـ *Zizyphus lotus* (L.) Lam. و *Silybum marianum* L. و *Atriplex halimus* L. كمصادر لعلاج أمراض الكبد. لقد كشف هذا التحقيق أن العديد من الأشخاص في منطقة البحث لا يزالون يعتمدون على العلاجات العشبية لعلاج اضطرابات الكبد. من ناحية أخرى، تقدم هذه الدراسة بيانات أساسية عن النباتات الطبية والتي ستكون بمثابة نقطة انطلاق للبحوث المستقبلية المكثفة.

الكلمات الدالة: علم النبات العرقي، الأدوية، النباتات الطبية، امراض الكبد، الوادي.

* المؤلف المراسل: جهرة علي بوتليليس

djahra_ab@yahoo.fr

تاريخ استلام البحث 2022/11/25 وتاريخ قبوله للنشر 2023/02/23.