

**Article Arrival Date****24.11.2024****Article Published Date****20.12.2024****DOĞU CEZAYİR'DE GELENEKSEL TIPTA KULLANILAN ŞİFA BİTKİLERİNE İLİŞKİN ETOBOTANİK ARAŞTIRMA****ETHNOBOTANICAL SURVEY OF HEALING PLANTS USED IN TRADITIONAL MEDICINE IN EASTERN ALGERIA****Karina BACHTARZI<sup>(1)</sup>, Assia ALLAOU<sup>(2)</sup>, Lilia BELKACEM<sup>(3)</sup>**

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**Özet**

Geleneksel tıp, kültürel mirasın önemli bir unsurunu temsil ettiği ve aynı zamanda ilaç endüstrisi ürünlerinin şaşırtıcı maliyetleri nedeniyle, toplumların büyük bir çoğunluğunun sağlık sorunlarını tedavi etmek için ana başvuru kaynağı olmaya devam etmektedir. Bu bilginin bir nesilden diğerine sözlü olarak aktarılması, kaybolmaya ve hatta bozulmaya karşı bağışık değildir. Bunun için, farklı bölgelerdeki etnobotanik çalışma, yeni moleküllerin araştırılması ve geliştirilmesinde önemli bir bileşeni temsil eden şifalı bitkiler ve kullanımları hakkında bilgi ve tanımlama için gereklidir. Cezayir dahil birçok ülke bu tesislerin geliştirilmesiyle ilgileniyor. DSÖ'nün, kullanımlarını standart hale getirmek için bitkisel tedavilerin güvenlik ve etkinliğinin değerlendirilmesini önerdiği belirtilmelidir. Bu çalışmalarda kullanılan yöntemler arasında, amacı bitkilerin farklı geleneksel ve tıbbi kullanımlarını bilmek olan etnobotanik araştırma yer almaktadır. Toplanan bilgiler, bir bitkinin hem kullanımı açısından hem de belirli bir bölgedeki bilgisi açısından önemini değerlendirmeyi mümkün kılan nicel endeksler kullanılarak işlenecektir.

Doğu Cezayir'deki 18 vilayette, farklı kültürel ve sosyo-ekonomik düzeylere ait yaklaşık toplam 269 bitki uzmanına rastgele dağıtılan anket formları kullanılarak etnobotanik bir araştırma yapıldı. Araştırmamızın aracı, yarı doğrudan görüşmeye rehberlik etmek için hazırlanmış cevapları olan bir soru listesi içeren bir formdur; etnobotanik araştırmanın standart prosedürlerine uyuldu. İki etnobotanik indeks kullanıldı: Göreceli Popülerlik Düzeyi (RPL) ve Doğruluk düzeyi (FL).

Verilerin işlenmesi, çalışma alanımızda tıbbi bitki kullanımının her iki cinsiyette tüm yaş gruplarında çok yaygın olduğunu gözlemlememizi sağladı. Bilgi verenlerin %53,90 5 yıldan fazla bir süredir fitoterapi alanında çalışıyor, bitkiler en çok alıntı yapılanlar Pistacia lentiscus L, Rubus ulmifolius, Oleaeuropaea L Teucrium polium L'dir. RPL için sonuçlar sırasıyla 1, 0, 73, 0, 26 ve 0.25 ve FL indeksi için sırasıyla 100, 90, 45, 88, 88'dir. ve 84, 05

Bu bitkisel ilaçlar, yaraları iyileştirmek için gelecekteki ilaçlar için araştırma temeli olarak kabul edilebilir.

**Anahtar Kelimeler:** Şifalı bitkiler, etnobotanik indeks, yanık, yara

**Abstract**

Traditional medicine remains the main recourse for a large majority of populations to treat their health problems, because it represents an important element of cultural heritage, but also because of the staggering costs of pharmaceutical industry products. The oral transmission of

this knowledge from one generation to another is not immune to loss or even distortion. For this, the ethnobotanical study across different regions is essential for the knowledge and identification of medicinal plants and their uses, which represents an important component in the research and development of new molecules. Many countries, including Algeria, are interested in the development of these plants. It should be noted that the WHO recommends the evaluation of the safety and efficacy of herbal treatments in order to standardize their use. Among the methods used in these studies is the ethnobotanical survey, the purpose of which is, to know the different traditional and medicinal uses of plants. The information collected will be processed using quantitative indices that make it possible to assess the importance of a plant both in terms of its use and in terms of its knowledge in a specific region.

An ethnobotanical survey was conducted in 18 wilayas of eastern Algeria, using survey sheets randomly distributed to nearly a total of 269 herbalists belonging to different cultural and socio-economic levels. The tool of our investigation is a form with a list of questions with prepared answers, to guide the semi-direct interview; the standard procedures of the ethnobotanical investigation have been respected. Two ethnobotanical indices were used: Relative Popularity Level (RPL) and Fidelity level (FL).

The processing of the data allowed us to observe that the use of medicinal plants in our study area is very widespread in all age groups in both sexes 53.90% of the informants have been working in the field of phytotherapy for more than 5 years, the plants most cited are *Pistacia lentiscus* L, *Rubus ulmifolius*, *Olea europaea* L *Teucrium polium* L. the results for the RPL are respectively 1, 0, 73, 0, 26 and 0.25 and for the FL index are respectively 100, 90, 45, 88, 88 and 84, 05. These herbal remedies could be considered as research basis for future medicines for healing wounds.

**Keywords:** Healing plants, ethnobotanical index, burn, wound

## 1. INTRODUCTION

Phytotherapy plays an important role in the curative and preventive treatments of various conditions including skin wounds.

Many countries including Algeria are interested in the valorization of these plants. It should be known that who recommends the evaluation of the safety and effectiveness of plant-based treatments in order to be able to standardize their use (WHO 2020).

Among the methods used in these studies is the ethnobotanical survey, the aim of which is to know the different traditional and medicinal uses of plants. The information collected will be processed using quantitative indices that make it possible to assess the importance of a plant both in terms of use and knowledge in a specific region (Palabaş 2020).

## 2. MATERIALS AND METHODS

### 2.1 Study area

The survey was carried out at the level of 18 Wilayas and 77 municipalities in eastern Algeria.

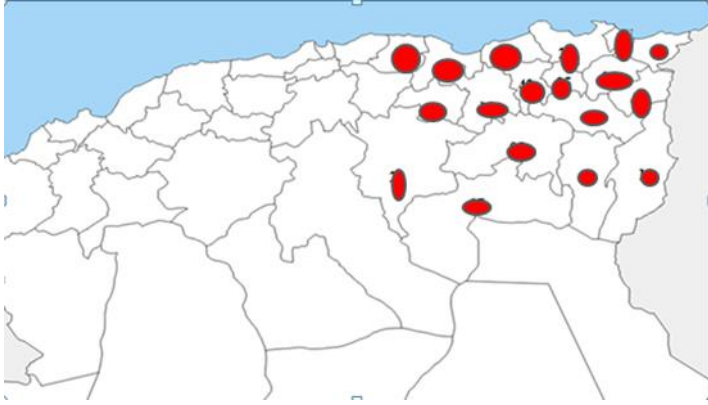


Figure 1: Regions concerned by the survey

An ethnobotanical survey was conducted for six months among people in contact with medicinal plants (villagers and herbalists) through the wilayas of eastern Algeria.

The number of people interviewed is 269, aged between 20 and 84, divided between the two sexes.

The only criterion for retaining an informant is his experience in the field, which must not be less than 5 years.

## 2.2 The questionnaire

The tool of our investigation is a questionnaire with a list of questions with answers prepared to guide the semi direct interview; it is divided into two parts allowing to collect information relating to the herbalist and on the so-called healing plants used by the local population.

## 2.3 Data processing

The data recorded on the survey sheets were processed and entered using Microsoft Office Excel® software.

Data analysis used simple methods of descriptive statistics. Thus, quantitative variables are described using the mean. Qualitative variables are described using counts and percentages. For this we used two ethnobotanical indices (Meideros 2011):

- Relative Popularity Level (RPL): The RPL index makes it possible to classify the plants used according to their level of relative popularity
- Fidelity index (FL): The FL helps to appreciate the intensity of the relationship that herbalists establish between a medicinal plant and its role in a given category of diseases.

Table 1: Ethnobotanical index and their formulas

| Index                                       | formulas                    |  |
|---|-----------------------------|--|
| Relative Popularity Level ( <b>RPL</b> )    | $RPL = I_u / n$             | <b>I<sub>u</sub></b> : is the number of informants who mention a given plant as being medicinal.<br><b>n</b> : total number of informants.   |
| Fidelity index Fidelity level ( <b>FL</b> ) | $FL = I_p / I_u \times 100$ | <b>I<sub>p</sub></b> : is the number of informants who affirmed the use of the plant to treat a given pathology.<br><b>I<sub>u</sub></b> : is the total number of informants who recognize the medicinal character of the plant (regardless of the pathology treated). |

### 3. RESULTS AND DISCUSSION

#### 3.1 Data collection

The ethnobotanical survey was carried out using a questionnaire, 269 informants with solid knowledge of phytotherapy living in eastern Algeria were interviewed using a questionnaire. The demographic characteristics of the informants are presented in Table 2.

Table 2: Demographic characteristics of informants (%)

| Demographical characteristics | Percentage (%) |
|-------------------------------|----------------|
| <b>Gender</b>                 |                |
| Male                          | 68,77          |
| Female                        | 31,22          |
| <b>Age (Years)</b>            |                |
| 20-30                         | 4,83           |
| 30-40                         | 16,72          |
| 40-50                         | 26,71          |
| 50-60                         | 48,69          |
| +60                           | 3,02           |
| <b>Education level</b>        |                |
| Illiterate                    | 24,16          |
| Primary school                | 2,23           |
| Secondary school              | 17,10          |

|                  |       |
|------------------|-------|
| Secondary school | 45,72 |
| University level | 10,78 |

The use of medicinal plants in our study area is widespread in all age groups.

Indeed people over the age of 50 have a frequency of use of medicinal plants of 48.69%. Then come the age groups [40-50], [30-40], [20-30], with respectively 29.73%, 16.72%, and 4.83%.

The age extremes of the informants varied between 21 and 81 with an average age of 54 years +/- 8 years.

In the regions investigated, both men and women are involved in traditional medicine. However, the percentage of men 68.77% is much higher than that of women 31.22%. We can deduce that the sale of medicinal plants and phytotherapy remains mainly a domain of men, except that in recent years, the participation of the woman is nevertheless more and more noticed.

University students the percentage is 10.78%, as for the class of primary studies also present with 2.23%.



The illiterate class and the primary level together represent 26.34% which is not negligible this represents a real danger given the level of education which can lead to bad prescriptions.



There is a new enthusiasm for phytotherapy with the presence of academics in this field.

### 3.2 The main healing plants mentioned

The plants cited by our informants who obtained the highest indexes are listed in the table 3

Table 3: The main healing plants mentioned

| Family        | Scientific Name  | Commun Name | RPL Index | FL Index |
|---------------|--|-------------|-----------|----------|
| Anacardiaceae | <i>Pistacia lentiscus</i> L.<br>    | Lentisque   | 1         | 100%     |
| Rosaceae      | <i>Rubus ulmifolius</i> Schott.<br> | Ronce       | 0,73      | 90,45    |

|           |  |           |      |       |
|-----------|--|-----------|------|-------|
| Oleaceae  | <i>Olea europaea</i> L.<br>   | Olivier   | 0,26 | 88,88 |
| Lamiaceae | <i>Teucrium polium</i> L.<br> | Germadrée | 0,25 | 84,05 |

Several species identified in this survey have been reported in other studies around the world and in Algeria, *Pistacia lentiscus* L.. and *Rubus ulmifolius* Schott. are the most known species and the most used by the local population (Oulbani2016). This is confirmed by the results of the ethnobotanical indexes calculated for each plant mentioned. Moreover, the Algerian pharmacopoeia testifies to their cultural and therapeutic importance. Lentisk oil is used internally and externally for its healing properties, as well as for the treatment of respiratory conditions (Djerrou 2013).

The bramble of *Rubus ulmifolius* Schott, is used for the treatment of skin conditions, and in first intention in burns (Bellakhdar 1997) ,(Quave 2012).

*Olea europaea* L is a widely used natural remedy especially for the treatment of skin conditions (Madadi 2015).

*Teucrium polium* L. is a medicinal plant whose healing effect has been proven by several studies around the world. The tannins and flavonoids present in the plant promote healing thanks to their astringent, anti-inflammatory, antioxidant and antibacterial properties (Jaradat 2015), ( Bachtarzi 2016).

#### 4. CONCLUSION

In order to contribute to the enhancement of healing plants used in traditional medicine in the eastern Algerian region, an ethnobotanical survey was conducted among 269 randomly selected herbalists. The quantitative analysis of the calculated indices revealed that an important ethnobotanical knowledge is held by the local population. Indeed, several species of different families are traditionally used to treat burns and wounds. Among them, *Pistacia lentiscus* L, *Rubus ulmifolius* Schott. *Olea europaea* L. *Teucrium polium* L which had the highest ethnobotanical indices and should therefore be considered for further phytochemical and preclinical studies to assess their biological activities and identify the main bioactive compounds for better management of burned.

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