

Ethnobotanical study of medicinal plants in Telagh region (North-western Algeria)

**Dif Mustapha Mahmoud ^{*1,3}, Benchohra Hadria Amel ^{1,2}, Dellal Abbes,³
Feddal Wafaa², Chebab Nacera ²**

¹Laboratory of Ecodevelopment of spaces, Djilali Liabes university. Wilaya of Sidi Bel Abbes. 22000

²faculty of Nature and life. University of Djilali Liabes wilaya of Sidi Bel Abbes. 22000

³Science Institute. Nour Bachir Center University. El Bayadh. 32000

*Email: mustitus17@hotmail.com

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ABSTRACT

Medicinal plants are known for their uses because of their therapeutic virtues. A study was carried out to establish the medicinal plants to collect all the information concerning the therapeutic uses practiced by the local population in Telagh region (Wilaya of Sidi Bel Abbes. A survey was carried out among people of all ages, pharmacies, and herbalists in the Telagh region using 200 questionnaire cards for four months. From the results it was possible to identify medicinal plants divided into 23-families, among which Lamiaceae and Asteraceae families are the most dominant. Results showed that decoction and infusion are the most used part of remade forms of all cited pathologies. Our results make up a very valuable source of information for the region studied and for the national medicinal flora. The results could be a database for further research in the phytochemistry fields and scientific study of medical drugs.

Keywords: Sidi Bel Abbes, medicinal plants, ethnobotanical, Telagh

Herbal medicine is a discipline that offers natural remedies accepted by the human body and is usually connected with conventional treatments. Nowadays, it is experiencing a great revival in the West, especially in chronic diseases treatment. Herbal treatments are coming back to the foreground because the potency of drugs such as antibiotics (considered the almost universal means to fix severe infections decreases (Goetz and Ghédira, 2012; Tripathi, 2021). Several authors have studied Algerian medicinal plants based on ethnobotanical surveys (Kechar *et al.*, 2016; Dif *et al.*, 2015). The multiplication of these ethnobotanical studies on a national scale enables: to gather more details on medicinal plants, enhance them, and save some knowledge acquired by the local population. The village of Telagh is located where; the population has a crucial ethnobotanical knowledge (Benabdeli, 1983). This work consists of making an inventory of the plants employed by the neighborhood population of the Telagh region for ethnobotanical reasons.

The Telagh Forest Massif (Figure 1) is a combined succession of mountains that enclose the Dhaya Mountains that follow the Tlemcen Mountains to the west and the Saida Mountains

from the east. It is bordered to the north by Kounteida and Bouettas forests, to the southwest by Touazinz and Takrouma forests, to the south Zegla and Beni Matharet forests and to the east by the territory of the Wilaya of Saida. According to Emberger's coefficient, the forest of Telagh would be affected by the cold semi-arid climate, which affects almost the totality forest. The fresh semi-arid is located in some enclaves of the northern and northeastern slopes of the Khodida and Redaida mountains. January is the coldest month with an average temperature of around 0°C to 2°C and the hottest in July with an average of 34°C to 36°C. Near this forest, the village of Telagh is located and represents the object of our study, including the following forests: Bouettas, ZidelMoumen and Khodida in the North. Zegla, Ain El H'djar, and Beni Mathare in the South.

The survey is carried out on a sample of 200 individuals composed of men and women using random sampling in the city of Telagh during the period November 2016-March 2017; these individuals are between 20 and 80 years old. The questionnaire was made with individuals using plants. The taxonomic identification of the species was carried out at the eco-development of spaces

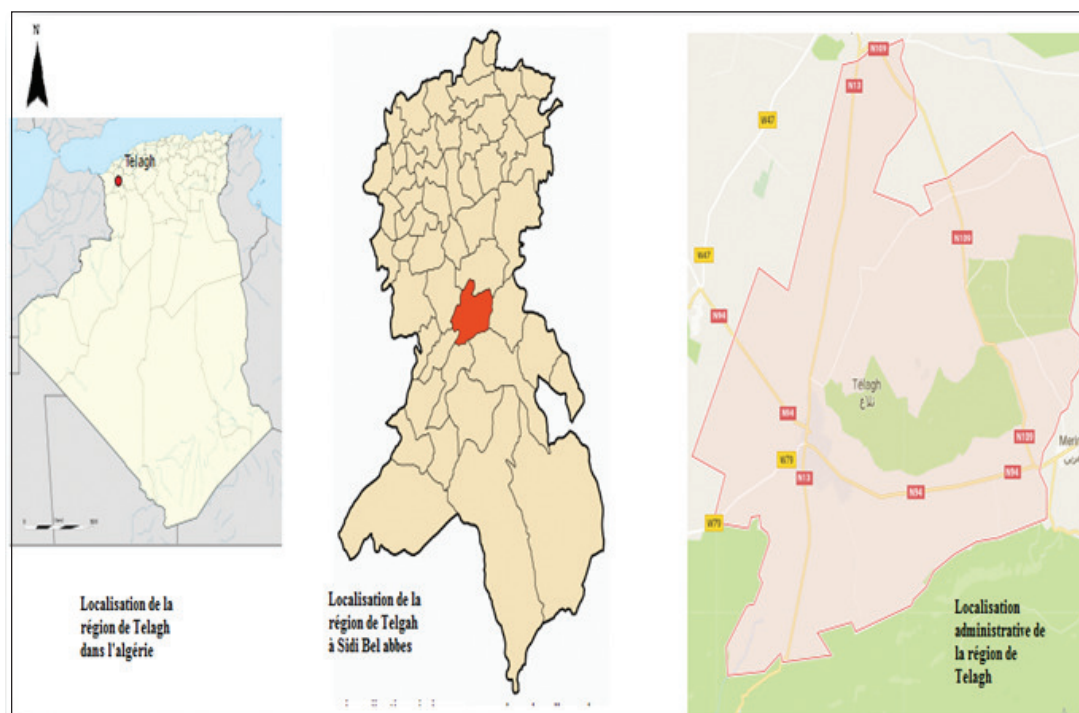


Figure 1: location of the Telagh region in Algeria and the Wilaya of Sidi Bel Abbes

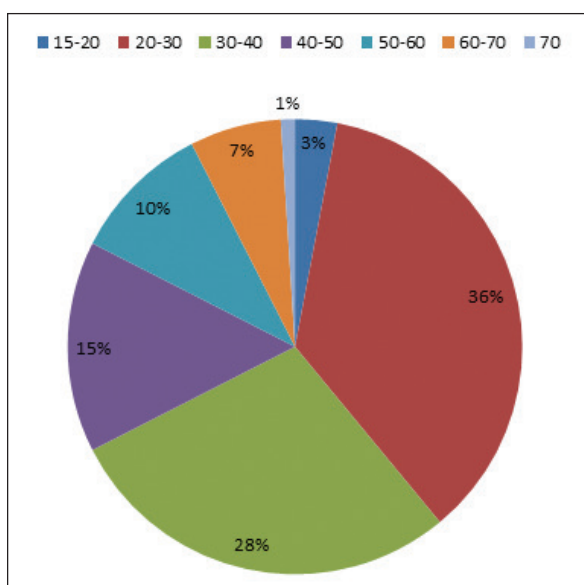


Figure 2: The frequency of the different age groups of the population questioned in the Telagh region

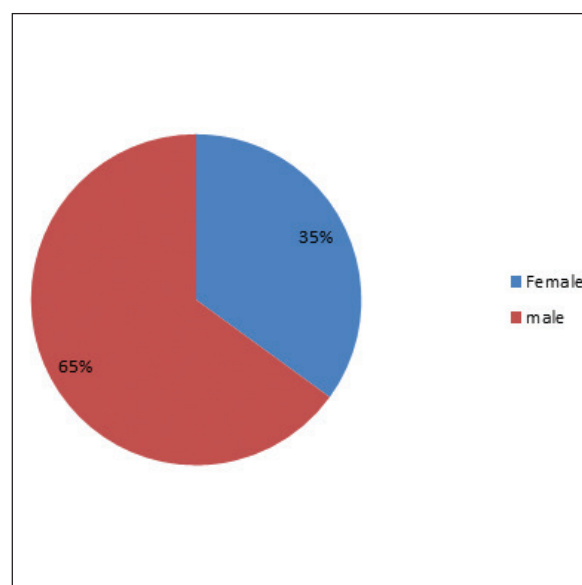


Figure 3: Sex frequency of the population questioned in the Telagh region

research laboratory using books and plant catalogs. Our results were processed by computer software Microsoft Excel 2010. It was able to distinguish groups of families and medicinal species used in the region of Telagh.

The results showed that the use of herbal remedies in Telagh is prevailing among all age groups (Figure 2), with predominance among people aged between 20-30 (36%). However, people aged between 30 and 40 years; there is a rate of (28%); for

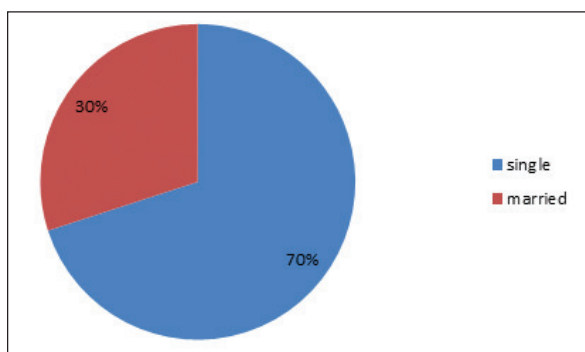


Figure 4: Frequency of the family situation of the questioned population the questioned population of the Telagh region

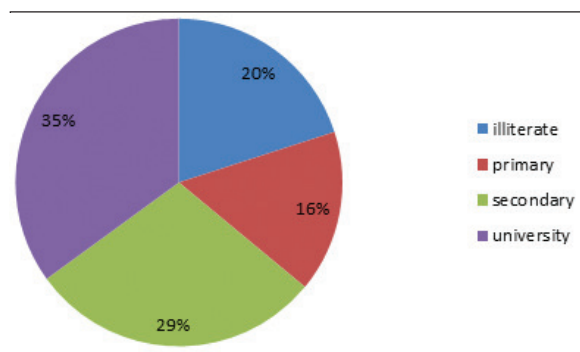


Figure 5: Frequency of university level of the population questioned in the Telagh region

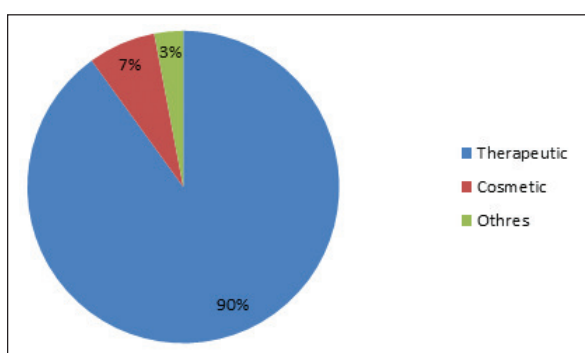


Figure 6: Frequency of uses of medicinal plants utilized by the populace questioned in Telagh region

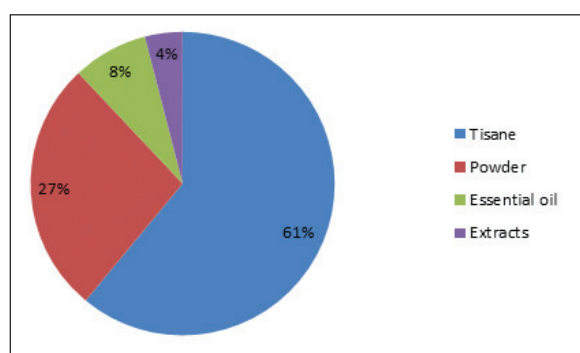


Figure 7: Frequency of method of preparation of medicinal plants used by the questioned population of the region of Telagh

the 40 to 50 age group (15%); for the 50 to 60 years group (10%); for the 60 to 70 y group (7%); and for the oldest people, the usage of medicinal plants (1%) does not represent a substantial therapeutic interest (Figure 2). Familiarity with the properties and benefits of medicinal plants are often acquired following along experience accumulated and transmitted from one generation to the next. The transmission of this knowledge is currently in danger because it is not always assured (Saidi *et al.*, 2015). The results obtained revealed that, in contrast to other age ranges, people who fit in with the age bracket of 20 to 30 years have more familiarity with medicinal plants.

Used herbal remedies vary by sex. Men take medicinal plants much more than women. Among the users, 65% are men, and 35% are women (Figure 3). It can be explained by; the utilization of herbal remedies by men because most of the survey were herbalists. As well as, most of the populations surveyed are men (Figure 3).

Medicinal plants are used much more by single people (70%) than by married people (30%) due to minimize the costs required by the doctor and the pharmacist (Figure 4).

In our study, the mass of medicinal plants users of those at a university level with a percentage of (35%). This rate is a sign that this part of the intellectual society is well aware of the importance of herbal medicine. However, people with secondary education have a significant percentage of medicinal plants use (29%), while those with illiterates and a primary school level use fewer medicinal plants (20% and 16% respectively) because the majority of surveys were with the level of university studies (Figure 5).

Information collected from the surveyed population shows that plants are often used for therapeutic purposes with a rate of 90%, while the use of plants for cosmetic purposes represents only 07% (Figure 6).

Table 1: Utilization of different medicinal plants in Telagh region for treatment of diseases

Local vernacular name	Vernacular name	Scientific name	Families	Dr	G	R	C	O	N	DD
Araar	Juniper	<i>Juniperus phoenicea L</i>	Cupressaceae	+		+	-	-	-	-
Zataar	Thyme	<i>Thymus vulgaris L</i>	Lamiaceae	+	+		+	+	+	-
Nukha	Ammi	<i>Ammi Visnaga L</i>	Apiaceae	+		-	-	-	-	-
Kalitousse	Eucalyptus	<i>Eucalyptus globulus L</i>	Myrtaceae	+		-	-	-	-	-
Ikilil I djabal	Rosemary	<i>Rosmarinus ocinalis L</i>	Lamiaceae	+	+		-	-	-	+
<i>khozama</i>	Lavender	<i>Lavandula dentata L</i>	Lamiaceae	+	+		+	-	+	+
<i>Mrimia</i>	Ocinal sage	<i>Salvia ocinalis L</i>	Lamiaceae	+	+		+	-	+	+
Naanaa	Green mint	<i>Mentha spicata L</i>	Lamiaceae	-	+		+	-	-	+
<i>Marouioua</i>	White horehound	<i>Marrubium vulgare</i>	Lamiaceae	+	+		-	-	+	
Chihe	White mugwort	<i>Grass-alba Artemisia L</i>	Asteraceae	+	+		-	-	-	+
Roman	Grenadier	<i>Punicagranatum L</i>	Punicaceae	+	+		-	+	+	+
Babounag	Chamomile	<i>Matricaria chamomilla L</i>	Asteraceae	+	+		+	-	-	+

Dr: Dermatological; G: Genitourinary; R: Respiratory; C: Cardiovascular ; O: Osteo-articular; N: Neurological; DD: Disorder of the digestive tract

To liberate the active principle, numerous modes are used: namely decoction, infusion, raw, maceration, and poultice (Figure 7). This figure shows that infusion and decoction are the two most usable preparation methods with respective rates of 61% and 27 %.

Results of the plants' survey used by the local population indicated that they use these plants to treat many diseases like respiratory related diseases in the first place, secondly digestive tract diseases, Genito-urinary, in third place dermatological diseases, lastly come neurological and cardiovascular diseases (Table 1). The survey study has shown that traditional herbal medicine persists and is in demand by the inhabitants of Telgah. These results confirm with the findings obtained by other authors in other regions of Sidi Bel Abbes city (Dif *et al.*, 2015).

In the light of the results obtained, we notice a wide heterogeneity and diversity of species. Moreover, there are 24 families. We can see that the Lamiaceae dominates with 09 species with a rate of 20%, followed by The Asteraceae family which is represented by five (05) species, with a rate of 16% (Table 1). Concerning the species used by the inhabitants of Telgah, they are grouped into 12 families although the most cited is that of Lamiaceae. Many properties are attributed to Lamiaceae specifically; anti-inflammatory, antiviral, antibacterial, antiallergic, and antioxidant properties (Sijelmassi, 2011; Campanella *et al.*, 2003; Dragland *et al.*, 2003). These different properties are because of their chemically interesting constituents from a pharmacological point of view. These are tannins, coumarins, mucilages, flavonoids, and phenolic acids such as for instance rosmarinic acid (Exarchou *et al.*, 2002; Lamiri *et al.*, 2001). Additionally, this family is characterized by the clear presence of essential oils which have discovered a great invest therapy thanks for their broad spectral range of biological activities. Additionally, it represents an important supply of essential oils, infusions, and natural antibiotics for aromatherapy, perfumery even though synthetic fragrances tend to displace these essences. The cosmetics industry also uses different herbal plants of Lamiaceae family for his or her moisturizing and often antiseptic properties (Lamiri *et al.*, 2001; Cimanga *et al.*, 2002).

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