ETHNOBOTANICAL STUDY OF MEDICINAL PLANTS IN THE REGION OF BEN M’HIDI, EL-TARF. (ALGERIA)

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ABSTRACT

This paper provides significant ethnobotanical informations about medicinal plants which frequently used in the prefecture of Ben M’hidi, El-Tarf (Algeria). They were obtained by using a questionnaire, the series of ethnobotanical surveys carried out in the region. This ethnobotanical study was conducted from January to March 2022. The ethnobotanical surveys carried out in the field allowed 200 people to be interviewed. Using a questionnaire, the series of ethnobotanical surveys carried out in the region, enabled us to make an inventory of 23 species belonging to 17 different floristic families. The surveys carried out made it possible to make an inventory of the medicinal species and to collect a maximum of information concerning the traditional local therapeutic uses.

Keywords: Ethnobotanical survey; medicinal plants; therapeutic uses; questionnaire.

Introduction

In Algeria the use of medicinal plants occupies a very important place in the daily life of people considering the floristic richness of our country LAZLI Amel et al. (2019) Our work constitutes of a contribution to the census of the plants used by the local population of commune Ben M’hidi, EL-TARF in traditional pharmacopoeia, with the objective of identifying the plant species which undergo the most anthropogenic pressure and collecting as much information as possible on the therapeutic uses practiced in the study area The preservation of this knowledge constitutes an issue for the conservation and development of resources Delaldja Imane et al. (2016/2017).

Geographical location

The state of El Tarf is located in the far northeast of the country, bordering the metropolis of Annaba, it is renowned for its generous nature, its wetlands and its environment, and it deserves its designation of “green state”. The state covers an area of 3,339 km² and the capital of the state is 650 km east of the capital of Algeria. Ben M’hidi El Tarf is located in the far northeast of Algeria on the Tunisian border. It is delimited: from the north by the Mediterranean Sea, from the east by Lake Bird, from the south by the state of Besbas, from the southeast, by the state of Drear; by the west by the state of Annaba Maps (2022).

Fig. 1 : Geographical location of the commune El-Tarf. Maps (2022)

Materials and Methods

Our ethnobotanical survey takes place in (Ben M’hidi), of EL-Tarfa in the period of January to March 2022. The ethnobotanical survey is based on a series of collections carried out using a pre-established questionnaire submitted to a hundred people, during an individual interview, lasting approximately 30 minutes each. The sampling was carried
out in a simple random manner based on the principle that the entire population of the region has an equal probability or chance of being part of the sample, i.e. we choose the sub-populations making part of the overall population (200 people) randomly. The data collected was saved using EXCEL.

### Results and Discussion

**Inventory of the medicinal plants listed during the survey**

Table 1 showed that out of the 200 files filled out by the inhabitants of the region of Sidi Kassi Ben M’hidi El-Tarf, we have inventoried 23 species belonging to 17 different floristic families’ vegetable species of medicinal plants.

<table>
<thead>
<tr>
<th>Scientifique Name</th>
<th>Treated disease</th>
<th>Family</th>
<th>Référence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Picris echioides L</td>
<td>Cardiac-Digestive</td>
<td>Lasteraceae</td>
<td>J. Alberto Marco (1991)</td>
</tr>
<tr>
<td>Laurus Nobilis</td>
<td>skin inflammation (dermatitis) and asthma.</td>
<td>Lauraceae</td>
<td>Taehun Lee (2013)</td>
</tr>
<tr>
<td>Mentha spicata L</td>
<td>Respiratory Digestive</td>
<td>Lamiaceae</td>
<td>K. El Fakhouri et al. (2019).</td>
</tr>
<tr>
<td>Menthe paleguim</td>
<td>oral and stomatological sphere. The dental surgeon</td>
<td>Lamiaceae</td>
<td>Florine Boukhobza et al. (2020)</td>
</tr>
<tr>
<td>Olivier Olea europea</td>
<td>Respiratory-Skin</td>
<td>Oleaceae</td>
<td>Boudjemaa Boughrara, et al. (2016)</td>
</tr>
<tr>
<td>Fenagreek,</td>
<td>ease childbirth and aid in digestion, and as a general tonic to improve metabolism</td>
<td>Fabaceae</td>
<td>Dilipkumar Pal et al (2020)</td>
</tr>
<tr>
<td>Matricaria chamomilla</td>
<td>hepatitis and cholecystitis</td>
<td>Asteraceae</td>
<td>Xiaomei Duan et al. (2022)</td>
</tr>
<tr>
<td>Corchorus olitorius L</td>
<td>Respiratory Cardiac Digestive The skin Urogenital</td>
<td>Tiliaceae</td>
<td>Zemay Yanga et al. (2019)</td>
</tr>
<tr>
<td>Rutachal epensis</td>
<td>skin ailments, especially vitiligo</td>
<td>Rutaceae</td>
<td>Pazilai Ainwaer (2020)</td>
</tr>
<tr>
<td>Spinach</td>
<td>Digestive</td>
<td>Chenopodiaceae</td>
<td>Boudjemaa Boughrara, et al. (2016)</td>
</tr>
<tr>
<td>Salvia officinalis L</td>
<td>digestive system and memory disorders</td>
<td>Lamiaceae</td>
<td>Natalia Pachura et al. (2022)</td>
</tr>
<tr>
<td>Eucalyptus</td>
<td>the treatment of respiratory ailments</td>
<td>Myrtaceae</td>
<td>Marina Arruda de Castro et al. (2022)</td>
</tr>
<tr>
<td>Lavande</td>
<td>Digestive The skin</td>
<td>Lamiaceae</td>
<td>Françoise Cocc-Marinier et al. (2020)</td>
</tr>
<tr>
<td>Foeniculum vulgare</td>
<td>digestive, endocrine, reproductive, and respiratory systems</td>
<td>Apiaceae</td>
<td>Leyla Psayeva (2022)</td>
</tr>
<tr>
<td>Urtica dioica L.</td>
<td>nephritis, haematuria, jaundice, menorrhagia, arthritis and rheumatism</td>
<td>Urticaceae</td>
<td>Bhuwan Chandra (2014)</td>
</tr>
<tr>
<td>Rubus ulmifolius</td>
<td>furuncles and ulcers; decoctions of leaves are used externally for redden eyes, vaginal lavages and aphta and internally for diarrhea, hemorrhoids, and intestinal inflammations</td>
<td>Rosaceae</td>
<td>L Panizzi (2002)</td>
</tr>
<tr>
<td>Apium Graveolens</td>
<td>infertility, hormone disorders, liver disorders, anemia, renal diseases, and neurologic and mental disorders</td>
<td>apiaceae</td>
<td>Wesam Kooti et al. (2017)</td>
</tr>
<tr>
<td>Zingiber officinale</td>
<td>for a long time to treat vomiting, oxidative stress, and tuma</td>
<td>Zingiberaceae</td>
<td>Zhi MinSong (2022)</td>
</tr>
<tr>
<td>Panica Granatum L</td>
<td>treatment of hair loss</td>
<td>Punicaceae</td>
<td>Sommath D.Bhinge (2021)</td>
</tr>
<tr>
<td>Cannelle</td>
<td>treat diarrhoea and the digestive system; cure for colds</td>
<td>Lauraceae</td>
<td>Vaibhavi Jakheta et al. (2021)</td>
</tr>
<tr>
<td>Daphne gnidium</td>
<td>skin cancer, diabetes, nervous breakdowns, sinusitis, poisoning, rheumatic disorders, odontalgia, muscular pain, and gastrointestinal infections</td>
<td>Thymelaeaceae</td>
<td>Aya Khouchlaa et al. (2021)</td>
</tr>
<tr>
<td>Artemisia herba-alba Asso</td>
<td>treat inflammatory disorders (colds, coughing, bronchitis, diarrhea), infectious diseases (skin diseases, scabies, syphilis)</td>
<td>Asteraceae</td>
<td>M.S.Abu-Darwish (2015)</td>
</tr>
<tr>
<td>Crocus</td>
<td>treating depression, inflammations and gastrointestinal, liver, respiratory, urogenital, eye and skin diseases</td>
<td>Iridacée</td>
<td>Leila Mohtashami (2021)</td>
</tr>
</tbody>
</table>
Use of medicinal plants according to:

(i) Age

In general, the use of these plants in Sidi kassi Ben M’hidi El-Tarf region is widespread among all age groups. The average age of the population studied is between 20 and 60 years. Indeed, the results of our study have shown that the majority of radiotherapists 34.28% are noted for the age group more than 60 years (Histogram 01) followed by the Mechala (2021). The average age of the population studied is between 20 and 60 years. Indeed, the results of our study have shown that the majority of radiotherapists 34.28% are noted for the age group more than 60 years (Histogram 01) followed by the Mechala (2021). These results are confirmed by other authors Bakiri Nouara (2016) Sara Mechaala, (2021), Fatima El hilah group more than 60 years (Histogram 01) followed by the Mechala (2021).

(ii) The Sex

The use of the plants studied in the Sidi kassi ben M’hidi region of EL-TARF does not depend on sex, since 47% of the users are men and 53% are women (Figure-3). In the field of investigation, if women and men are equally responsible for the collection of herbal medicines, the drying, storage and preparation of recipes for the care of family members are carried out by women. Man reserves the task of collecting plants from areas known to be dangerous Boudjema Boughrara (2016). This predominance can be explained by the use of these plants by women in fields other than therapy.

(iii) Martial Statues:

The plants studied are used much more by married people (71%) than by single people (29%) (Figure-4). These results are consistent with those obtained by other authors Bakiri Nouara (2016) Fatima El hilah et al. (2016). This can be explained by their responsibilities as mothers, they are the ones who give first aid, especially for their children. Or even by the fact that this use allows married people to avoid and minimize the material expenses spent on the purchase of synthetic drugs Bakiri Nouara (2016).

(iv) The Level of Education:

In the study area, 65% of the users of the plants studied are illiterate, while the 35% correspond to different intellectual levels (12% secondary and 23% university) (Figure-5). These results are consistent with those obtained by others authors Bakiri Nouara (2016) Fatima El hilah et al. (2016). This study shows that 65% of those surveyed have not been to school and these results are close to national data and show that the use of medicinal plants remains the prerogative of the poor.

(v) Plant parts:

In the study area, the leaves are the most used parts with a rate of 37.5%; followed by strains (32.81%), grains (10.93%) flowers (06%), oils (04.68%), roots (3.12%), bark (01.56%) and stem (1.56%) fruits (1.56%), (Figure-6). Although the use of the leaves is represented by a large percentage Ghasemi Pirbalouti (2013), Tariq A. Alalwan (2019), it was noted during the survey that in the field users tend to uproot the whole plant instead of being only interested in the desired part (mainly the leaves). On the...
other hand, there is a clear relation between the used part of the exploited plant and the effects of this exploitation on its existence LAZLI Amel et al. (2019) this mode of gathering seriously compromises the durability of the medicinal species especially the bulbous ones. Nevertheless, herbalists in Sidi kassi Ben M’hidi El-Tarf mostly prefer leaves for the preparation of photosynthesis and sometimes the storage of secondary metabolites responsible for the biological properties of the plant, the ease and speed of harvesting can be the cause of the high rate of use of the foliage Tariq A. Alalwan (2019) Amel LAZLI et al. (2019).  

(vi) Herbal drug utilization:  

The study also revealed that the majority of the medicinal plants are extracted by decoction with 51.61%, followed by maceration with 30% and powder with 18.33% (Figure-7). Informants ignore the precise weights and measures in the preparation and dosage of phyto-drugs as it generally varied based on application, disease, age, Mushtaq Ahmad et al. (2014) and Omwenga et al. (2015). These results are consistent with those obtained by Tahri Nabila et al. (2012). It was realized that most healers tend to use the simplest method for preparing phyto-drugs and similar medicinal plants and even the same method of preparing them for managing the same ailments Omwenga et al. (2015).  

(vii) Phototherapy and treated diseases:  

In general, the results obtained concerning the relationships existing between medicinal species and the types of diseases treated, showed that most of these species are widely used in the care of the digestive system (28%) (Figure-8) mainly because digestive-associated problems are frequent and not medically important (i.e. not complicated and frequently fleeting) these same results were found by Tahri Nabila et al. (2012) in the Sett at region (Morocco) and Cheikh Yebouka et al. (2020). In addition, the existence of limestone in drinking water from the phosphate plateau in the region studied, causes very remarkable effects on the teeth. As a result, people are increasingly using herbal remedies to treat oral conditions, which translate to the percentage of (20%) Cheikh Yebouka et al. (2020). Other plants are used for the treatment of skin diseases, jaundice and weakness each are represented by (17%). follow cardiac diseases, 16%, diseases of the respiratory system (12%) to treat other female diseases Uro-genital (07%).

**Fig. 6:** Distribution of the use of the plants studied according to their parts used.  

**Fig. 7:** Distribution of uses of the plants studied according to the form of use.  

**Fig. 8:** Distribution of users of medicinal plants according to their amount of information concerning the use of medicinal plants.  

**Conclusion**  

The present study has added more details to already existing information on medicinal plant use in Ben M’hidi El-Tarf. In total, local healers reported 23 species belonging to 17 different floristic families. The most used parts of these plants are their leaves and strains; it is used by various modes. The majority of radiotherapists 34.28% are the elderly people, compared to the young, generally do know the usefulness of the plant. Women and men have shared medicinal knowledge, with a slight advantage going to women. Herbal medicine is very popular in Algerian society; we use all plants and their extracts in a traditional way to cure our ailments. The use of these plants is not specific only to simple diseases, but even for cardiological diseases. The danger of random use of herbal medicine poses a real health problem; hundreds of people suffer the consequences. Many factors enter into this phenomenon: the socio-economic and cultural factor, the belief that the natural is beneficial, the influence of advertising ... Health personnel play a very important role in information, education and raising public awareness. These plants should be studied in order to isolate the active principle to validate their popular uses.  

**References**  


région sud de Maïdïd l’obtention du diplôme de Master Académique 2016/2017.

Map(2022) :https://www.google.com/maps/place/Wilaya+ d’El+Tarf/@36.667681,7.9206883,10z/data=!4m5!3m4!d!146.2212979


