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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 Drean; by the west by the state of Annaba Maps (2022).

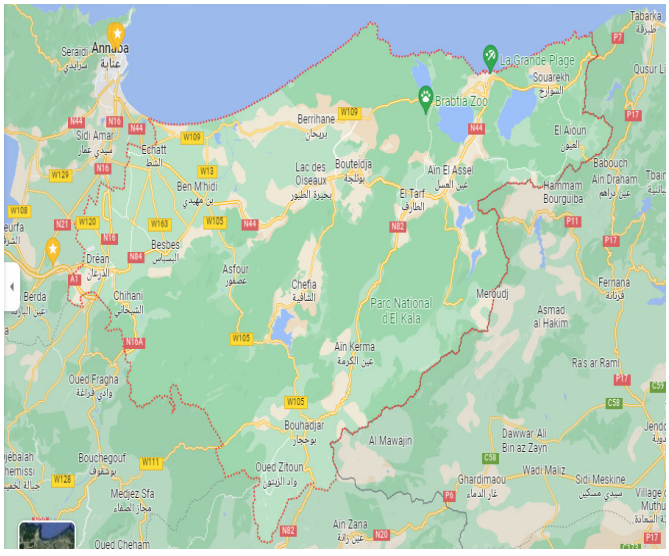

Fig. 1 : Geographical location of the commune El-Tarf. Maps (2022)

Materials and Methods

Our ethnobotanical survey takes place in (Ben M'hidi), of EL-Tarf 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

Table1 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 1 : Information of plants used in diseases treatment.

	Scientifique Name	Treated disease	Family	Référence
01	*Picris echioides L*	Cardiac-Digestive	Lasteraceae	J. Alberto Marco (1991)
02	*Laurus Nobilis*	skin inflammation (dermatitis) and asthma.	Lauraceae	**Taehun Lee (2013)**
03	*Mentha spicata L*	Respiratory Digestive	Lamiaceae	K. El Fakhouri *et al.* (2019).
04	*Menthe puleguim*	oral and stomatological sphere. The dental surgeon	Lamiaceae	Florine Boukhobza *et al.* (2020)
05	*Olivier Olea europea*	Respiratory-Skin	Oleaceae	Boudjema Boughrara, *et al.* (2016)
06	*Fenugreek,*	ease childbirth and aid in digestion, and as a general tonic to improve metabolism	Fabaceae	Dilipkumar Pal et al (2020)
07	*Matricaria chamomilla*	hepatitis and cholecystitis	Asteraceae	Xiaomei Duan *et al.* (2022)
08	*Corchorus olitorius L.*	Respiratory Cardiac Digestive The skin Urogenital	Tiliaceae	Zemao Yanga *et al.* (2019)
09	*Rutachal epensis*	skin ailments, especially vitiligo	Rutaceae	Pazilaiti Ainiwaer (2020)
10	*Spinach*	Digestive	Chenopodiaceae	Boudjema Boughrara, *et al.* (2016)
11	*Salvia officinalis L*	digestive system and memory disorders	Lamiaceae	Natalia Pachura *et al.* (2022)
12	*Eucalyptus*	the treatment of respiratory ailments	Myrtaceae	Marina Arruda de Castro *et al.* (2022)
13	*Lavande*	Digestive The skin	Lamiaceae	Françoise Couic-Marinier *et al.* (2020)
14	*Foeniculum vulgare*	digestive, endocrine, reproductive, and respiratory systems	Apiaceae	Leyla Paşayeva (2022)
15	*Urtica dioica* L.	nephritis, haematuria, jaundice, menorrhagia, arthritis and rheumatism	*Urticaceae*	*Bhuwan Chandra* (2014)
16	*Rubus ulmifolius*	furuncles and ulcers; decoctions of leaves are used externally for redden eyes, vaginal lavages and aphta and internally for diarrhea, hemorrhoids, and intestinal inflammations	Rosaceae	L Panizzi (2002)
17	*Apium Graveolens*	infertility, hormone disorders, liver disorders, anemia, renal diseases, and neurologic and mental disorders	apiaceae	Wesam Kooti *et al.* (2017)
18	*Zingiber officinale*	for a long time to treat vomiting, oxidative stress, and tumo	Zingiberaceae	Zhi MinSong (2022)
19	*Punica Granatum L*	treatment of hair loss	Punicaceae	Somnath D.Bhinge (2021)
20	*Cannelle*	treat diarrhoea and the digestive system; cure for colds	Lauraceae	Vaibhavi Jakhetia *et al.* (2021).
21	*Daphne gnidium*	skin cancer, diabetes, nervous breakdowns, sinusitis, poisoning, rheumatic disorders, odontalgia, muscular pain, and gastrointestinal infections	Thymelaeaceae	Aya Khouchlaa *et al.* (2021)
22	*Artemisia herba-alba Asso*	treat inflammatory disorders (colds, coughing, bronchitis, diarrhea), infectious diseases (skin diseases, scabies, syphilis)	Asteraceae	M.S.Abu-Darwish (2015)
23	*Crocus*	treating depression, inflammations and gastrointestinal, liver, respiratory, urogenital, eye and skin diseases	Iridacée	Leila Mohtashami (2021)

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 age classes of 41 to 60 years with a rate of 28.57% and (11.42%) have an age between 20 to 30 years less numerous in the plant trade, this results is confirmed by other authors Bakiri Nouara (2016) Sara Mechaala, (2021), Fatima El hilah *et al.* (2016). These results indicate that at the level of the Sidi kassi Ben M'hidi region of EL-TARF, knowledge of the properties and uses of the plants studied depends on long experience, and on the confidence that these people have for traditional medicine. So the older the age, the more the use of herbal medicine increases Boudjema Boughrara (2016) Sara Mechaala (2021).

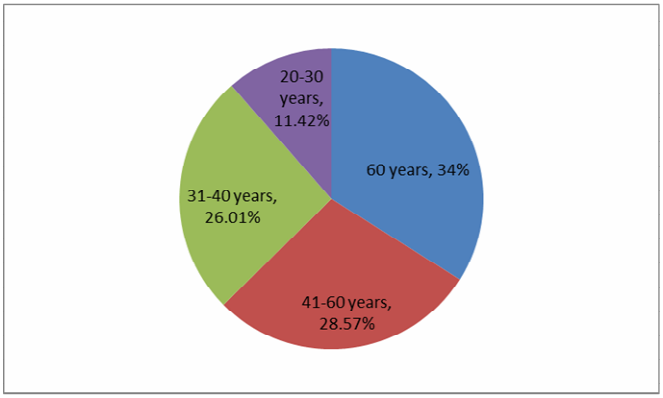

Fig. 2 : Distributions by age of the plants use frequency in El-Tarf.

(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.

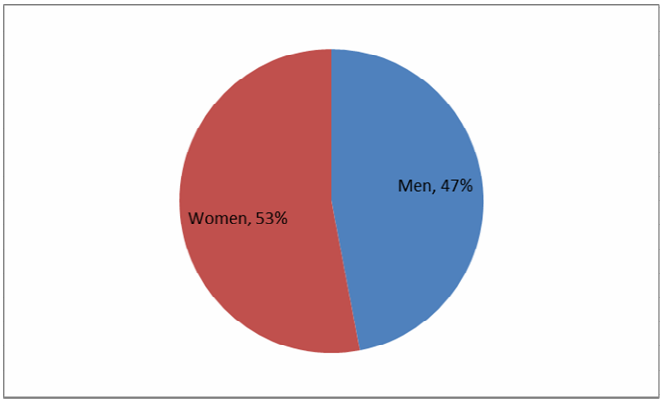

Fig. 3 : Distribution of users of the plants studied **the Sex**

(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).

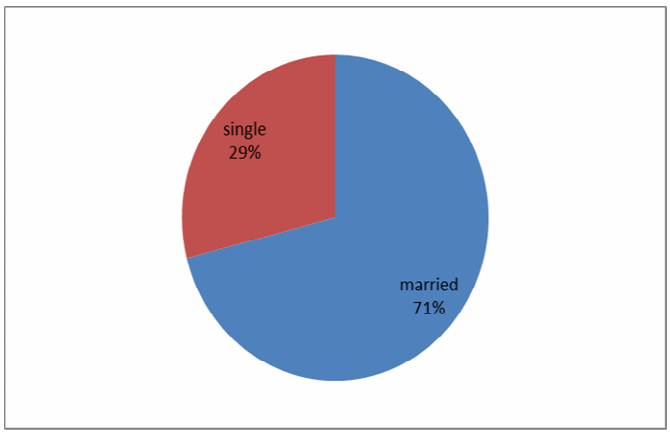

Fig. 4 : Distribution of users of the plants studied by genus.

(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 d 'other 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.

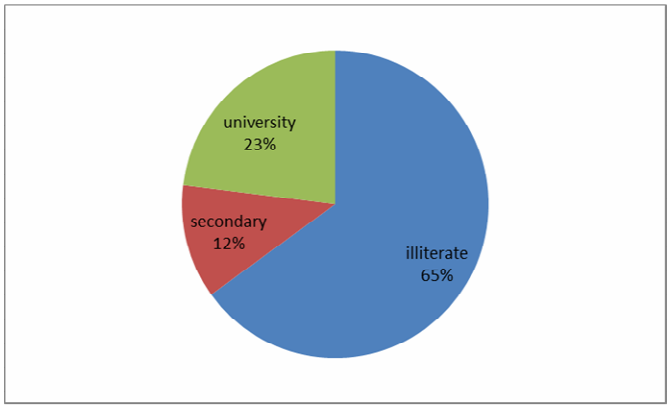

Fig. 5: Distribution of users of the plants studied according to the level of education

(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).

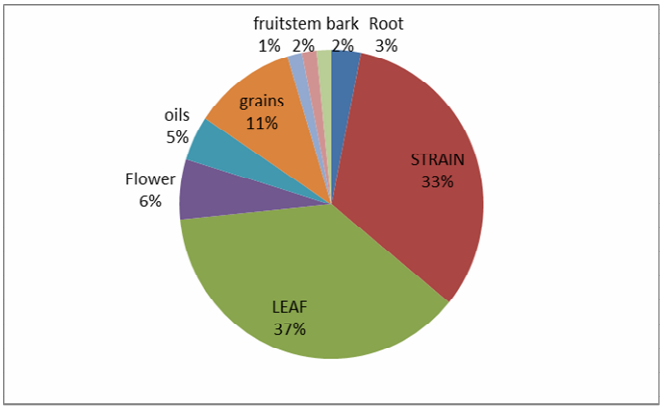

Fig. 6: Distribution of the use of the plants studied according to their parts used.

(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-drugsas 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).

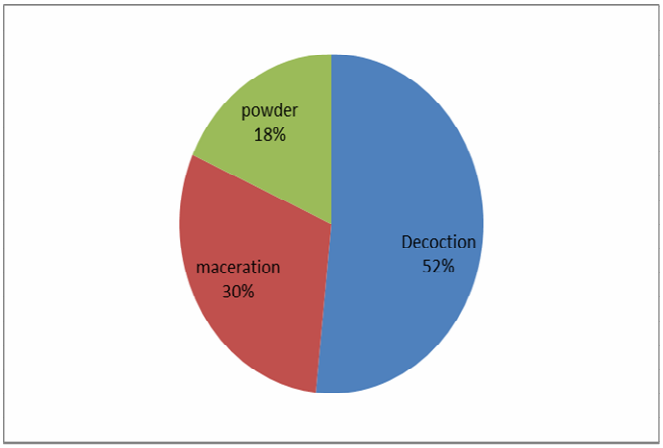

Fig. 7: Distribution of uses of the plants studied according to the form of use.

(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%).

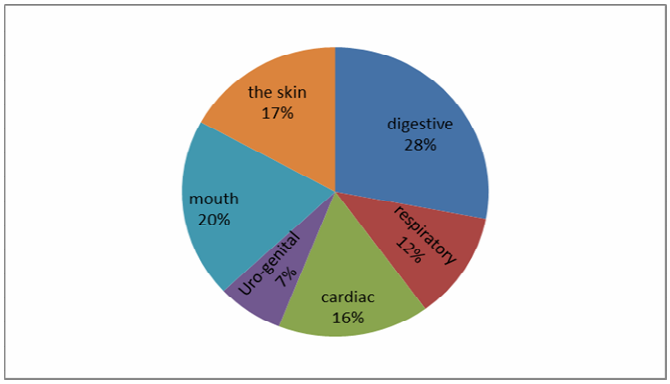

Fig. 8: Distribution of users of medicinal plants according to their amount of information concerning the use of medicinal plants.

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.

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