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ETHNOBOTANICAL SURVEY ON THE USE OF THE SPECIES *PISTACIA LENTISCUS* L. IN THE REGION OF ROKNIA, WILAYA OF GUELMA (NORTHEASTERN OF ALGERIA)

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ABSTRACT

Pistacia lentiscus has been known for its medicinal properties since ancient times. An ethnobotanical study was carried out in the region of Roknia (wilaya of Guelma) (North East of Algeria) given the importance of the oil of this plant in the treatment of certain diseases. This survey aims to highlight the different uses of *Pistacia lentiscus* (leaves, fruits and roots) and concrete oil in traditional medicine. The results have shown that *Pistacia Lentiscus* L. is more used by: women (70%), married people (60%) illiterate (40%), and elderly between 41-50 years (40%). Fruits are the most used part (96.66%) to treat burns (33.33%), allergy (26.66%), cough (20%) and wound care (16%) and (3.33%) against constipation.

Keywords : Ethnobotanical survey, Oil, *Pistacia lentiscus*, Traditional use, Algeria.

Introduction

The Algerian flora is characterized by its floral diversity, Mediterranean, Saharan and a paleo-tropical flora, estimated at more than 3000 species belonging to several botanical families. These species are mostly spontaneous with a significant number (15%) of endemic species Ozenda (1977). This has given the traditional pharmacopoeia an inestimable richness.

Pistacia lentiscus belonging to the Anacardiaceae family is one of the most popular spontaneous plants in Algeria. It is a thermophilic dioecious shrub 1 to 3 meters tall (Figure-1A), with a strong resinous odor and smooth, gray bark; leaves evergreen, compound, alternate with winged petiole, paripinnate with 4-10 small elliptical-obtuse leaflets, mucronulate, coriaceous, shiny above, dull and pale below.

The flowers in dense spike-like clusters, arising 1 or 2 in the axil of a leaf and equaling at most the length of a leaflet. The fruit is small, subglobose, apiculate, red, then black when ripe More and White (2005) (Figure-1B).

Pistacia lentiscus tree is very common in the Mediterranean basin, it is found in the wild, in maquis and scrubland in all types of soil, although it prefers siliceous soils. In Algeria, mastic is found along the tell and in forest areas More et White (2005).

In Algeria, many researchers have carried out in-depth studies on a large number of medicinal plants, but no ethnobotanical study has been carried out on pistachio trees in the Roknia region.

The interest of this study aims to valorize the *Pistacia lentiscus* very widespread on the Algerian tell, via an ethnobotanical survey.



A



B

Fig. 1 : Description of *Pistacia lentiscus* (A : Arbust of *Pistacia lentiscus* ; B : Aerial part with fruit).

Materials and Methods

Presentation of the study area

The study was conducted in the region of Roknia, it is located in the extreme North West of the wilaya of Guelma, and seems to deserve its name which is more revealing of its isolation. It is made up of two large tribes, namely Meziet and El Grar (approximately 55% and 45% of the municipal population respectively).

This territory is located 35 km from Guelma (36° 32' 53" north, 7° 13' 47" east of latitude 36.5481, Longitude: 7.22963, Altitude 238) and is organized around the agglomeration chief place of commune Roknia and the potential secondary settlements Es-Sateha and Chétaibi Mohamed (Figure-2).

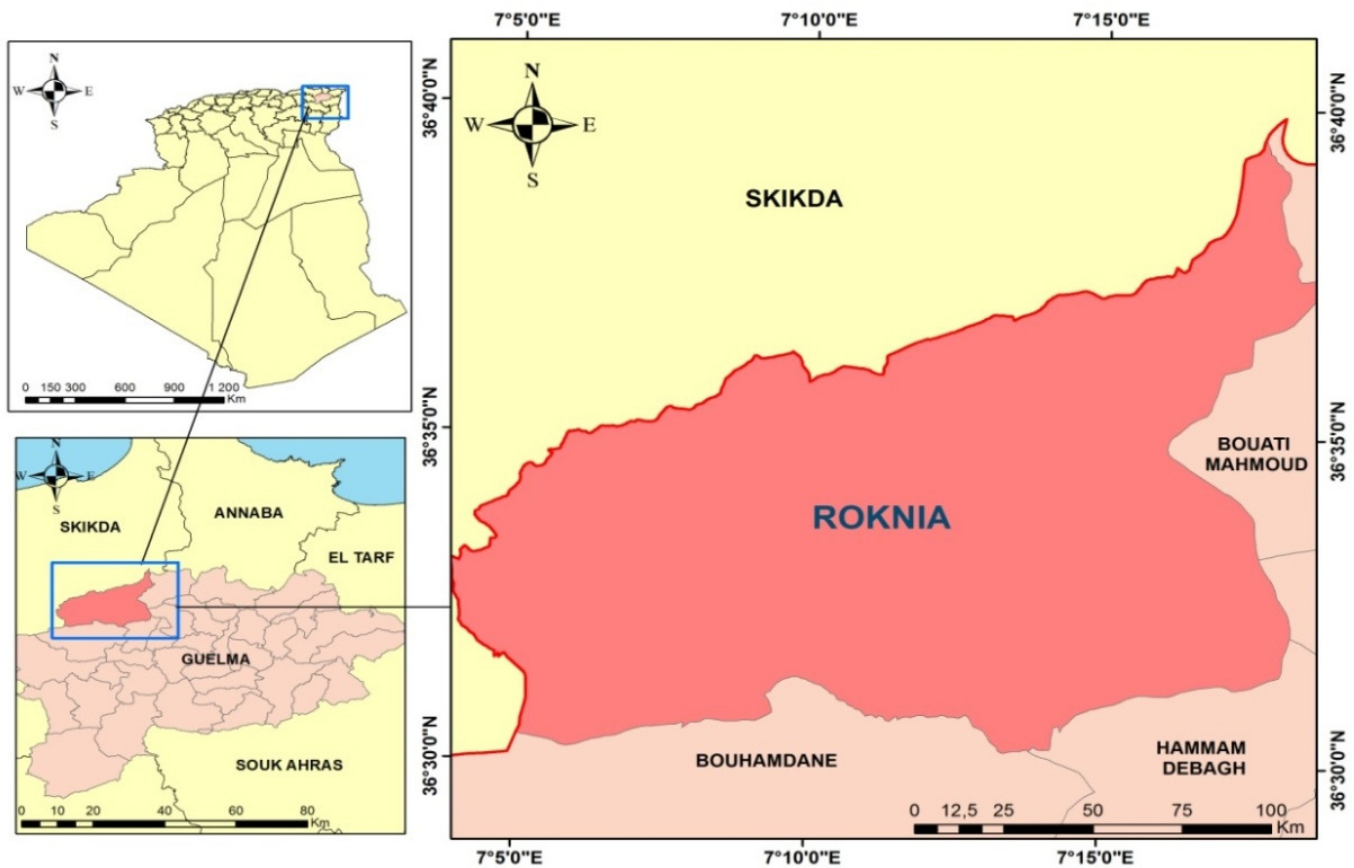


Fig. 2 : Limit of Roknia region.

Conduct of investigations

The ethnobotanical field surveys were carried out during two campaigns (2022 and 2023). They were produced in the form of discussions with different people (90), under anonymity. We prepared questionnaires that we fill in as we go along interviews with residents of the area considered

The questionnaire is divided into two parts; a part allowing to collect information on the person and a part on the use of the plant (*Pistachia lentiscus*).

Results and Discussion

Use of *Pistacia lentiscus* according to sex

Mastic tree use varies by gender (Figure-3). In fact, all the women interviewed hold more traditional phytotherapeutic knowledge than the men, including 70% women and 30% men.

In this region, it is women who use Pistachio trees more, this can be explained by the use of the plant by the female population in areas other than therapy and by their responsibility as mothers, they are the ones who give first aid, in particular to treat their families. These results confirm

other ethnobotanical work carried out, the case of work Benalia and Miloudi (2016), Suilah (2018) and Nouasria (2022) who have shown that women are more knowledgeable and practical in traditional herbal medicine and by their responsibility as mothers.

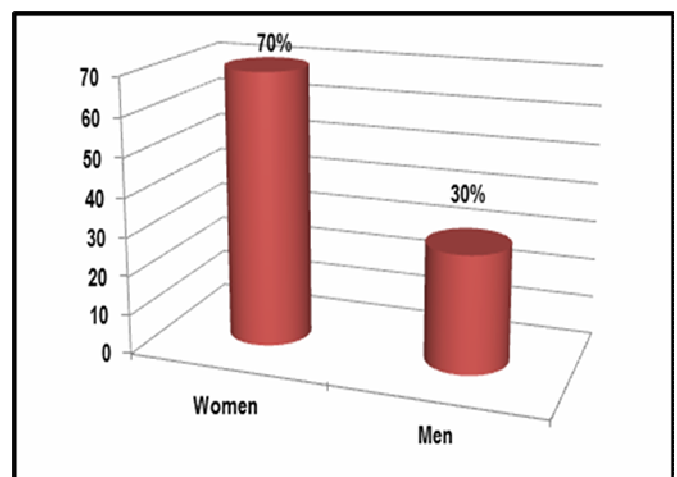


Fig. 3 : The use of *Pistacia lentiscus* according to sex.

Use of *Pistacia lentiscus* according to family situation

Pistacia lentiscus is used much more by single people than by married people (Figure-4) (60% Married, 40% Single).

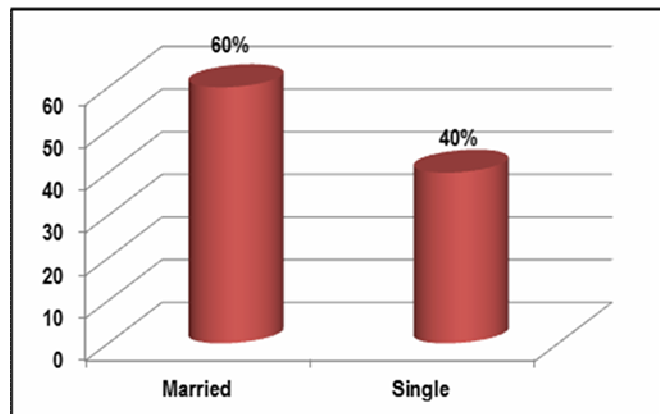


Fig. 4 : The use of the plant according to the family situation.

Use of *Pistacia lentiscus* according to Age

The use of Pistachio is widespread among all age groups (Figure-5), with a predominance among people aged between 41 and 50 years. However, for the age group of 41 to 50 years, there is a rate of (40%), and for the age group of 51 to 60 years (26.66%), then (16.66%) for the age group of 31 to 40 years and for people aged between 20 and 30 years (10%). A very low rate is recorded among the oldest people, over 60 (6.66%). In this survey difficulties were found for people under 20 years old.

Knowledge of the properties and uses of medicinal plants are generally acquired with age and with long experience transmitted from one generation to another. The transmission of this knowledge is currently in danger because it is not always assured Souilah (2018).

Various studies have confirmed that older people are those who have the most knowledge and are the most likely to provide reliable information on the virtues and use of medicinal plants González-Tejero and al (2008); Bouasla & Bouasla (2017); Djedaia (2017); Miara and al (2018); Lazli and al (2019); Senouci and al (2019).

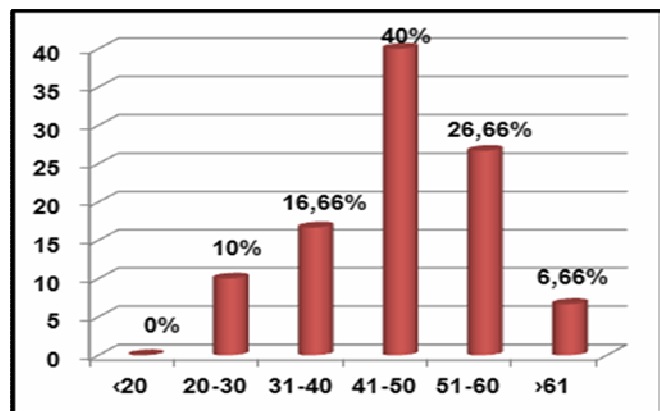


Fig. 5 : Use of *Pistacia lentiscus* according to Age

Use of *Pistacia lentiscus* according to the level of study

The vast majority of Pistachiers users have no level with a percentage of 40%, people with the primary level also have a significant percentage of use of Pistachio trees which is 26.66%, while those with the middle and secondary level, use Pistachio trees with a significant rate (medium 16.66%,

secondary 13.33%). While a very low rate of 3.33% was noted for academics (Figure-6). These results were also reported by Boughrara & Legseir (2016), Miara and al. (2018) and Senouci and al.(2019). The information transmitted to this tranche of connoisseurs and users also come many parents or close family members as books or specialized websites.

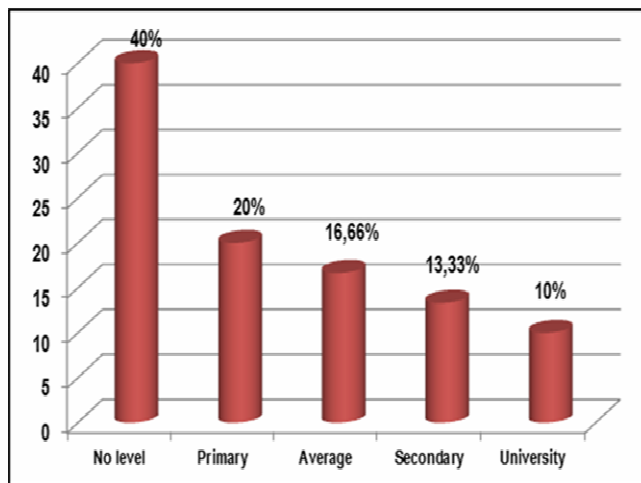


Fig. 6 : The use of *Pistacia lentiscus* according to the level of study.

Field of use of *Pistacia lentiscus*

The results obtained show that the Pistachio tree is mainly used in the therapeutic field with a percentage (90%), it is used a little in the food and cosmetics field with a very low rate (6.66% food and 3.33% cosmetics) (Figure-7).

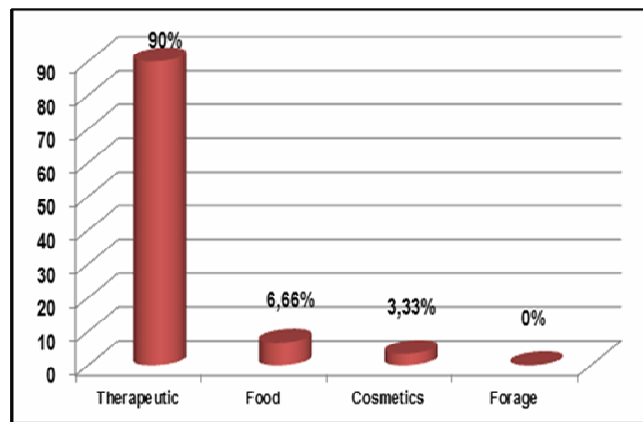


Fig. 7 : Field of use of *Pistacia lentiscus*.

The used part of *Pistacia lentiscus*

The fruits remain the most used part of pistachio trees with a rate of (96.66%), followed by leaves with a very low percentage (3.33%). According to the people surveyed, the roots of pistachio trees are of no interest (Figure-8). These results were confirmed by the work of Beldi and al. (2021), who found that the fruit is the most used part of the *Pistacia lentiscus* plant compared to other parts of the plant.

Several studies ethnobotanical studies have addressed the use of oil of mastic extracted by hand from fruits, both locally and internationally. Bammou and al. (2015) and Hafsé et al. (2015) noted the use of mastic leaves in Morocco: in Meknes with 100% and in Taounate with 77%. Various researches have reported the use of leaves and suggested that their use could be explained by the ease and speed of the harvest, the fact that they are the seat of

photosynthesis and in addition to being the parts of the plant richest in active ingredients Bigendako-Polygenis & Lejoly (1990), Tahri and al. (2012), Diatta and al. (2013), Chermat & Gharzouli (2015), Jdadi & Hasnaoui (2016); Lazli *et al* (2019), Abdeldjalil (2016) showed that the fruit is the most common part of the plant used because it is rich in oil.

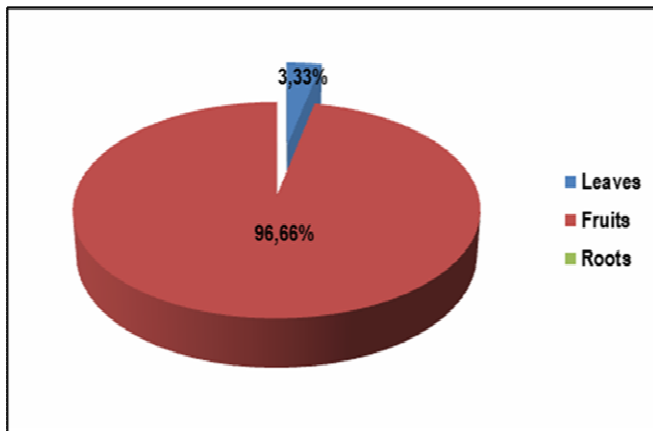


Fig. 8 : The used part of the plant.

Kind of disease

Pistachio trees are used mainly in the case of burns with a rate of 33.33% followed by cases of allergies with a percentage of (26.66%), then 20% in the case of coughs, 16.66% wound care, a low percentage 3.33% against constipation (Figure-9).

Pistacia lentiscus oil is mainly used for the treatment of certain types of diseases, such as respiratory system problems (Cough), burns, allergy, and wounds. These 160 results are comparable with those found by other studies Bammou and al. (2015); Hafsé and al. (2015) and studies carried out in vivo (on rabbits) concerning the external use of fixed oils, in particular as a healing agent Djerrou (2011); Maameri (2014); Abdeldjalil (2016).

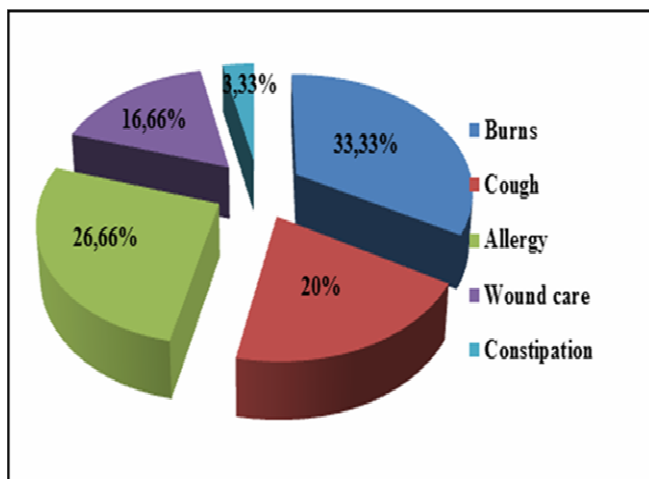


Fig. 9 : Kind of diseases.

Conclusions

The ethnobotanical survey was based on a series of questions using a questionnaire form filled in by oral questioning submitted to the inhabitants of the region. The individual interview was carried out in order to receive as much information as possible on the therapeutic and traditional applications of the different tissues of *Pistacia lentiscus* (stem, leaf, root, and fruit).

The ethnobotanical study showed that 96.66% of those questioned use *Pistacia lentiscus* oil in the treatment of burns (33.33%), cough (20%), allergy (26.66%), and wound care (16.66%). As for leaves, 3.33% of people showed its importance in the cosmetic domain (hair loss for example). As for the roots, everyone assured that they are not important.

These results promote this plant and highlight its beneficial capacity for human health and may explain its use in traditional medicine.

These results can be considered as a source of information for scientific research despite the study remains incomplete with respect to the importance of pistachio oil in the therapeutic field, especially since the inhabitants of the region depend a lot medicinal plants in daily life and also the lack of research and publications on the use of *Pistacia lentiscus* in the study area prevented us from making comparisons of results on a national scale.

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