



Traditional Knowledge and Ethnobotany of *Teucrium polium* L. and *Salvia officinalis* L. in Tiaret Province (Western Algeria)

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ABSTRACT:

Our ethnobotanical study, conducted in Tiaret province, highlights the importance of traditional phytotherapy and describes the medicinal virtues of *Teucrium polium* L. and *Salvia officinalis* L. An ethnobotanical survey has been conducted by questioning the local population.

The results of our survey revealed that 53% of the study population originate from the village of Chehaima and they have used the two species as medicinal plants 71% of the respondents were women, and 37% were aged between 35 and 50 years. The two studied plants were more commonly used by illiterates (55%). 82% of the questioned people had not a stable profession at the survey time. professions of the surveyed population are the most used of germander and sage with a percentage of.

Germander (*Teucrium polium* L.) is made as an herbal tea by infusion of a spoonful of the whole dried plant, and administered orally for numerous digestive diseases treatment e.g. On the other hand, the most common traditional method to the sage (*Salvia officinalis* L.) preparation is herbal tea made up by the infusion of a spoon or a handle of the dried leaves or the whole plant and administered orally also for digestive diseases treatment. Our Plants have very significant medicinal properties especially for digestive diseases.

1. Introduction

Although nature's crucial resources provide healthful substances for the human body and well-known herbal bioactive substances, their use has become less popular in Algeria [24]. Traditional medicine is undoubtedly an integral part of Algerian culture. In our country, herbal medicine has been used since antiquity. We have a substantial reservoir representing the country's plant biodiversity. Indeed, the Algerian flora has included 150 plant families with more than 3000 species, of which 653 are endemic [23].

The Labiateae or Lamiaceae family was one of the first botanical families to be distinguished by specialists. The alternative name « Labiateae » comes from the bilabiate flowers of the Lamiaceae species [20]. This botanical family comprises 6970 species divided into 240 genera [16]. The Lamiaceae constitute an important family of

the Algerian flora [23]. Lamiaceae species contain various aromatic and medicinal substances [25 ; 05 ; 26].

The region of Tiaret, with a strategic geographical position between the Tellian Atlas and the high steppe plains, presents significant natural vegetation [17]. Indeed, this region appears to be a very diverse ecosystem besides its socioeconomic and anthropic favorable conditions [19], and likely to contain considerable biological wealth including substantial medicinal flora [18]. Therefore, we aimed to realize an ethnobotanical study on lamiaceae species ; *Teucrium polium* L., and *Salvia officinalis* L., which are abundant in the region of Tiaret in Western Algeria.

Materials and methods

Presentation of the study area

The study area is located 340 km northwest of Algeria's capital (Fig.01). The Tiaret province is a contact zone



between the North and the south. Its territory includes mountainous areas in the North (Atlas Tellien), high plains in the center, and semi-arid spaces in the South (Highlands). Tiaret province's absolute location is 0.34° and 2.5° East longitudes, and 34.05° and 35.30° North latitudes. It is bounded to the north by Relizane, Chelef, and Tissemsilt provinces, to the west by Mascara and Saida, to the east by El-Djelfa, and to the south and southeast respectively by Laghouat and El Bayadh provinces [21].

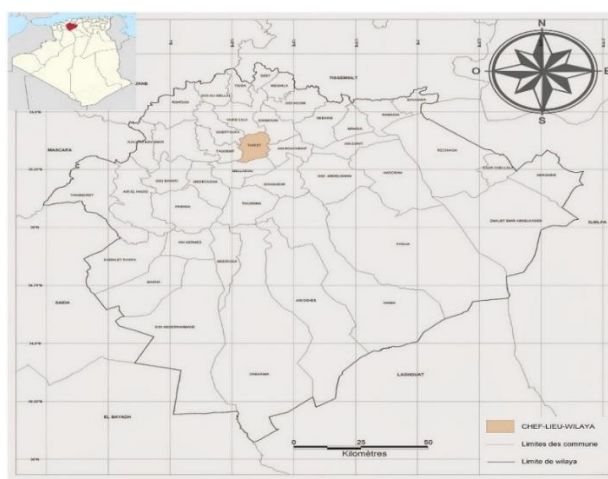


Figure 1. Location map of study area [30].

Methodology

The ethnobotanical study was carried out through a series of surveys conducted with a semi-structured questionnaire between "February 14 and May 12, 2022", in Tiaret city, Mougolouan, and Chehaima towns. Respondents were invited to answer a series of predetermined open-ended questions. The questionnaire includes two sections: a personal information section, and the species medicinal use relative information section, regarding the parts of the plant used by the local population, the preparation and the administration methods, the target diseases, and the treatment duration and frequency [27].

Species choice

The choice of the species *Teucrium polium* L., and *Salvia officinalis* L., (Fig 02) was made up after an intensive bibliographical study about the floristic studies in the region of Tiaret (to confirm the abundance of these two species in our study area), and the two species' therapeutic potential.

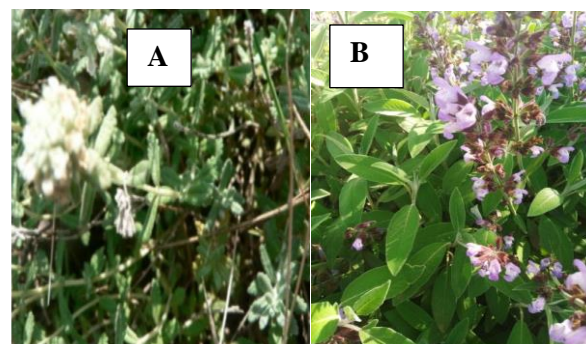


Figure 2. Morphological characteristics of the lamiaceae species involved in the ethnobotanical study: Scientific name / Common name / Arabic vernacular name / Local name: **A** : *Teucrium polium* L., tomentose germander , Djaaïda ; **B** : *Salvia officinalis* L., Official sage, Salma or Souakenbi.

Results

The population and the localities concerned by the survey

The survey was realized in three towns in Tiaret province, where respondents were chosen randomly. This survey allowed us to interview more than 400 people, of whom 304 accepted to participate in the study. More than 50% of the respondents were from Chehaima village. Tiaret city comes next with 21% of respondents and then nomads (17%) (Fig 03).

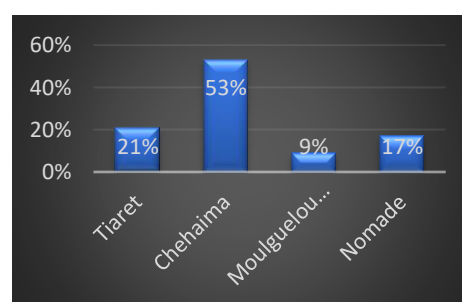


Figure 3. Use of medicinal plants according to localities.

The study population characteristics gender, age, level of education, and occupation)

In our study, 71% of respondents were women. People aged from 20 to over 60 years old were included in the survey. The most abundant range of age was between 20 to 35 years (27%) and then between 36 to 50 years (37%). The proportions of people between 51 to 65 years and people over 66 years were 24%, and 12% respectively. 55% of the questioned population were illiterate, 18%



had a primary education level, 14% had a secondary education level, and the lowest rate concerned respondents with higher education level (13%). 29% of the respondents were jobless at the survey time whereas, 82% had no relation to the medical fields. On the other hand, 11% worked as herbalists, 4% were pharmacists, and 3% were doctors (fig 04).

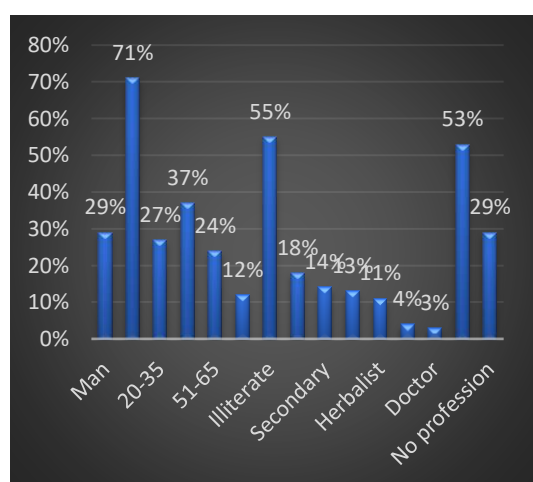


Figure 4. The study population repartition according to sex, age, level of education and profession

Knowledge about the study species

Teucrium Polium L. is the most known and used species by the local population with a rate of 53%, whereas *Salvia Officinalis L.*, was known only by 47% of the respondents.

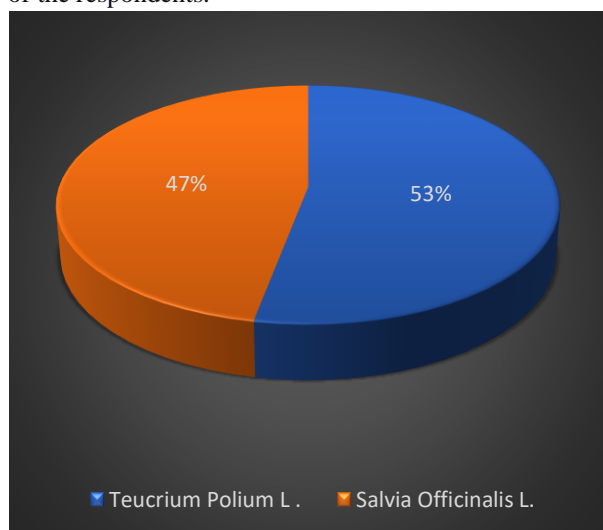


Figure 5. The frequency of use of the selected Lamiaceous medicinal plants.

Methods of preparation and administration of *Teucrium polium L.*

Almost all the questioned people used the tomentose germander as a dried but not a fresh plant. The whole plant was utilized by 84% of the respondents, whereas 11% of them used the leaves and flowers 5% only. However, all the respondents consumed the tomentose germander as a herbal tea usually by infusion (90% of questioned people) or decoction (10%). The most chosen measurement type was the spoon (72%), followed by the handle (23%), and then the pinch (5%). The herbal preparations were administered orally. That was explained by the simplicity and speediness of the oral administration mode. *Teucrium polium L.* was used for the treatment of the digestive tract and the digestive accessory organs pathologies (63%), and the treatment of dermatological affections (20%). This plant was also used to treat respiratory and cardiovascular diseases (8%), endocrine affections (6%) and other diseases 3% (neurological 2% and metabolic 1%).

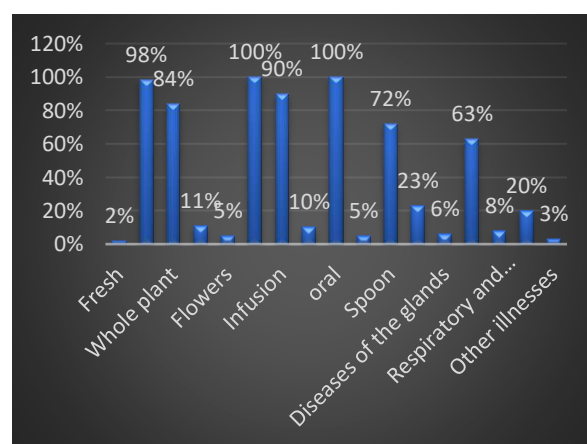


Figure 6. The traditional use of the species *Teucrium polium L.*

Methods of preparation and administration of *Salvia officinalis L.*

We noted that 99% of the study population used dried sage. The most used part of the plant was the leaves (52%), while the whole plant was used by 38% of the respondents. The last 10% used other organs (flowers, stems, seeds). *Salvia officinalis L.*, was commonly used as herbal tea prepared by infusion (100% of the respondents). 49% of the questioned people used a spoon for measurement, while 41% used a handle, and just 10% used a pinch amount. 100% administered the sage herbal



tea orally taking into account the simplicity and the speediness of this administration mode. Sage preparations were used for the treatment of pathologies of the digestive tract and its accessory organs, metabolic diseases (14%), respiratory diseases and cardiovascular diseases (10%), and less commonly for other diseases (Endocrine diseases (6%), neurological diseases (2%)).

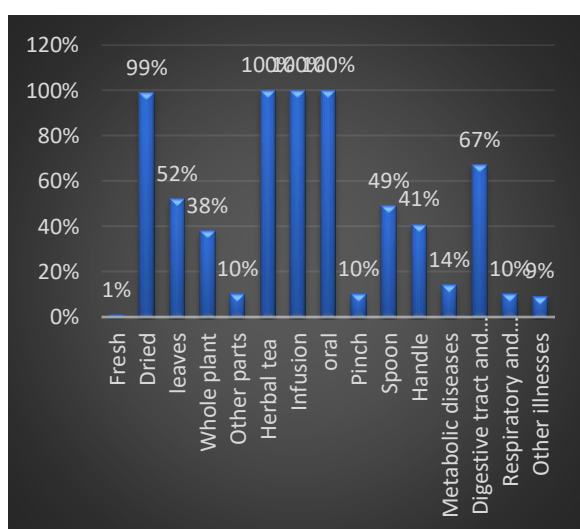


Figure 7. The traditional use of the *Salvia officinalis* L.

Discussion

Our ethnobotanical study contributes to confirming and validating the traditional use of medicinal plants in the Lamiaceae family and continues previous research in this area [25 ; 05 ; 26]. Our two plants of the Lamiaceae family (*Teucrium polium* L. and *Salvia officinalis* L.) are very well known by the general population. Multiple respondents have highlighted the importance of safeguarding and transmitting traditional medicinal knowledge to the next generations [01; 15 ; 31]. Women use medicinal plants much more than men due to their family responsibilities and their heritage knowledge of herbal medicine. Herbal medicine seems to be more considered by used illiterate. Educated people tend to not believe too much in traditional medicine [08 ; 04 ; 31].

Concerning *Teucrium Polium* L., the most used part is the whole plant, in a dried state, in the form of herbal tea prepared by infusion, with a spoonful dose, and then orally administered. This may be explained by the simplicity of the collection, the drying process, and the

oral administration of the remedy [08 ; 07 ; 06 ; 02 ; 03]. The tomentose germander herbal tea was taken to treat digestive tract and digestive accessory organs diseases and also for the treatment of dermatological diseases. Numerous other research papers reported the same therapeutic usage [29 ; 25 ; 24].

Salvia officinalis L., is used in a dried state, while the most used part is the leaves [13], in the form of herbal tea, prepared by infusion [08 ; 28]. The herbal tea was orally administered (12). Sage herbal tea was also used to treat digestive system-related diseases [09]. As we also noted, the sage remedy is used to treat metabolic, respiratory, and cardiovascular diseases [10 ; 11 ; 14 ; 13 ; 22 ; 25].

Conclusion

The region of Tiaret is known for its richness of medicinal plants used by the inhabitants. At the end of this survey, we were able to highlight the relative importance attached to traditional medicine by the local population of Tiaret province. We confirmed that the use of Lamiaceae species, represented by *Teucrium polium* L., and *Salvia officinalis* L. in our study, in the therapeutic field persists despite the revolution in medical technology. The herbal tea prepared by the infusion of the whole dried plant of *Teucrium Polium* L., is used for digestive and dermatological diseases treatment. The herbal tea of the dried leaves of *Salvia officinalis* L., is used to treat digestive pathologies and metabolic affections. Therefore, it is essential to deepen phytotherapy studies to better explore these medicinal species by identifying their bioactive compounds and pharmacological properties.

Authors' contributions

All authors have equally contributed to all aspects of the manuscripts. The authors are grateful to the peoples of Tiaret province for accepting to share their knowledge and practices. Without their contribution, this study would have been impossible.

Conflict of interests

The authors declare no conflict of interest.



Ethical considerations

Ethical issues have been carefully experiencing, examined and reviewed by all authors

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