

Ethnomedicine exploration of medicinal plants: *Fumaria capreolata* L. and *Calendula suffruticosa* Vahl in Numidia (north-eastern Algeria)

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Abstract. Our ethnobotanical study of medicinal plants native to Numidia aimed to investigate traditional therapeutic and cosmetic uses reported by the local population, traditional practitioners, and herbalists of this region. An ethnobotanical survey was carried out using questionnaires on *Calendula suffruticosa* Vahl (shrub-like marigold) and *Fumaria capreolata* L. (climbing fumitory) in 2017-2018 in 5 cities of north-eastern Algeria. We studied the profile of 100 respondents, their knowledge of local plant names, therapeutic uses, the parts used, and the mode of use of each plant. The data collected show 62.0% of local people use these plants for several reasons, while 38% use it only for therapeutic purposes. The aerial part is the most usable for both species, especially the flower for marigold (82.0% of those who use it). According to the surveys conducted, it appears that the local communities in these cities make use of various medical properties of marigold: anti-inflammatory (37.0%), antibacterial (16.2%), against oedema (8.6%), anti-ulcer (6.1%), sedative, cholesterol-lowering (3.4%), antihypertensive, i.e. lowering blood pressure (2.6%). In contrast, the use of fumitory is rare, due to its toxicity in larger doses. In most cases, the method of administration of the remedies varies, e.g. as an infusion (72.1% of those who use fumitory), decoction (10.0%), compresses (10.8%), cream or ointment based on decoction (7.0%). This study shows the great importance of medicinal plants in the local traditional medicine of north-eastern Algeria.

Key words: ethnobotanical study, *Fumaria capreolata*, *Calendula suffruticosa*, herbal medicine, Numidia, Algeria

1. Introduction

For thousands of years, mankind has used various plants found in the environment to treat and cure all kinds of illnesses (Lee 2004). These plants represent a huge reservoir of various secondary metabolites with a very wide range of biological activities (Aberkane 2006). Africa is endowed with extremely rich plant diversity, including a very large number of species used as medicinal herbs, natural foods and for other therapeutic purposes. Many different natural products have been identified, mostly used in traditional African medicine for disease prevention and treatment. WHO in 2002 stated that herbal medicines are valuable resources for the vast majority of rural populations in Africa, where over 80% of the population uses them for health care (WHO 2002).

Algeria is characterized by its considerable floristic richness, estimated at over 3000 plant species, of which 15% are endemic and belong to several botanical families. The Algerian flora includes Mediterranean, Saharan, and Palaeotropical elements (Quezel & Santa 1963). More than 600 species are medicinal plants (Souilah *et al.* 2018). Algeria is one of the Mediterranean countries with a long medical history and a traditional knowledge of herbal medicine handed down from one generation to the next (Beldi *et al.* 2021). The Algerian society uses many plants and their extracts in traditional medicine, not only for benign diseases, but also for incurable ones (Hamel *et al.* 2018). *Fumaria capreolata* L. (climbing fumitory) is widely applied in traditional Algerian medicine to treat hepatobiliary dysfunction and skin diseases (Gilani *et al.* 2005). Marigold species of the genus *Calendula* have also been recognised for cen-

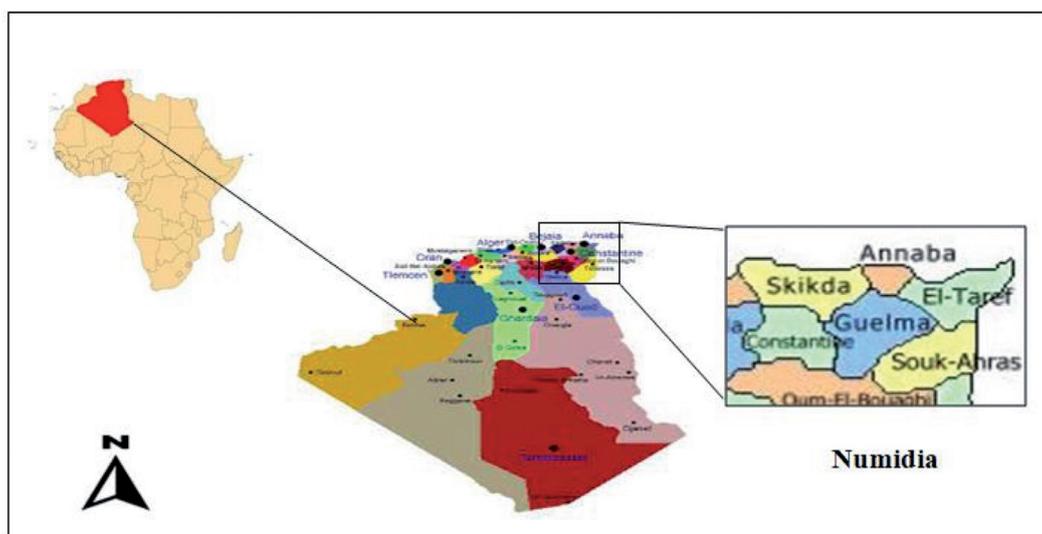


Fig. 1. Location of the study area

turies for their medicinal virtues, traditionally used in the treatment of various skin tumours, lesions, ulcers, swellings, and disorders of the nervous system (Arora *et al.* 2013).

However, with the development of the pharmaceutical industry, this valuable knowledge must be maintained and preserved, hence the need for research in the field of ethnobotany and ethnopharmacology. In this context, we have focused on traditional medicine and treatments with the use of native plants in north-eastern Algeria. This is the first study of ethnobotanical properties of native species *Fumaria capreolata* (Papaveraceae) and *Calendula suffruticosa* Vahl (Asteraceae), which are very frequently used plants in the Mediterranean area.

The aim of our study was to identify the different traditional applications (medicinal, aromatic, cosmetic, and even culinary) of these species, and to document and promote the traditional medicinal knowledge related to their use in north-eastern Algeria, in collaboration with the traditional healers who are the knowledge holders in this field. The results provide an overview of the healing power of these plants reported by the local population and by herbalists and healers in this region.

2. Materials and methods

2.1. Study area

The study was carried out in Algerian Numidia. According to chorological or bio-systematic concepts, this is the geographical area of ancient Numidia, located between Algiers and Tunis. Numidia *sensu lato* is delimited to the north by the Mediterranean, to the east by the Algerian-Tunisian border, to the south by a straight line between Souk-Ahras and Constantine,

and to the west by the Skikda/Constantine overhang, and covers about 10 000 km² (De Bélair *et al.* 2005). This region includes completely or partly 3 coastal provinces – from the east to west: El Taref, Annaba and Skikda – and 2 continental provinces: Souk Ahras and Guelma (Fig. 1). Table 1 presents the geographical, demographic, and climatological characteristics of the 5 cities in the study area.

2.2. Collection and identification of plant material

Plant material of both species was collected in full flowering and fruiting, in March 2017, in the Edough region (Annaba Province, Algeria) (Fig. 2). Their identification was based on the flora of Quezel & Santa (1963) and validated by Dr T. Hamel, a lecturer in the Biology Department of the Badji Mokhtar Annaba University, Algeria. Voucher specimens are deposited at the Herbarium of that Department (SIFC 0102; SICS 0103).

Calendula suffruticosa is an herbaceous, perennial plant up to 40 cm in height; the stem is more or less erect. Its leaves are pale green and lanceolate. The tubular disk flowers and yellow or orange ligulate ray flowers are united in flower heads exceeding 2 cm in diameter. The fruit is an achene of 3 shapes, often curved and pointed (Beniston & Beniston 1984) (Fig. 3A).

Fumaria capreolata is an annual herb and can reach a height of about 20-100 cm (Polese 2007). Stems are glabrous, simple or weakly branched; climbing or recumbent and green or glaucous (Bojnanský *et al.* 2007). Its leaves are alternate, and petiolate (Polese 2007). The flowers are tubular, narrow, 10-12 mm long, white with purple tips (Cunningham *et al.* 2011) (Fig. 3B).

2.3. Surveys and data analysis

The ethnobotanical analysis was based on a series of surveys carried out using a French questionnaire

Table 1. Characteristics of the cities where the survey was conducted

Province	Geographical location of city	City area	Demography	Climate	Description
Annaba (Maizi <i>et al.</i> 2010) Fig. 2A	North-eastern Algeria (36°54'N, 7°46'E)	~49 km ²	Coastal metropolis with >600 000 inhabitants in 2008, population density ~5250/km ²	Mediterranean, with mild, rainy winters and hot, sunny summers	Province bounded by Mediterranean Sea (N), Skikda Province (W), Guelma Province (S) and El Tarf Province (E)
Guelma (Khallef <i>et al.</i> 2020) Fig. 2B	North-eastern Algeria (36°28'N, 7°26'E)	44.74 km ²	~138 000 inhabitants in 2018, population density ~2700/km ²	Sub-humid Mediterranean, annual rainfall 450-600 mm	Connected with coastal cities (El Taref, Annaba, and Skikda) and with cities of interior regions (Constantine, Souk Ahras, and Oum El Bouaghi)
El Tarf (Beldi <i>et al.</i> 2021) Fig. 2C	Extreme north-eastern Algeria, on Algerian-Tunisian border (36.767°N, 8.317°E)	111.4 km ²	>500 000 inhabitants	Mediterranean, with hot, dry summers	Renowned for its ecosystem and landscape diversity, with famous protected areas (El Kala National Park, classified as a Biosphere Reserve in 1990)
Skikda (Souilah <i>et al.</i> 2018) Fig. 2D	North-eastern Algeria (36°52'N, 6°54'E)	~52 km ²	~320 000 inhabitants	Mediterranean	–
Souk Ahras (De Bélair <i>et al.</i> 2005) Fig. 2E	Extreme north-eastern Algeria (36°17'15"N, 7°57'15"E)	~812 km ²	~155 250 inhabitants	Semi-humid Mediterranean	Part of 11 th regional biodiversity hotspot in Mediterranean region, called Numidia-Kroumirie (Véla & Benhouhou 2007), with Important Plant Area (IPA) "Kabylias", called "El Kala 2" (Yahi <i>et al.</i> 2012; Benhouhou <i>et al.</i> 2018 in Touati <i>et al.</i> 2021)

(translated into English in Appendix 1), submitted to the respondents in individual interviews, during three months in 2017. The respondents represented the population of 5 cities of north-eastern Algeria (Annaba, El

Taref, Souk Ahras, Skikda, and Guelma), where we interviewed 100 people for each species. The time devoted to each respondent was about 5-30 minutes. During each interview we collected basic information

**Fig. 2.** Aerial view of the 5 cities studied

Explanations: A – Annaba, B – Geulma, C – El Taref, D – Skikda, E – Souk Ahras



Fig. 3. The plants studied

Explanations: A – marigold *Calendula suffruticosa*, B – climbing fumitory *Fumaria capreolata*

about the respondent, including sex, academic level, age, and family situation. The data collected for each plant include the local common name, therapeutic and traditional uses of the plant, the part(s) used, the method of preparation, and the period of collection.

The data collected in this study were sorted and analysed using Excel software (Microsoft Office, 2016 version), where graphs and tables were produced.

3. Results and discussion

3.1. Geographic distribution of respondents and general uses of the plants in north-eastern Algeria

The survey was conducted in 5 cities but the percentages of respondents in each city varied: 67.0% of the respondents live in Annaba, 19.0% in Souk-Ahras, 12.0% in El Taref, and 1.0% in Skikda and Guelma each. These rates are completely random. According to the

respondents, 62.0% of local people use medicinal plants in their daily lives for several reasons, while 38.0% use it only for therapeutic purposes (Fig. 4).

3.2. Age and sex of respondents

In the present study, we surveyed 3 different age groups to see if information is passed on from one generation to another (Fig. 5). The results obtained show that in north-eastern Algeria, the use of medicinal plants is very common among all age groups. The group of people aged 30-50 years seems to be the most interested in the use of medicinal herbs, as they accounted for 38.0% of the study group. They were followed by the oldest age class (50-99 years) with a rate of 36.0%. However, we noted that the youngest age class (18-30 years) accounted for 26.0%. We also noted that the proportion of female respondents (53.0%) was higher than that of male respondents (47.0%). These percentages were totally aleatoric.

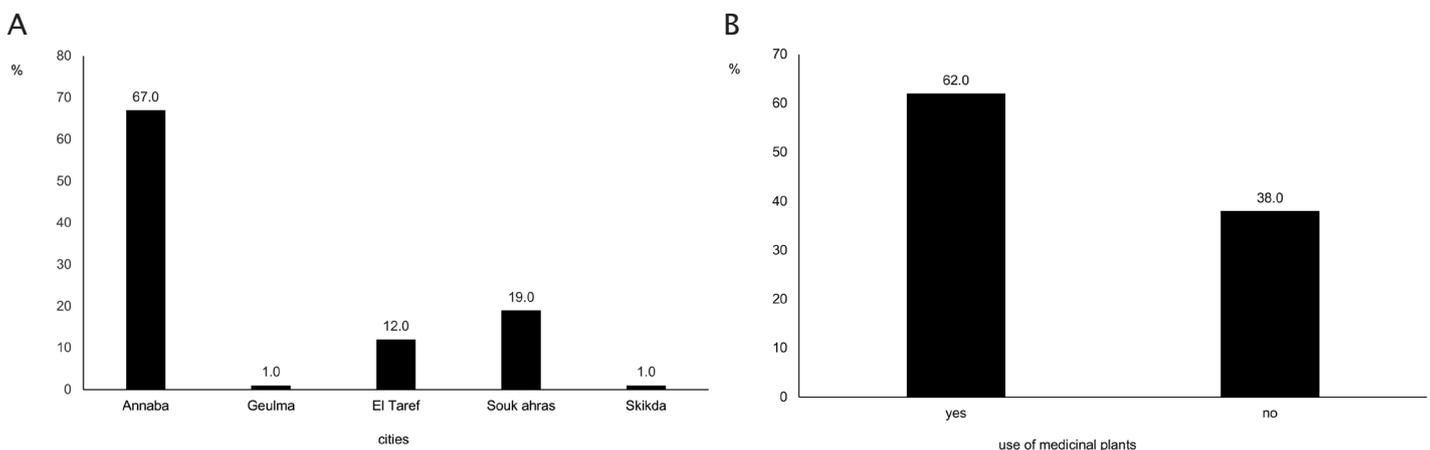


Fig. 4. Distribution of respondents by geographic location (A) and use of medicinal plants (B)

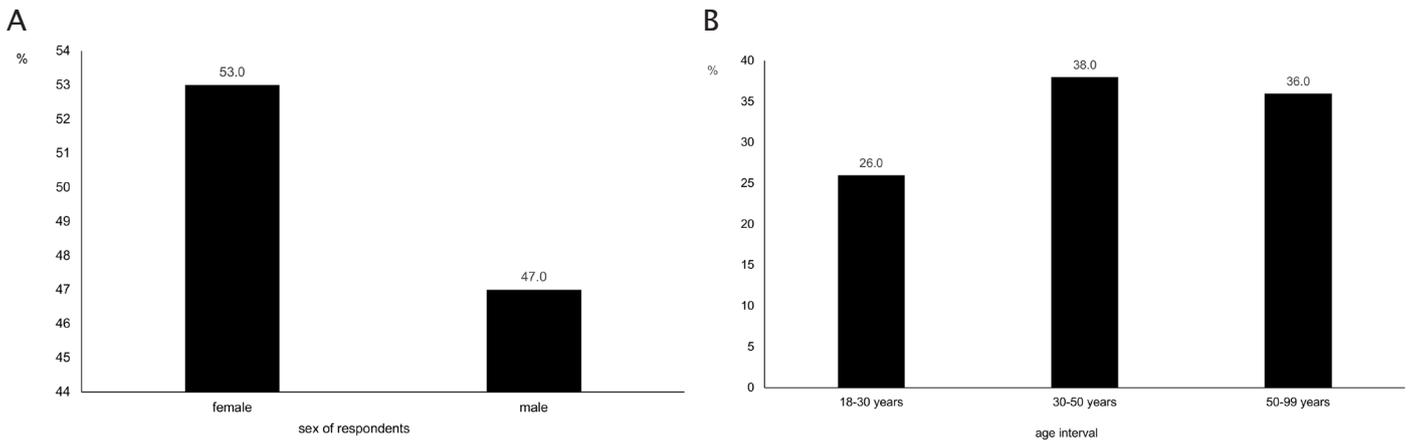


Fig. 5. Distribution of respondents by sex (A) and age (B)

In this study, we noted that older women are more interested in traditional medicine and the use of plants in various fields, such as herbal remedies to treat family members for certain illnesses or for aesthetic reasons. We can also explain the predominance among the elderly by the accumulation of experience with age. On the other hand, the low percentage of youth (26.0%) in this area may indicate a progressive loss of information, which may aggravate over time.

These results are consistent with several ethnobotanical studies on the use of medicinal plants in the Greater Maghreb countries (Benkhniue *et al.* 2010; Salhi *et al.* 2010; Beldi *et al.* 2021).

3.3. Educational level and occupation of respondents

In this study we interviewed 5 groups of respondents according to their level of education, and we noted that those with university and secondary education apparently represent the majority of the population of plant users in north-eastern Algeria (34.0% and 33.0%, respectively) (Fig. 6A). These groups are followed by those with an average level of education (secondary school students) with a percentage of 16.0%, while

those with a primary school level accounted for 6.0%, and illiterate people (without education) for 11.0%.

According to the results of the distribution of the respondents by profession, only 14.0% of the respondents are herbalists and 4.0% are healers, but the majority of the respondents (82.0%) have different professions and work in different fields (Fig. 6B). These findings confirm that the use of medicinal plants in this population is unrelated to educational attainment or employment.

3.4. Sources and preferred types of healthcare of respondents

At present, there are many sources of information on medicinal plants and their forms of use. However, we have distinguished 4 main categories to facilitate the participant's response: from a family member, from another person, from books, and from the media.

The results obtained indicate that the media (such as TV, radio, social networks, and internet sites) are the tool most frequently cited by the respondents, with a high percentage of 44.0% (Fig. 7A). This confirms that the media represent a means of mass dissemination of information in the society of this region. Also the

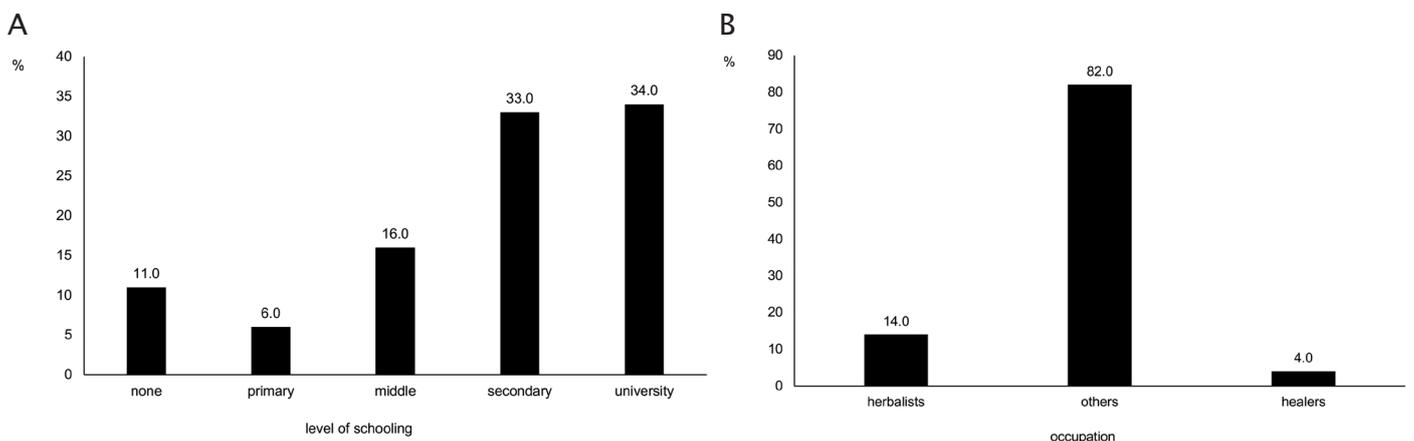


Fig. 6. Distribution of respondents by education level (A) and occupation (B)

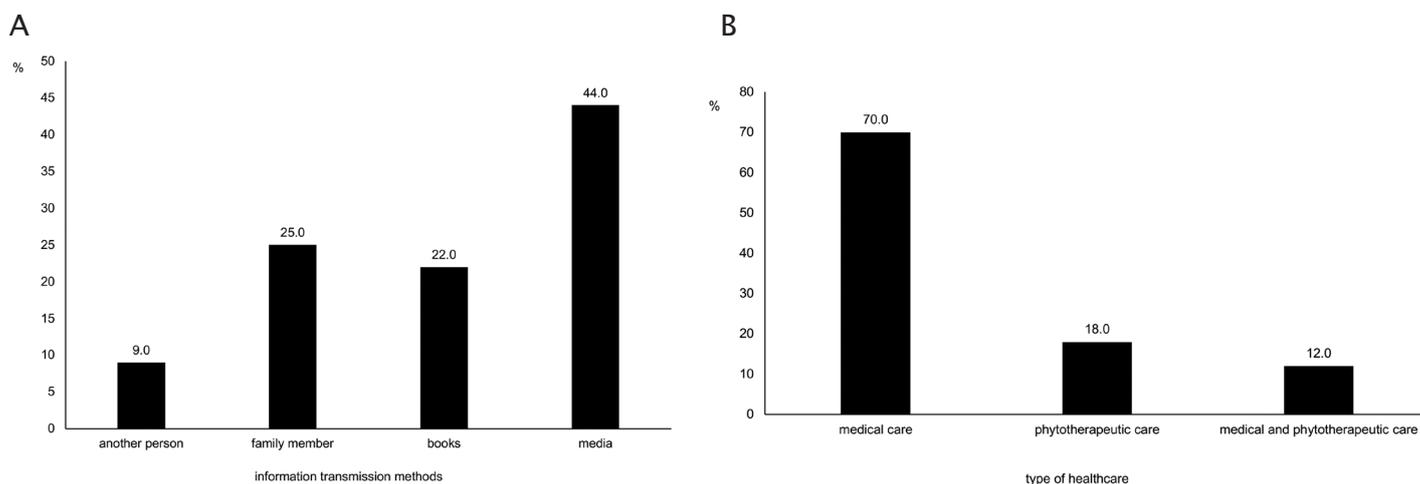


Fig. 7. Distribution of respondents by means of information transfer (A) and types of healthcare (B)

transmission of information from one person to another is one of the most widespread means of communication (25.0% for marigold and 17.0% for fumitory). This knowledge is mainly transmitted by the oldest people in their family (grandparents or parents), or the closest ones, such as uncles or aunts or even neighbours or traditional healers and herbalists. Books also play an important role in the dissemination of information among the Algerian population, with a percentage of 22.0%.

However, the ethnobotanical survey revealed that the majority of informants (70.0%) prefer the use of standard medical care because it is effective and faster. Only 18.0% of the respondents use exclusively phytotherapeutic treatments that are natural and do not contain chemicals, while 12.0% of respondents use both standard medical and herbal treatments, depending on the disease being treated (Fig. 7B).

3.5. Consultations for illnesses and methods of plant preparation

According to the survey, 62.0% of respondents consult medical personnel in case of illness, 18.0% of

the respondents consult traditional healers, and 17.0% consult traditional healers or medical personnel depending on the type of illness. Finally, 3.0% consult neither traditional healers nor medical personnel (Fig. 8).

Our survey in the Numidia region of Algeria revealed that the population of this region uses several modes of plant preparation, namely decoction, infusion, powder, fumigation, poultice, and maceration. Users always look for the simplest method to facilitate the administration of the active ingredient and also to prepare the phyto-medicines. However, infusion has been found to be the most widely used method, as it allows the most active principles to be harvested and mitigates or cancels the toxic effect of some recipes.

3.6. The vernacular knowledge and medicinal use of *Calendula suffruticosa*

3.6.1. The knowledge of vernacular names

This species is widely known as marigold (in French: *le souci*) in all the cities surveyed, especially in Annaba, Souk-Ahras, and El Taref, with an overall percentage

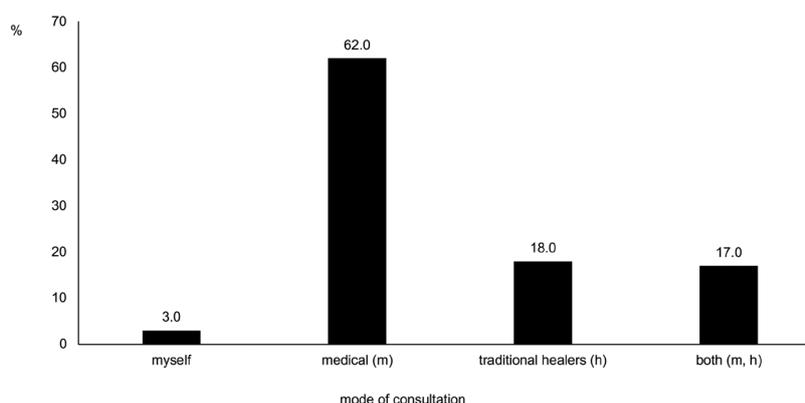


Fig. 8. Distribution of respondents by disease consultation methods

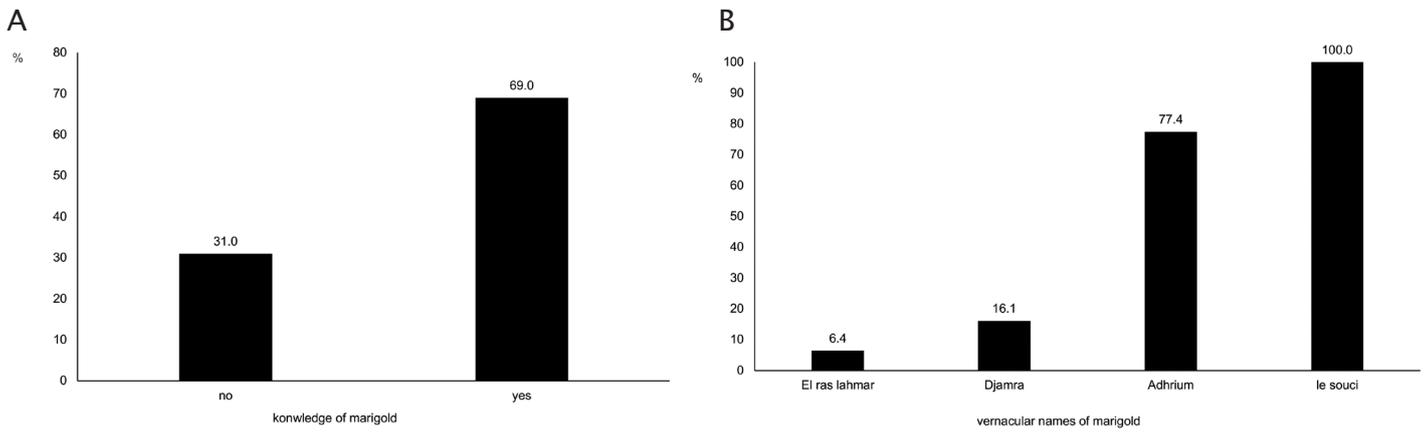


Fig. 9. Knowledge of official and vernacular names of *Calendula suffruticosa* (A) by the population of north-eastern Algeria (B)

of 69.0 %. However, 31.0% of respondents in this area did not know it as *le souci*, but they used other names for it. The ethnobotanical survey revealed that the majority of herbalists confirmed the botanical name *C. suffruticosa* for marigold. Among the vernacular names cited by the respondents, “Adhrioum” prevailed (77.4%), followed by “Djamra” (16.1%) and “El ras lahmar” (6.4%) (Fig. 9). In Morocco, where the culture and ethnological knowledge of plants is similar to that of Algeria, *Calendula eckerleinii* bears the vernacular name of “Djemra”, which is nearly identical to that of *C. suffruticosa* in the population of north-eastern Algeria (Chaachouay *et al.* 2019).

3.6.2. The parts and form of use

According to the data obtained, the flower is the most usable part of this plant in north-eastern Algeria with a percentage of 82.0%, followed by leaves (10.0%) and stems (8.0%) (Fig. 10). The most common ways of use are infusion, in the form of herbal tea (72.0%) and decoction (10.0%). Also, the flowers are used in the form of compresses (11.0%), cream or

ointment made from decoction (7.0%). The ointment is one of the most frequent forms of use in the species of the genus *Calendula*. It is prepared with 0.5 kg of pure fat brought to the boil; then 2 handfuls of marigold flowers are added and covered for 24 h; the next day, the whole preparation must be reheated, filtered through a cloth and put into glass bottles (Jarić *et al.* 2007).

3.6.3. Daily dose, duration of treatment, and precautions for use

As mentioned earlier, infusion is the most commonly used method for marigold by the local population of north-eastern Algeria, and most of the respondents confirmed that the daily dose is 2 cups per day and the duration of treatment is 15-30 days. The informants in this study declared that there are no contraindications for this plant. Rare cases of skin reactions have been reported, but some herbalists have advised us to avoid high doses of marigold with sedative or painkilling drugs.

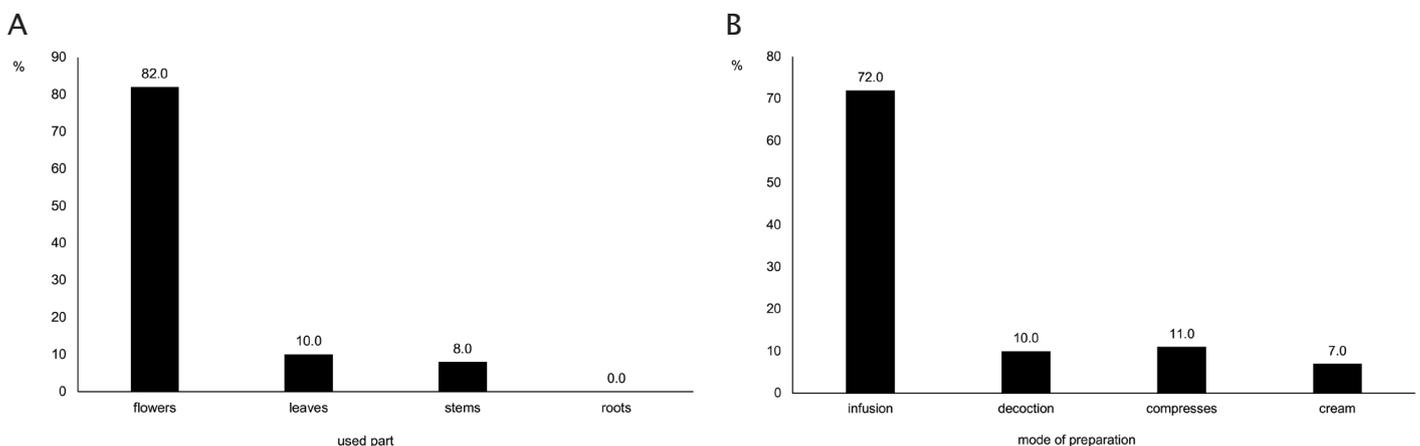


Fig. 10. Organs (A) and form of use (B) of *Calendula suffruticosa* by the population of north-eastern Algeria

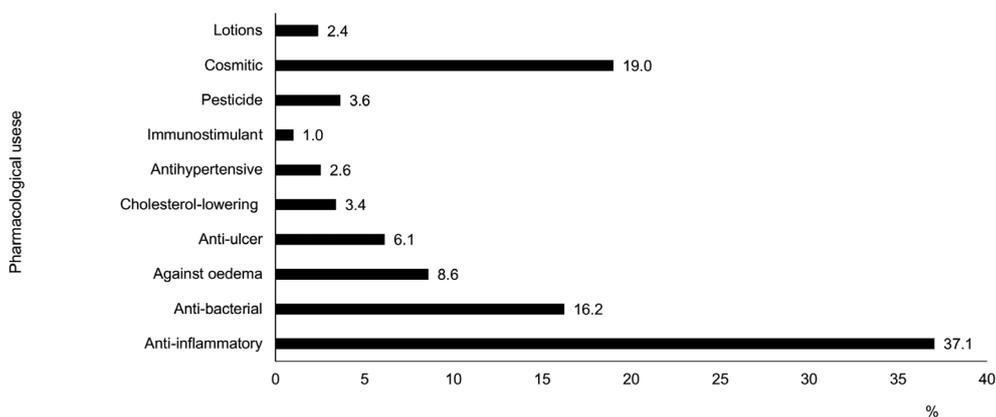


Fig. 11. Ethnopharmacological properties of *Calendula suffruticosa*

3.6.4. Medicinal use

In the course of our investigation concerning marigold, individuals in north-eastern Algeria asserted the use of marigold in several diseases because of its various properties (Fig. 11): anti-inflammatory (37.0%), anti-bacterial (16.2%), against oedema (8.5%), anti-ulcer (6.1%), cholesterol-lowering (3.4%), antihypertensive (2.5%). Occasionally, they also use this plant to stimulate the immune system (1.0%). In this area, women use marigold flowers as cosmetics, for example they make skin lotions to remove blemishes (19.0%), or they add the petals to shampoos to lighten hair colour (2.4%). In the garden, some inhabitants of rural areas near El Taref use this plant to eliminate pest nematodes (roundworms) and thus protect other plants, such as peas, iris, cabbage, and roses (3.6%).

This information on the use of *C. suffruticosa* as a medicinal plant in north-eastern Algeria is consistent with numerous studies of plants belonging to this genus, which have confirmed the biological activities of *Calendula* species (Gazim *et al.* 2008; Preethi *et al.* 2009; Singh *et al.* 2011; Kassim *et al.* 2013; Faustino *et al.* 2018; Sofiane *et al.* 2018, 2021; Messina *et al.* 2019). For example, *C. officinalis* was mentioned in an ethnobotanical study by Koleva *et al.* (2015) among the 5 most usable medicinal plants in Bulgaria, where it is used in treating nervous problems, stomach disorders, ulcer, inflammation, wounds as well as for prophylaxis and detoxification of blood. The flowers and leaves of *C. officinalis* are also used by the ethnic and rural populations of the eastern Himalayan region of Sikkim, as an antiseptic and antifungal agent, but also diaphoretic, stimulating, and antispasmodic, as this plant contains hormones and vitamin A (Das *et al.* 2012). Externally, this species is used to treat fungal diseases of feet, swellings of legs, and painful veins, to heal wounds, ulcers, burns, and frostbite (Jarić *et al.* 2007; Das *et al.* 2012). *Calendula officinalis* is also one of the best

known herbs in the traditional medicine of the Aurès region (Algeria), and the population of this region uses the whole plant for the treatment of amenorrhoea, headaches, menstrual pain, acne, boils, burns, and eczema. The most common methods of its use among the population of the Aurès region are: infusion, decoction, and cataplast (Baziz *et al.* 2020).

Stems and leaves of *C. arvensis* are used as an infusion (1 cup/day) in the treatment of diabetes by the people of south-west Pakistan (Zain-ul-Abidin *et al.* 2018). In Italy, the fresh flowers or inflorescences of *C. arvensis* are eaten raw in salads, or used to make jams or candies. The dried petals are added to flavour wine, which after being left in the sun for 10 days becomes excellent vinegar (Ranfa & Bodesmo 2017). The population of Nador Province (in north-eastern Morocco) uses the decoction of *C. arvensis* in the treatment of digestive disorders and in hair care (Jaadan *et al.* 2020).

Cheramat and Gharzouli (2015), in their study on the medicinal flora of the Setif region (eastern Algeria), noted that the leaves and flowers of *C. aegyptiaca* subsp. *aegyptiaca* are used in the treatment of intestinal worms, warts, and frostbite. The flowers of *C. eckerleinii* in Morocco are used as a cataplast in the treatment of osteoarticular diseases (Chaachouay *et al.* 2019).

3.7. The vernacular knowledge and medicinal use of *Fumaria capreolata*

This species grows spontaneously in cultivated fields and even on roadsides in cities. The survey conducted in north-eastern Algeria revealed that fumitory is generally not known by this name among the local population of this region. Only 8.0% of the respondents know the name climbing fumitory, and these respondents are botanists, biology or pharmacy students, and herbalists (Fig. 12). Almost all of the population of north-eastern Algeria uses other names. It is generally known as “Kafarit elhimar” by the people of the city of Skikda, and

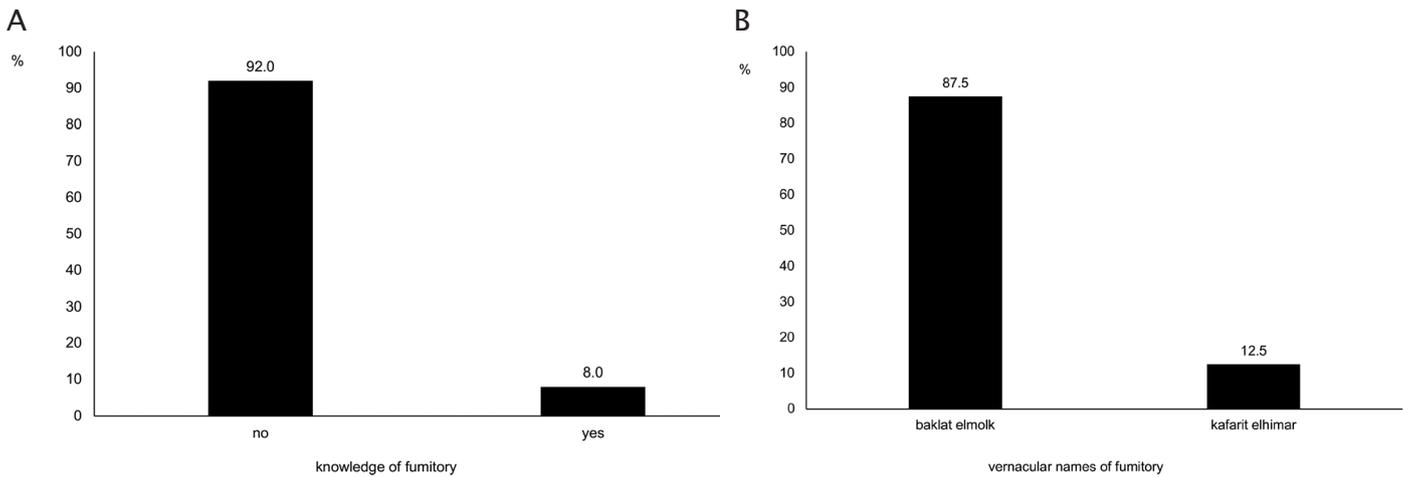


Fig. 12. Knowledge of official and vernacular names of *Fumaria capreolata* (A) by the population of north-eastern Algeria (B)

also as “Baklat elmolk” by the people of Annaba, Souk Ahras, and Guelma, and as. All these are vernacular names from the Arabic and local Maghribi language. Dutta *et al.* (2019), in their study on the closely related species *F. officinalis*, mentioned that among the common names of this plant among Arabs is “Bakelat el moulok”.

3.7.1. The form of use

In all the cities studied only the aerial parts are used (flowers, leaves, and stems), in the form of cream or ointment based on decoction, and lotions based on infusion of the petals (Fig. 13).

3.7.2. Daily dose, duration of treatment, and precautions for use

This species is a medicinal plant but it is rarely used for a long period. Most of the traditional healers and herbalists interviewed informed us it can cause nausea and diarrhoea during long-term use.

3.7.3. Medicinal uses and pharmacological properties

Our results concerning this species in traditional medicine in 5 cities in north-eastern Algeria show that this plant is widely used in the treatment of diseases of the digestive system, more specifically in the treatment of liver disorders and jaundice. In this case it is applied in the form of an infusion or decoction of the aerial parts for less than 15 days. Women in the city of El Taref use fumitory in the treatment of certain skin diseases, such as eczema, burns, and psoriasis. They use the leaves of this plant in the form of compresses. Suau *et al.* (2002) reported that species of the genus *Fumaria* have long been used in traditional medicine as antihypertensives, diuretics, hepato-protectives, and laxatives (to treat gastrointestinal disorders) as well as in the treatment of certain skin diseases, such as rashes or conjunctivitis. Several *in vitro* and *in vivo* pharmacological studies have confirmed the anti-inflammatory, liver-protective, antioxidant, and analgesic properties of *F. capreolata* (Orhan *et al.* 2004; Fafal & Önür 2007;

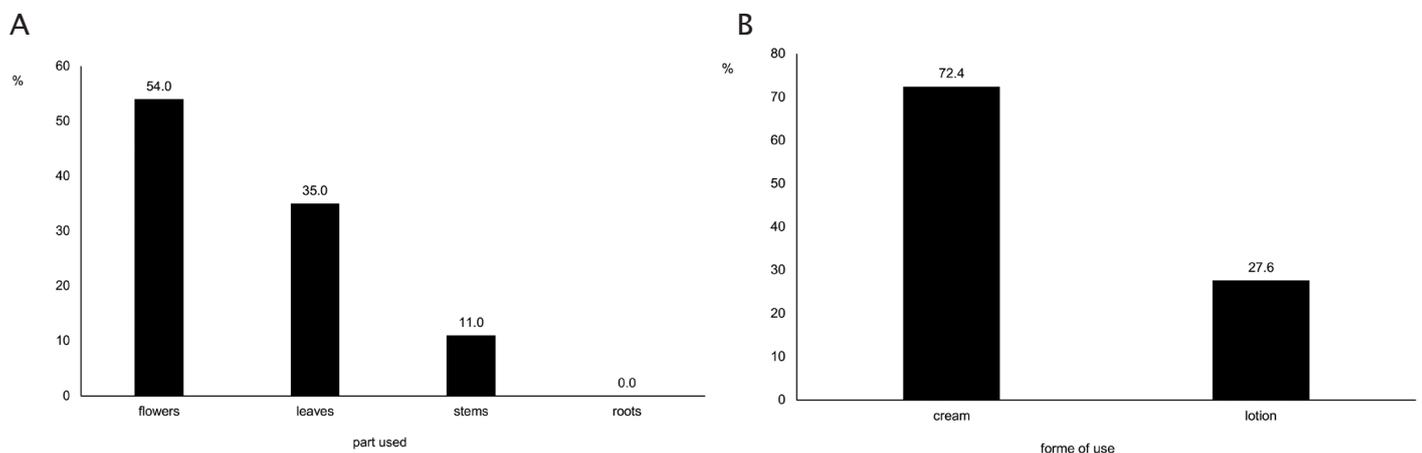


Fig. 13. Used part (A) and form of use (B) of *Fumaria capreolata* by the population of north-eastern Algeria

Maiza-Benabdesselam *et al.* 2007; Bribi *et al.* 2015, 2017; Sofiane & Seridi 2021).

In Pakistan, *F. indica* has a high medicinal value. It is used to cure many disorders related to the digestive system, respiration, blood purification, skin, urinary tract, bones and joints, and reproduction. The whole plant, leaves, roots and flowers of this species have been used by the local community in several forms: powder (60.2%), decoction (30.0%), tea (25.5%), paste (15.5%), fresh (27.2%), juice (21.0%), cooked (3.1%), cream (18.0%), and tincture (4.3%) (Shaeen *et al.* 2020).

F. indica and *F. parviflora* are widely used by the Sirjan people in Iran in culinary preparations as well as in traditional medicine. They apply the decoction or aromatic water of the whole plant or the fruits in the treatment of abdominal pain (Nasab & Khosravi 2014). *F. asepala* is also recognised for its medicinal properties in the Iranian pharmacopoeia, where the whole crushed plant can be used externally to treat itching, burns, and skin allergies. The juice from the plant is beneficial for the liver. Mixed with henna, it can be used for frostbite on the palms (Moghanloo *et al.* 2019).

4. Conclusions

The present study has highlighted the importance of herbal medicine among the population of north-eastern Algeria, including its role for different age groups. This

medicinal knowledge is shared, apparently with a slight advantage going to women, and is transmitted from one generation to the next. This ethnobotanical survey revealed the continued interest in *F. capreolata* and *C. suffruticosa* in the 5 cities studied. The results obtained show the frequent use of all the aboveground organs of these 2 plants to treat various internal or external diseases as anti-inflammatory, antimicrobial, anti-ulcer, sedative, hypocholesterolemic, antihypertensive agents or for skin diseases, by using various methods and forms, like infusion, decoction and cataplasm. This ethnobotanical study constitutes a significant source of information that contributes to knowledge of the medicinal flora and to the safeguarding of the popular know-how of this region. It also establishes a database for evaluation of these medicinal plants to discover new active principles for use in phytotherapy and pharmacognosy.

Acknowledgements. The authors thank all the informants from the 5 cities who participated in this study.

Author Contributions:

Research concept and design: I. Sofiane
Collection and/or assembly of data: I. Sofiane
Data analysis and interpretation: I. Sofiane
Writing the article: I. Sofiane
Critical revision of the article: I. Sofiane, R. Seridi
Final approval of article: I. Sofiane, R. Seridi

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Appendix 1

ETHNOBOTANICAL SURVEY FORM

I. Information on the informant:

- N°:
- Sex: Female Male Age:
- City: - Village:
- Educational level:
Primary Middle Secondary University None
- Profession:
Herbalist Healer Other
- How did you acquire this knowledge?
From a family member Another person Books Media
Other:
- Are there any other traditional medicinal practices? If so, which ones?
- Which do you prefer?
- Medical care Phytotherapeutic care
- For what reason(s)?
- Who do you consult in case of illness?
- Medical staff Traditional healer Other

II. Plants:

A. Marigold: *Calendula suffruticosa* Vhal

1. What is the name of this plant?

Botanical names	Local names	Common names
1.	1.	1.
2.	2.	2.
3.	3.	3.

2. Which part of the plant is used in the traditional recipe?

Whole plant <input type="checkbox"/>	Aerial part <input type="checkbox"/>	Subterranean part (roots) <input type="checkbox"/>
Flowering tops <input type="checkbox"/>	Leaves <input type="checkbox"/>	Stems <input type="checkbox"/>

3. Method of administration?

- Mastication Compress Infusion Herbal tea Decoction
 Syrup Powder Lotion Fumigation
 Cutaneous application (Ointment) Vaporization Inhalation Boiling

4. Daily dose:**5. Duration of treatment:****6. Precaution(s) for use:****7. This plant is toxic or has side effects?** No Yes

What are its effects?

.....

8. What are the medicinal uses of this plant?

.....

.....

.....

B. Fumitory: *Fumaria capreolata* L.**1. What is the name of this plant?**

- | Botanical names | Local names | Common names |
|-----------------|-------------|--------------|
| 1. | 1. | 1. |
| 2. | 2. | 2. |
| 3. | 3. | 3. |

2. Which part of the plant is used in the traditional recipe?

- Whole plant Aerial part Subterranean part (roots)
 Flowering tops Leaves Stems

3. Method of administration?

- Mastication Compress Infusion Herbal tea Decoction
 Syrup Powder Lotion Fumigation
 Cutaneous application (Ointment) Vaporization Inhalation Boiling

4. Daily dose:**5. Duration of treatment:****6. Precaution(s) for use:****7. This plant is toxic or has side effects?** No Yes

What are its effects?

.....

8. What are the medicinal uses of this plant?

.....

.....

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