



Received on 18 August, 2016; received in revised form, 09 October, 2016; accepted, 19 October, 2016; published 01 March, 2017

ETHNOBOTANICAL AND FLORISTIC STUDY OF MEDICINAL PLANTS IN THE REGION OF OUED TLELAT, ALGERIA

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Keywords:

Ethnobotanical study,
Traditional Medecine,
Medecine and Aromatic Plants
Oued Tlelat Algeria

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ABSTRACT: An ethnobotanical study of medicinal plants was carried out in the region of Oued Tlelat. It was made in order to establish the catalog of medicinal plants and gather all information on the therapeutic uses practiced by the local population in the study area. The results have identified 59 species that are divided into 29 families of which three are the most dominant, especially Lamiaceae, Apiaceae, and Fabaceae. The most cited plants *Thymus vulgaris*, *Menthaspicata* and *Verbena officinalis*. The foliage is the most used part and most of the remedies are prepared as an infusion. In terms of treated diseases, respiratory diseases occupy first place with a rate of 31.74%. This study highlights the medicinal plants used in the treatment of different type's diseases (Respiratory, metabolic disorders, neurological disorders, dermatological infections, genitourinary infections) by the population of the study area. The results are a valuable source of information and a database for research in the field of pharmacology.

INTRODUCTION: In the world, plants have been used as medicines. These herbal medicines are considered very toxic and mild compared to pharmaceuticals. Medicinal plants are still a source of medical care in developing countries in the absence of a modern medicinal system ¹. Indeed, there are about 500,000 species of plants on Earth, 80,000 have medicinal properties ². In recent decades there has been a growing interest in the study of medicinal plants and their traditional use in different regions of the world ³.

The pharmaceutical industry is increasingly interested in ethnobotanical study of plants. Africa has a large variety of medicinal plants ⁴. Medicinal plants are valuable resources for the vast majority of rural populations in Africa, where over 80% of this population is used to provide health care ⁵. Algeria is recognized by its varietal diversity in medicinal and aromatic plants and their various uses popular in all the countries of the terroirs. In the new flora of Algeria and southern desert regions, numbered 289 rather rare species, 647 rare, 640 rare, endemic and rare 35 168.

The richness of the Algerian flora in medicinal and aromatic plants is undeniable. Their use in traditional medicine seeks the recent interest in scientific studies ⁶. In order to ensure objectivity of the data obtained in our study, the survey is conducted using a survey or quiz sheet.

QUICK RESPONSE CODE	DOI: 10.13040/IJPSR.0975-8232.8(3).1199-04
	Article can be accessed online on: www.ijpsr.com
DOI link: http://dx.doi.org/10.13040/IJPSR.0975-8232.8(3).1199-04	

This preset is based on four axes ⁷:

- ♣ Information relating to the informant's profile (age, gender, level of education ...)
- ♣ Choice between the two medicines (traditional and modern)
- ♣ Information relating to the nature and pharmaceutical techniques of herbal drug used (local name, part used, method of preparation, dose ...)
- ♣ Information on the use of medicinal plants in the treatment of different types of diseases. The survey questioning 300 people of different ages, sexes and different intellectual levels. Who informed us about local and traditional therapeutic applications of the population of the daïra of Oued Tlelat. **Fig. 1.**

Time spent on each interview was about 20 minutes during every interview we collected all the information on the respondent and plants used.

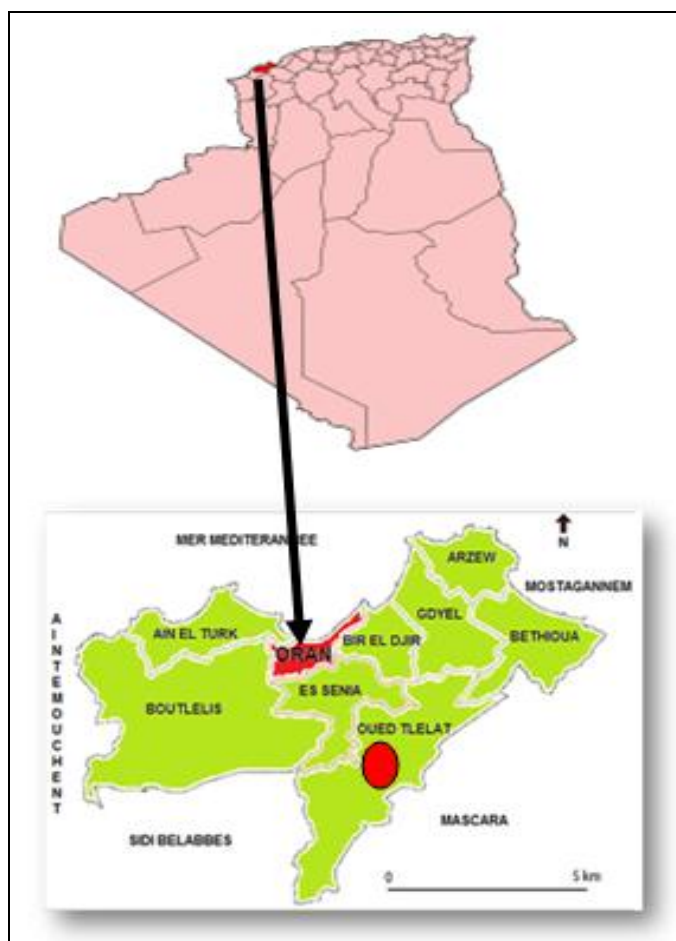


FIG.1: STUDY ZONE

RESULTS AND DISCUSSION: Knowledge of the properties and use of medicinal plants are usually acquired through a scientific and experimental knowledge accumulated and passed from one generation to another. The results actually show that people who belong to the age group above 45 years have more knowledge in medicinal plants compared to other age groups. **Fig. 2**

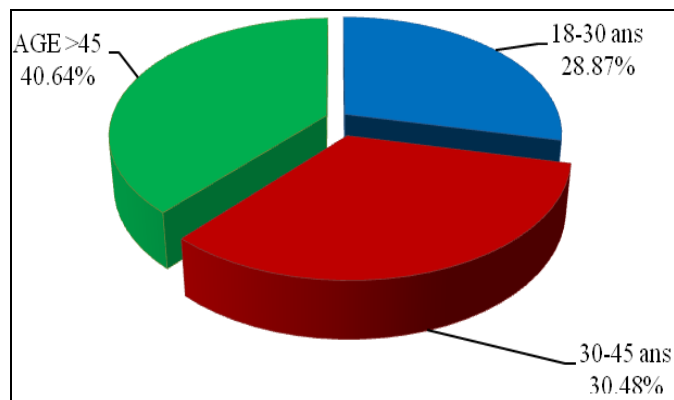


FIG. 2: DISTRIBUTION OF USERS OF MEDICINAL PLANTS BY AGE

Medicinal plants are much used by married people (74.33%) than singles (25.66%), because his last will use medicinal plants as they are prepared by third parties (parents ...) by tale brides prefer traditional medicine to minimize hardware costs required by the physician and pharmacist. **Fig. 3**

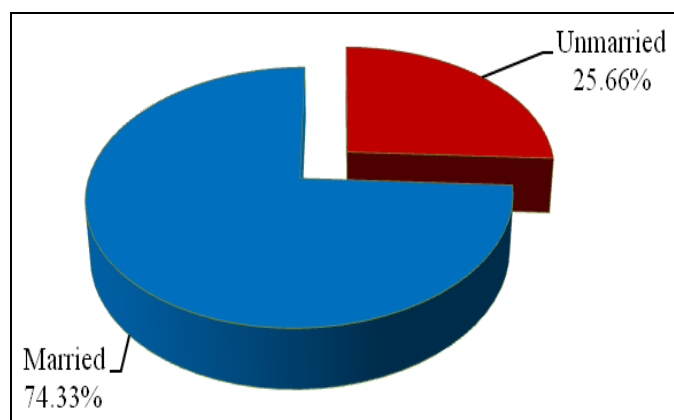


FIG. 3: DISTRIBUTION OF USERS OF MEDICINAL PLANTS BY FAMILY

The use of medicinal plants varies by gender. 59.35% of women use more herbs than men 40.64%. This explains the use of medicinal plants by women in other areas, as mothers or they give first aid especially for their children and more in the art of cooking. **Fig. 4.**

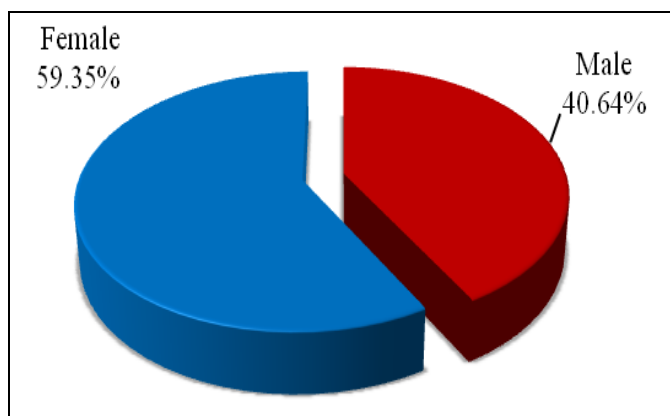


FIG. 4: DISTRIBUTION OF USERS OF MEDICINAL PLANTS BY SEX

In the study area, the vast majority of users of medicinal plants have a high school, with a percentage of 36.89%. **Fig. 5**

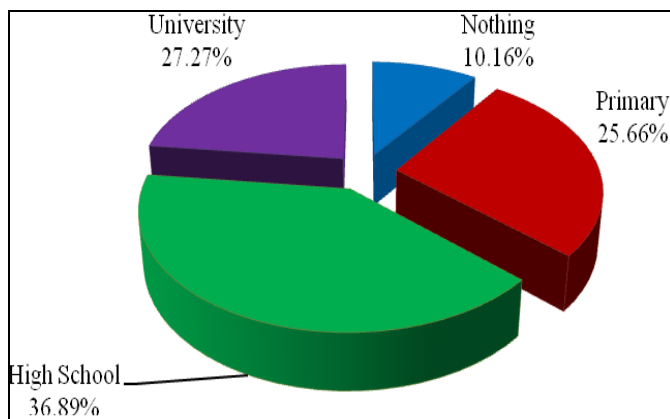


FIG. 5: DISTRIBUTION OF USERS OF MEDICINAL PLANTS ACCORDING TO THE ACADEMIC

The majority of those surveyed use medicinal plants for therapeutic use with a rate of 91.44%. The cosmetic use is in second place with a rate of 8.55%. **Fig. 6**

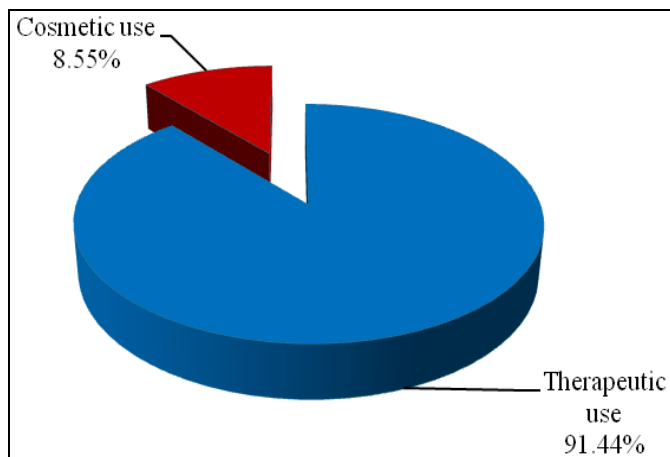


FIG. 6: DISTRIBUTION OF USERS OF MEDICINAL PLANTS BY THE USE OF PLANT

The percentage of use of these parts shows that the leaves and seeds are the most commonly used 40.64% and 24.06%. The fruits are in second place with a percentage of 7.48%. Stems, bark, bulbs, rhizomes, flowers and roots have a percentage varies between 5.34% and 0.53%. **Fig. 7**

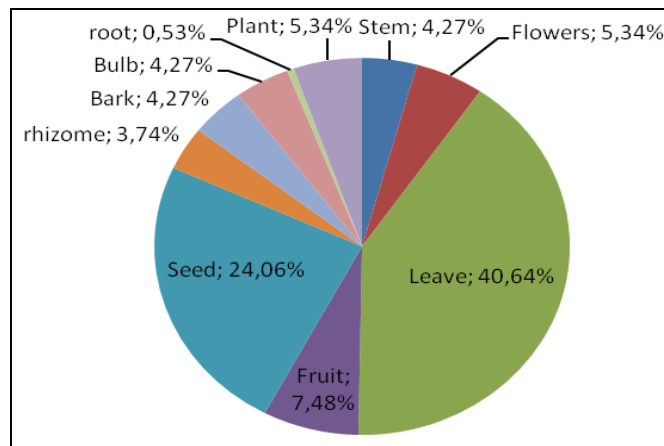


FIG. 7: DISTRIBUTION OF USERS OF MEDICINAL PLANTS USED BY THE PARTY

The leaves are the most used plant parts in the region of Oued Tlélat it's the same result ⁸. That can be explained by the ease and speed harvest ⁹ but also by the fact that they are the site of photosynthesis and sometimes storage of secondary metabolites responsible for the biological properties of the plant ¹⁰.

To facilitate administration of the active ingredient, several preparations modes are used namely the decoction, infusion, poultice, raw and cooked.

The infusion, decoction and thought are the most used methods of preparation. **Fig. 8**

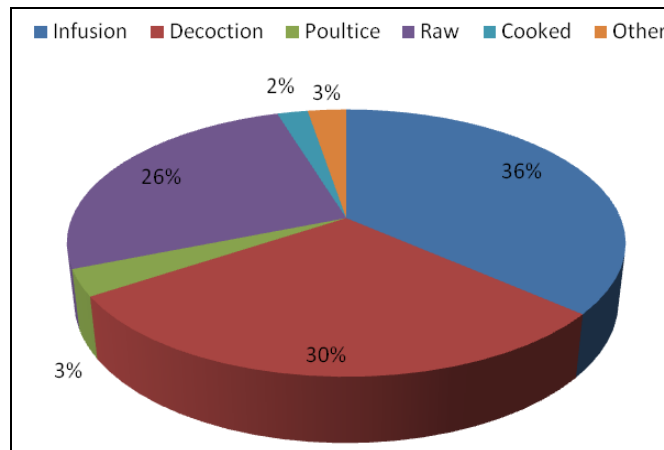


FIG. 8: DISTRIBUTION OF USERS OF MEDICINAL PLANTS ACCORDING TO THE METHOD OF PREPARATION

42% of users of medicinal plants prefer the spoon, the other was 25% using pursed and 23% using handle. The dose remains random and linked as part of the plant used. **Fig. 9** "No substance is poison itself; it is the dose that makes the poison."

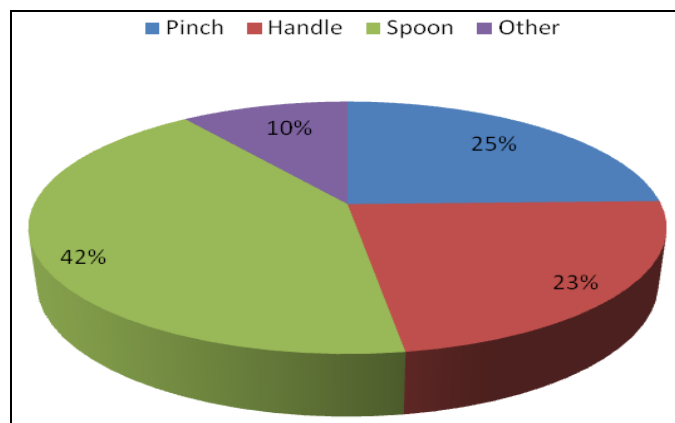


FIG. 9: DISTRIBUTION OF USERS OF MEDICINAL PLANTS ACCORDING TO THE DOSE USED

Most species listed in the area is indicated in the treatment of the following **Table 1**.

TABLE 1: PERCENTAGE OF TREATED AFFECTIONS

Affections	Percentage (%)
Respiratory affections	31.74%
Affections of the digestive tube	16.40%
metabolic disorders	15.34%
dermatological infections	11.11%
genitourinary infections	5.29%
neurological disorders	4.23%
cardiovascular diseases	3.17%
musculoskeletal disorders	2.11%
Disorders of the glands	2.11%

16.04% of the populations refer to herbalists and 9.62% of people refer to themselves by consulting the books of traditional Arab medicine either by following television programs or based on the experience of others 67.37% thanks to the existence of many medicinal plants in their enclosures. **Fig. 10**. 64.17% of people think Oued Tlélat medicinal plants allow healing of the treated diseases. 35.29% believe that medicinal plants only allow an improvement in health status. However 0.53% of

the population believes that herbal medicines have side effects. **Fig. 11**.

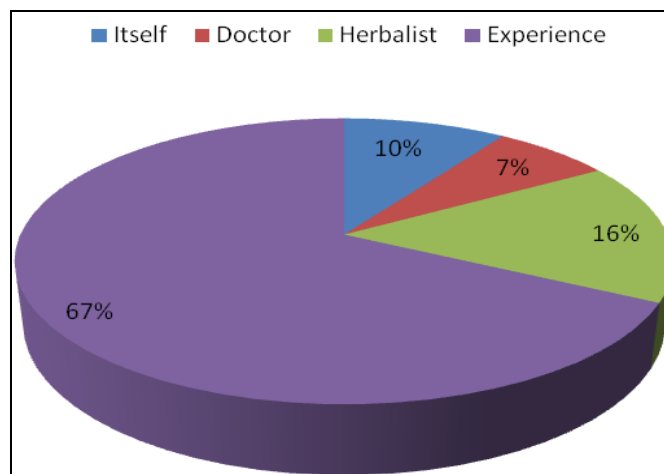


FIG. 10: DISTRIBUTION OF USERS OF MEDICINAL PLANTS IN THE MANNER OF POSSESSION INFORMATION CONCERNING THE USE OF MEDICINAL PLANTS

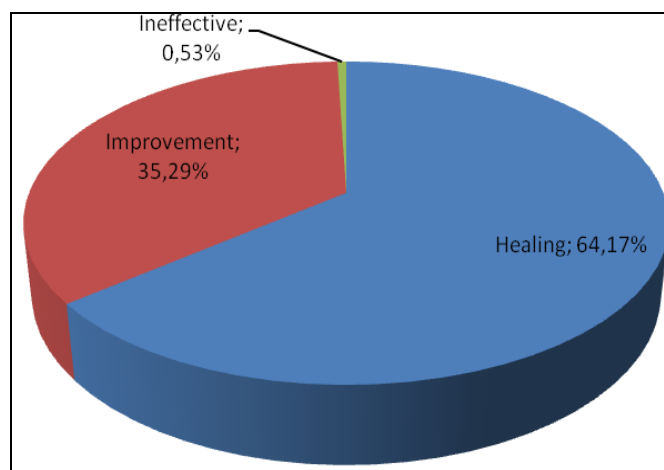


FIG. 11: DISTRIBUTION OF USERS OF MEDICINAL PLANTS ACCORDING TO THEIR EFFECTIVENESS INFORMATION CONCERNING THE USE OF MEDICINAL PLANTS

Floristic analysis: Based on 300 questionnaires carried out in the Circle of Oued Tlélat, a floristic ethno catalog was developed. The floristic analysis of species found shows that 59 species are used. They are distributed in 29 botanical families. **Table 2**.

TABLE 2: NATURE AND SPECIES RICHNESS OF PLANT FAMILIES USED IN THE CIRCLE OF OUED TLELAT

Family	Species			Number of species	Specific percentage
	Scientific name	Common name	Arabic name		
Apiacées	<i>Cuminum cyminum</i>	Cumin	كمون	4	9.52%
	<i>Daucus carota</i>	Carotte	الجزر	1	
	<i>Pinpinella anisum</i>	Anis vert	زريرة البسباس	9	
	<i>Apium graveolens</i>	Céleri	كرافس	2	

	<i>Petroselinum sativum</i>	Persil	بقدونس	2	
Arécacées	<i>Phoenix dactylifera</i>	Palmier dattier	تمر	1	0.52%
Aristolochiacées	<i>Aristolochia baetica</i>	Aristolochie	بن رستم	2	1.05%
Asteracées	<i>Inula viscosa</i>	Inule visqueuse	ماقرمان	1	3.70%
	<i>Artemisia herba-alba</i>	Armoise blanche	الشيح	2	
		Camomille	البابونج	4	
Brassicacées	<i>Sinapis alba</i>	Moutarde blanche	خردل	1	0.52%
Cactacées	<i>Opuntia ficus-indica</i>		درقة الصبار	1	0.52%
Chenopodiaceae	<i>Atriplex halimus</i>	Pourpier de mer	قطف	4	2.11%
Curcurbitacées	<i>Cucumis sativus</i>	Concombre	الخيار	2	1.05%
Ericacées	<i>Vaccinium myrtillus</i>	Myrtille		1	0.52%
Fabacées	<i>Trigonella foenum</i>	Fenugrec	الحلبة	8	7.40%
	<i>Vicia faba</i>	Fève	الفول	1	
	<i>Lens exulenta</i>	Lentille	العدس	1	
	<i>Ceratonia siliqua</i>	Caroubier	الخروب	3	
	<i>Cassia senna</i>	Séné	سنا المكسي	1	
Hippocatanacées	<i>Aexulus hippocasnum</i>	Marronnier d'inde	القسط الهندي	1	0.52%
Labiaceae	<i>Ocimum basilicum</i>	Basilic	حبق	4	2.11%
Liliacées	<i>Allium sativum</i>	Ail	الثوم	9	6.34%
	<i>Allium cepa</i>	Oignon	البصل	3	
Lamiacées	<i>Lavandula officinalis</i>	Lavande	خزامة	4	29.62%
	<i>Jumperus communis</i>	Genévrier	عر عار	2	
	<i>Mentha pulegium</i>	Menthe pouliot	فليو	1	
	<i>Thymus vulgaris</i>	Thym	ز عتر	26	
	<i>Melissa officinalis</i>	Mélisse	مليسا	1	
	<i>Salvia officinalis</i>	Sauge	مريمية	3	
	<i>Rosmarinus officinalis</i>	Romarin	اكليل الجبل	5	
	<i>Mentha spicata</i>	Menthe	النعناع	14	
Lauracées	<i>Cinnamomum laureiri</i>	Cannelle	قرفة	4	2.64%
	<i>Laurus mobilis</i>	Laurier	الرند	1	
Linacées	<i>Linum usitatissimum</i>	graine de lin	زريعة الكتان	3	1.58%
Illiciaceae	<i>Lllicium verum</i>	Badiane chinoise	النجمة	2	1.05%
Myrtacées	<i>Eucalyptus globulus</i>	Eucalyptus	الصفصاف	2	2.64%
	<i>Myrtus communis</i>	Myrte	ريحان	1	
	<i>Eugenia caryophyllata</i>	Clou de girofle	قرنفل	2	
Poacées	<i>Vulgare hordeum</i>	Orge	الشعير	2	1.05%
Punicacées	<i>Punica granatum</i>	Grenadier	الرمان	4	2.64%
	<i>Lawsonia inermis</i>	Hénné	الحنة	1	
Ranunculacées	<i>Nigella sativa</i>	Nigelle	الحبة السوداء	3	1,58%
Rosacées	<i>Prunus domestica</i>	Prune	برقوق	1	1.05%
	<i>Prunus avium</i>	Cerise	حب الملوك	1	
Rubicées	<i>Coffea arabica</i>	Café	قهوة	1	0.52%
Rutacées	<i>Ruta montana</i>	La rue	الفيجل	1	3.70%
	<i>Citrus limon</i>	Citron	ليمون	4	
	<i>citrus aurantium</i>	Orange	برتقال	2	
Solanacées	<i>Solanum tuberosum</i>	Pomme de terre	البطاطا	1	1.05%
	<i>Solanum lycopersicum</i>	Tomate	طماطم	1	
Urticacées	<i>Urtica dioica</i>	Ortie	حريق	3	1.58%
Verbinacées	<i>Verbena officinalis</i>	Verveine	لويزة	13	6.87%
Zingibéracées	<i>Eletteria cardamomum</i>	Cardamome	حب الهال	2	5.82%
	<i>Zingiber officinale</i>	Gingembre	الزنجبيل	5	
	<i>Curcuma aromatica</i>	Curcuma	كركم	4	
Zygophyllacées	<i>Peganum harmala</i>	Harmel	الحرمل	1	0.52%

CONCLUSION: This floristic study ethnobotany was conducted in order to achieve the fullest possible inventory of medicinal plants in the region of Oued Tlélat and generally gather information about the therapeutic uses practiced in the region.

Using a questionnaire, the series of ethnobotanical surveys in the region, have allowed us to inventory 59 species belonging to 29 different families flora including three are the most dominant, including Lamiaceae, Apiaceae and Fabaceae.

The most cited plants *Thymus vulgaris*, *Mentha spicata* and *Verbena officinalis*. The ethnobotanical survey is essential for the knowledge of medicinal plants and their uses. Extensive knowledge of how to use the plants against various diseases is very possible in areas where the use of plants is still of great importance.

ACKNOWLEDGEMENT: Thanks to the local population of oued tlélat (Algeria) and nature that we give the medicinal plants

CONFLICT OF INTEREST: The authors declare no conflict of interest.

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How to cite this article:

Bouredja N, Messaoudi N and Benyamina K: Ethnobotanical and floristic study of medicinal plants in the region of Oued Tlelalt, Algeria. Int J Pharm Sci Res 2017; 8(3): 1199-04. doi: 10.13040/IJPSR.0975-8232.8(3).1199-04.

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