PLACE OF LABIATES IN FOLK MEDICINE OF THE AREA OF M’SILA (ALGERIA).

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ABSTRACT

The aim of this study was the inventory and the identification of labiates among the medicinal plants used in traditional medicine by the community of M’ila, North center-East of Algeria. Ethnobotanical data from local population were collected by direct interviews and a semi-structured questionnaire carried out by interviewees belonging to the population. Various data on informants were noted. From 82 plant species belonging to 33 families listed, Lamiaceae species represent 22% of the total plants listed and 48.6% of the frequency of use. Their botanical and vernacular names, medicinal part used and uses are given. Among diseases and ailments treated by labiates are stomach troubles and colic, diabetes, rheumatism, hypertension, eczema, anemia and cancer. Medicinal plants are frequently employed for treatment of ailments and illness in the community of M’ila in spite of the availability of the prescribed drugs. The documentation of this ethno-medicinal knowledge is important. The evaluation of the pharmacological activity for promising medicinal plants is suggested.

KEYWORDS: labiates, medicinal plants, Lamiaceae, ethno-botany, traditional medicine, Hodna, Algeria.
INTRODUCTION

The World Health Organization (WHO) estimates that 80% of the populations living in rural areas in developing countries depend on traditional medicine for their health care needs. WHO defines traditional medicine as "the total combination of knowledge and practices, whether explicable or not, used in diagnosing, preventing or eliminating physical, mental or social diseases and which may rely exclusively on past experience and observation handed down from generation to generation, verbally or in writing" (WHO, AFR/RC50/9, 2000).

Algeria, concerning its geographical position, presents a broad range of climatic stages inducing a biodiversity with an avalanche of much of plants used like grass, natural food and for therapeutic aims. It is primarily due to its vast geography. The drug companies in this country, but also doctors and chemists seek to better knowing the inheritance of the spontaneous species used in traditional medicine. Their modes of use, their indications in various pathologies thus the active ingredients are studied since tens of years (Djebaili, 1984; Baba Aissa, 1991; 1999. Abdelguerfi, 2003).

For this reason, one of our priorities is to conserve diversity, including uses made of plants by local inhabitants.

MATERIALS AND METHODS

Study area

M’sila state, named capital of the HODNA (fig.1), occupies a privileged position in the central part of northern Algeria; between the Tell and the Sahara. Its climate is continental, semi-arid with an average temperature of 35°C in summer and of 07°C in winter and irregular rainfall of the order 100 to 300 mm/year. It covers an area of 18,718 km² situated at an altitude of 500 meters between 35° 42' 07" N 4° 32' 49"E . (Le Houerou, 1995; Moreau et al., 2005).

The area is characterized by an ecological diversity represented by two principal ecosystems: steppe and forest ecosystems. Of vocation primarily agro-pastoral, with an estimated population of 991846, the principal activity of the population of rural areas is breeding sheep and caprine. Agriculture areas account for 20% of the total area devoted mainly to cereals. Rustic arboriculture is marked by the predominance of the apricot followed by the olive tree (Feliachi et al., 2003; Behlouli et al., 2008; T.A.D - CONSULT; 2008).

Traditional medicine is largely applied in this area and particularly to the south; Biomedical facilities and prescription medications are available in the towns of the state in addition to the herbalist shops, confirm its interest.

Data collection

To carry out this work, ethno-botanical information on the plants used by the population were obtained by visiting Traditional Medical Practitioners (TMP’s), herb sellers and connoisseurs in selected localities. The use of semi-structured questionnaire and oral interviews were adopted to obtain the relevant ethno-botanical data. The questionnaires are divided into 03 sections: (1) was about botanical and vernacular names, plant parts used and medicinal uses. (2). concerns personal information on informer as age, sex educational level and duration of practice. Section (3) contains code or/and collected specimen. The questionnaires were administered by trained interviewees belonging to the population. In some cases, samples were bought in order to get the information.

Dried plant samples collected were identified using flora of Quézel and Santa (1962–1963), Ozenda (1983) and Maire (1952–1987); verified, characterized and confirmed by professional botanists of the department. Voucher specimens were deposited in the Herbarium. In parallel, in order to know the herb diversity of the study zone and confirm availability of local plants used, field research was carried out with the aid of forest executives.
of the district. Plant samples were collected between March and June 2010 and 2011. Identity of collected plants and comparison with herb seller samples was carried out by botanists of the department.

**Fig.1** A map of Algeria showing the location of M’sila in North center-East

![Map of Algeria showing the location of M’sila in North center-East](image)

**Fig.2** Predominant plant families of trado-medicinal use in M’sila.

![Bar chart showing predominant plant families](image)

### RESULTS AND DISCUSSION

**Personal information on informants**

A number of 89 people were interviewed in this study: 18% of traditional medical practitioners (TMP’s), 34% of herb sellers and 48% of connoisseurs. The age of 56% of them exceeds 30 years, 38% have no educational level and 70% were women. In this area, all inhabitants were concerned with traditional use of plants. However, women had more knowledge on the medicinal species when compared to men. These results indicate the widespread use of plants because of knowledge transmittance between generations and plant availability compared to prescribed medications expensive and non-available sometimes, particularly in rural agglomerations.

It was noted that a small number of people particularly some herb sellers refused to contribute for personal reasons or others related to their trade.
A total of eighty-two plant species and seventy-one genera distributed over thirty-three families with a total frequency 663 were listed. The dominant families were Lamiaceae, Apiaceae, Leguminosae and Liliaceae. Lamiaceae was the most dominant (fig 2).

Lamiaceae species represent 22% of the total plants listed and 48.6% of the frequency of use. People of the study area use frequently plants as remedies for treatment of widespread diseases and ailments; important number of herb sellers and clear frequentation of women to plant shops, availability of spontaneous or cultivated plants in rural areas will explain this situation. In addition high level contribution of women and educational level largely confirm the socioeconomic situation of the region. Table 1 summarizes the stated relationship between medicinal labiate plants and pathologies for which they are used. The major illnesses treated by the indigenous people include digestive disorders, bronchopulmonary problems, skin disease, diabetes, vascular system disorders, and other diverse diseases.

Predominance of 04 families as cited in Fig.2 particularly Lamiaceae (Fig.3) is probably due to the availability of these plants in the region.

These results indicate the importance of Lamiaceae family members and their broad use as source of traditional drugs. Some of them listed above are popular species around the world; species belonging to genera Teucrium, Marrubium, Origanum, Rosmarinus, Mentha, Thymus, Ajuga, Salvia, Lavandula are used in the treatment of common illnesses like digestive disorders, abscesses, gout, conjunctivitis, menstrual disorders, cholecystitis, hepatitis, inflammations, liver diseases and in stimulation of fat and cellulite decomposition (Ivancheva and Stantcheva, 2000; Rokaya et al., 2010; Stankovic et al., 2010). 20% of medicinal plants recorded to treat eczema in the study area are labiates (Sari et al., 2012). Some Thymus species are widely used in Algerian folk medicine for their antitussive, antiseptic, expectorant, anti-helmintic and antispasmodic properties (Hazzit et al., 2009).
<table>
<thead>
<tr>
<th>Plant name (local name)</th>
<th>Part used</th>
<th>Preparation</th>
<th>Medicinal uses</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Ajuga iva</em> L. Shreb (Chendgoura)</td>
<td>Whole plant</td>
<td>Infusion, Powder + honey</td>
<td>Stomachic; diabetes; hypertension; tonic; cephalic; diarrhea; fever.</td>
</tr>
<tr>
<td><em>Lavandula multifida</em> L. (Khzama)</td>
<td>Aerial parts, leaf</td>
<td>Infusion, Ocular drip, Cataplasm for head</td>
<td>Sedative; antispasmodic; cancer; astringent; stomachic.</td>
</tr>
<tr>
<td><em>Lavandula stoechas</em> L. (Halhal)</td>
<td>Aerial parts, leaf</td>
<td>Infusion, Decoction</td>
<td>Asthma, influenza, wounds,</td>
</tr>
<tr>
<td><em>Marjorana majorana</em> L. (Madqouch)</td>
<td>Flowered tops, leaf</td>
<td>Infusion, Decoction</td>
<td>Regulation; sedative; cramp</td>
</tr>
<tr>
<td><em>Marrubium vulgare</em> L. (Mariouet)</td>
<td>Aerial parts, leaf</td>
<td>Cataplasm for the head</td>
<td>Diabetes; febrifuge; vermifuge; diarrhea.</td>
</tr>
<tr>
<td><em>Marrubium supinum</em> L. (Mariouet)</td>
<td>Aerial parts, leaf</td>
<td>Infusion, Ocular drips</td>
<td>Fever, otitis, slimming, hypertension, eczema</td>
</tr>
<tr>
<td><em>Melissa officinalis</em> L. (Teronjene)</td>
<td>Aerial parts</td>
<td>Infusion, Powders, Bath</td>
<td>Sedative; hypotension; rheumatism.</td>
</tr>
<tr>
<td><em>Mentha spicata</em> L. (Naânaâ)</td>
<td>Aerial parts</td>
<td>Infusion</td>
<td>Hypotension; sedative; disinfectant; astringent</td>
</tr>
<tr>
<td><em>Mentha pulgium</em> L. (Fliou)</td>
<td>Aerial parts</td>
<td>Infusion</td>
<td>Antispasmodic, hypotension, stomach pains and stomachic</td>
</tr>
<tr>
<td><em>Ocimum basilicum</em> (Hbaq)</td>
<td>Flower, leaf</td>
<td>Infusion</td>
<td>Tension; stomachic; sedative; aerophagia.</td>
</tr>
<tr>
<td><em>Origanum glandulosum</em> Desf. (Zaâter)</td>
<td>Leaf, flower, flowered tops, aerial parts, roots</td>
<td>Infusion, Powder + olive oil</td>
<td>Hypotension, antispasmodic; astringent.</td>
</tr>
<tr>
<td><em>Origanum majorana</em> L. (Zaâter el moulk)</td>
<td>Aerial parts</td>
<td>Evaporation of powder + olive oil</td>
<td>Tension; stomachic; sedative; respiratory tract</td>
</tr>
<tr>
<td><em>Rosmarinus officinalis</em> L. (Klil)</td>
<td>Aerial parts, leaf</td>
<td>Infusion, Compress</td>
<td>Pain abdominal; tonic; rheumatism; circular disorder.</td>
</tr>
<tr>
<td><em>Salvia officinalis</em> L. (Miramia)</td>
<td>Aerial parts, leaf</td>
<td>Infusion, Powder + honey, Powder</td>
<td>Diabetes; stomachic; stomach pain, choleraic.</td>
</tr>
<tr>
<td><em>Salvia verbenaca</em> L. (Khayata)</td>
<td>Aerial parts, leaf</td>
<td>Infusion, Decoction</td>
<td>Aromatic, stomachic, tonic, vulnerary, disinfectant, antispasmodic, antisudoral, astringent (diarrhea), carminative,</td>
</tr>
<tr>
<td><em>Teucrium polium</em> L. (Djaïda)</td>
<td>Aerial parts, leaf</td>
<td>Infusion, Powder</td>
<td>Disinfectant; stomachic; hemorrhoids; weakens</td>
</tr>
<tr>
<td><em>Thymus algeriensis</em> B. et R. (Zâaitra)</td>
<td>Aerial parts, leaf</td>
<td>Infusion, Decoction</td>
<td>Hypertension, carminative, diabetes, vermifuge, cholesterol, anginas, aromatic</td>
</tr>
<tr>
<td><em>Thymus ciliatus</em> (Tourn.) L. (Djertil)</td>
<td>Aerial parts, leaf</td>
<td>Infusion, Decoction</td>
<td>Antibiotic vermifuge; carminative; tonic</td>
</tr>
</tbody>
</table>
Laboratory studies report the anti-diabetic activity of aqueous extracts of some plants of the study area; oral administration of 200 and 300 mg/kg body weight of aqueous extract the *Marrubium vulgare* induced a significant antidiabetic effect and anti-hyperlipidemic effect. (Boudjelal et al., 2012). The Antioxidant effect of *Ajuga iva* aqueous extract and other biological activities of some Algerian medicinal plants extracts have also been cited (Djeridane et al., 2006; Taleb-Senouci et al., 2009). Methanolic extracts of *Teucrium polium* and *Ajuga iva* present antibacterial activity against some pathogenic bacteria (Zerroug et al., 2011).

**CONCLUSION**

Traditional medicine is usually exerted by people because the use of medicinal plants decreases the disadvantages of the chemical drugs.

This study was aimed at the Lamiaceae plants being used by the local people of M’sila. These plants are used routinely for treatment of gastrointestinal problems, hypertension and particularly for some diseases like diabetes, asthma and eczema on the other hand. The main plants are; *Rosmarinus officinalis* L., *Ajuga iva* L. Shreb, *Marrubium vulgare* L., *Mentha spicata* L., *Origanum glandulosum* Desf., *Thymus ciliatus* (Tourn.) L. and *Teucrium polium* L. The preservation of the traditional knowledge is an essential requirement for maintaining continuity and transmission of traditional medicine.

It should be noted that these results indicate that population of the area of M’sila uses medicinal plants for the treatment of current ailments and very important diseases. Labiates have a significant role and are applied as infusion of the aerial parts or as powder mixed with honey or olive oil. The indigenous population also uses folk-medicines derived from mineral and animal origin.

Many valuable drugs have found their way into the contemporary medicine as a result of studies on folk medicine remedies. The present study is also an eye opener for the Modern researchers to explore much more from the so called Medicinal plant world.

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