

Ethnomedicinal Survey of Medicinal Plants Used in the Western Region of Algeria

Hammadi D, Ahmed M*, Boudjethia KW, Boukhalfa AI and Djebli N

Laboratory of Pharmacognosy Api Phototherapy; Department of Biology, Faculty of Life and Natural Sciences, University of Mostaganem; Algeria

Abstract

Since ancient times plants have been indispensable sources of both preventive and curative traditional medicine preparations for human as well as animals. In Algeria, plant remedies are still the most important and sometimes the only sources of therapeutics for nearly 50% of human and more than 70% in rural population. Therapeutic uses of the same plant species for humans in west of Algeria have also been compared. The identification of plant species traditionally from the local flora could be also potentially useful for the isolation of natural extracts of phyto-therapeutic interest to increase a result of resistance to the antibiotics.

An ethno botanical study of medicinal plants was carried out in the west region of Algeria. It was made in order to establish a catalog of medicinal plants and gather all the information about the therapeutic uses practiced by the local population in the study area. Using survey files of ethno-botanical field was introduced at this study. The results have identified 39 medicinal plants used in the west region of Algeria.

This work showed that the leaves and seeds are the most used parts and most of the remedies are prepared as is brewing. In terms of the treated diseases, digestive disorders rank first with a rate of (42.5%), followed by skin diseases (17.5%), rheumatism (10.0%) Face care (5.0%). Our results should be the first valuable source of information at ethno-botany and phyto-pharmaceutical products in the west region of Algeria. They could be a database for future research in a phyto-botany and Pharmacognosy studies.

Keywords: Survey; Ethno botany; Medicinal plants; Phyto-pharma products

Introduction

The medicinal plants are part of the history of all the continents across the centuries, the knowledge concerning the plants is organized, documented, and has been transmitted from generation to generation. Today, the use of medicinal plants for the treatment of many diseases is associated to folk medicine from different parts of the world. Natural products from some plants, fungi, bacteria and other organisms continue to be used in pharmaceutical preparations either as pure compounds or as extracts [1].

In Africa, millions of people use the traditional medicine exclusively that it remains the most affordable and effective for those who have decided to address their daily headaches differently, by turning its back on the chemicals of the current medicine. In contrast (80%) of the world's population is used on traditional medicine for its first health care [2].

The Morocco, by the richness and diversity of the origin of its flora, constitutes a true reservoir plant breeding, with approximately 4,500 species and sub-species of vascular plants, which allows him to occupy a privileged place among the Mediterranean countries which have a long medical tradition based on medicinal plants [3].

However, the medicinal flora Algeria remains unrecognized until our days, because on the few thousands of plant species, the medicinal species counted do not exceed the 260 species the traditional medicine has always occupied an important place in the traditions of medication in Algeria [4].

In addition to the program of International Union for Conservation of Nature (IUCN) who are involved in the conservation of biodiversity and the sustainable use of natural resources in North Africa [5] and in order to safeguard the knowledge acquired by the local population and to translate the popular knowledge, we have achieved an ethno-botanical study on the medicinal plants mainly in the region of Mostaganem (survey of plants and phyto pharmaceutical products)

and other regions in the west of Algeria (Mostaganem,Oran, Relizane, Mascara, Saida, Tlemcen, Naama).

This area is characterized by a climate; The height mountains of (Mascara, Saida, Relizane, Tlemcen), the climate is much more severe, sometimes with temperatures below 'zero' and an abundance of snow in the winter; and very hot summers, very dry, especially toward the south, where rainfall is lower. However in the highest parts the summer temperature is moderated by the altitude.

The North West (Mostaganem, Oran), the classic Mediterranean climate is marked by a summer drought, mild winters. During the summer months, precipitation becomes rare or even non-existent; the sky is bright and clear. The subtropical anticyclone covers the organize region for almost four months; however, the region is well watered during the winter; the low rainfall (294 mm of rain) and their frequency (72 days per year) are also characteristic of this climate.

The Sahara (Naama is a region very windy and dry. The thermal amplitudes are generally considerable because of the variations in temperature and also extremely high during the day and very low during the night [6]. This explains the wealth of this region in many species of medicinal and aromatic plants (Figure 1).

***Corresponding author:** Ahmed M, Laboratory of Pharmacognosy Api Phototherapy; Department of Biology, Faculty of Life and Natural Sciences, University of Mostaganem, Algeria, Tel: 21365234059; Fax: 21365234059; E-mail: moussa7014@yahoo.fr

Received November 04, 2015; **Accepted** December 03, 2015; **Published** December 07, 2015

Citation: Hammadi D, Ahmed M, Boudjethia KW, Boukhalfa AI, Djebli N (2015) Ethnomedicinal Survey of Medicinal Plants Used in the Western Region of Algeria. Med Aromat Plants 5: 221. doi:10.4172/2167-0412.1000221

Copyright: © 2015 Hammadi D, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.



Figure 1: Geographical locations of the study areas (Google Maps).

Material and Methods

The ethno-pharmacological surveys have been conducted during two campaigns (2014-2015). This study is fixed in the firstly by drafting of a catalog of the most medicinal plants used at this study area (western region of Algeria). Thus from the sampled variables, including gender, academic level, age and family situation and the place of residence in relation to the study area. The data collected for each plant include the local name common, the type of plant, the uses, the used parts of the plants, the mode of preparation, the collection period; as the first survey; for the second survey was about the pharmaceutical products plant-based, different pharmacies in the study area.

Results and Discussion

Only the results of medicinal plants having a relatively high frequency of use were treated. The investigation of the survey 1 showed the use of medicinal plants according to the age; sex; level study and family situation.

Use of medicinal plants according to the age

The use of medicinal plants in the western region of Algeria: Among all age groups we had a predominance in persons aged 30 to 45 years (58, 62%); however in the age groups of 18 to 30 years, we noted a rate of 25.86/per cent and for the older people, the use of medicinal plants (15, 51%) did not represent a large therapeutic interest.

The knowledge of the properties and uses of medicinal plants are generally acquired following a long experience accumulated and transmitted from one generation to another. The transmission of this knowledge is in danger now because it is not always ensured. The results indeed show that the people who belong to the age class of 30 to 45 years have more knowledge in medicinal plants compared to other classes of ages. The experience accumulated with age constitutes the main source of information at the local level about the use of plants in traditional medicine. We also noted a loss of information on medicinal plants, which is explained by the distrust of some people, particularly

the young, who tend to do more to believe in this traditional medicine.

Use of medicinal plants according to the sex

The use of medicinal plants varies according to sex. The women use much more medicinal plants than men. In fact, 87 percent of women interviewed use traditional medicine against 61 percent of the male population. This can be explained by the use of medicinal plants by women in other areas that the therapy and by their responsibility as mothers, they are the ones who give the first care in particular for their children. The same results was confirmed in morocco by Benkhniqeu et al [4].

Use of medicinal plants according to the level of study

In the study area, the vast majority of users of medicinal plants are illiterate, with a percentage of 51.72%. This relatively high percentage is in direct correlation with the level of education of the local population. However, the persons having the level of primary school have a percentage of use non-negligible 25.86% of medicinal plants; whereas those having a level of secondary and university studies, use very little medicinal plants 12.06 per cent and 10.34 percent respectively.

Use of medicinal plants according to the family situation

The medicinal plants are much more used by the married persons (77.58%) than by the single (22.43%), because the latter allows avoiding or minimizing the hardware load required by the doctor and the pharmacist.

Use of medicinal plants according to the treated diseases; the different parts of the plants

The analysis of the obtained results shows that the area of study presents globally large number of families whose the majority of listed species are indicated in the treatment of digestive disorders (42.5%), skin diseases (17.5%), arthritis (10%), facial treatment (5%). The rest includes other diseases with rate of 25% (Figure 2).

The used parts in traditional medicine including the bulb, seed, rhizome, roots, bark, and whole plant, the aerial part as leaves, flowering tops and fruit.

The percentage of use of these parts shows that the sheet and the most used; the seed 20.68% each. The leaves and fruit are in second place with a respective percentage of 15.51% and 12.06%. The root is at 8.62% (Figure 3).

The user of medicinal plants depending on the dose and preparation methods

In order to facilitate the administration of the active ingredients, several modes of preparation are used mainly decoction, infusion, fumigation, cataplasms. The infusion and fumigation are the two most used methods of preparation with a rate of 34.48% and 29.31%

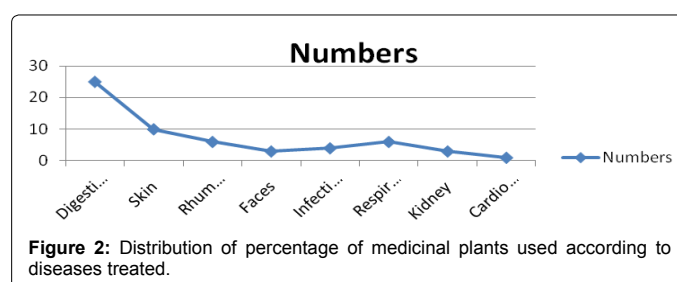
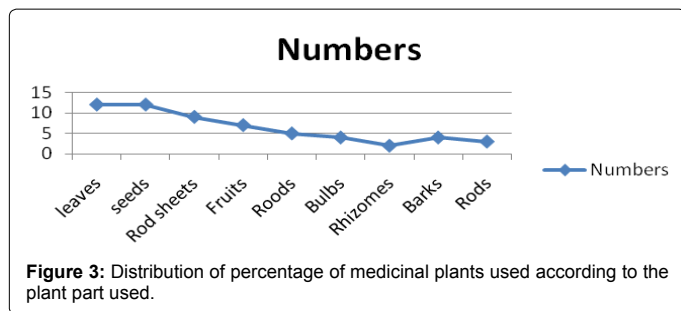
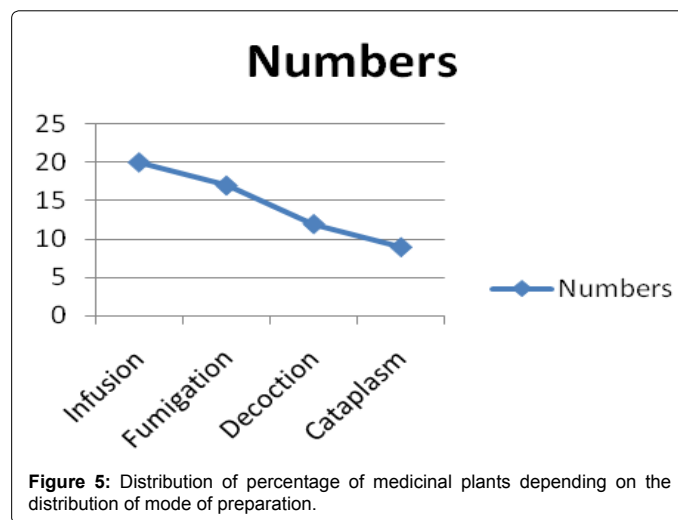
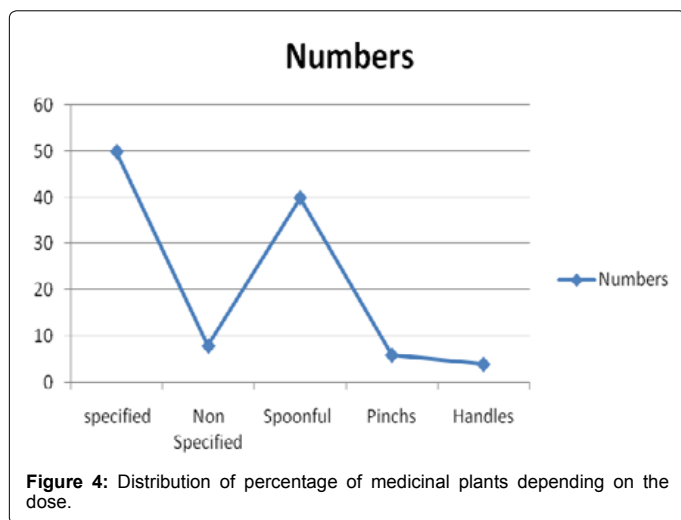


Figure 2: Distribution of percentage of medicinal plants used according to diseases treated.



respectively. However 86.20% of users of medicinal plants in our study use medicinal plants are non-specific doses, 12% by pinch, 80% and 8% by spoonful by handle. The dose is still random while 13.70% of the population uses medicinal plants with specific doses (Figures 4,5 and Table 1).

The results of the survey 2 in the table; all the pharmaceutical products based on medicinal plants found at pharmacists. We noticed that all phyto-pharmaceuticals medicines based found at the pharmacists were oral solutions and tablets with a rate of 40.9% and 36.36% respectively.



	Common name	Pharmaceutical form	Trade name	Used for
<i>Rosmarinus officinalis</i> <i>Mentha piperita</i> <i>Cupressus</i> <i>Aloé vera</i>	Rosemary mint cypress aloe	rinse solution based on essential oils	Tartrex	oral gingival disease (canker sore, Bad breath, sensitive gums, lighter bleeding, tartar)
<i>Asparagus racemosus</i> <i>Embelia ribes</i> <i>Eclipta alba</i> <i>Zingiber officinale</i> <i>Apiumgraveolens</i> <i>Cinnamomum cassia</i> <i>Piper longum</i>	Satavar Devnagari Mahakanni Ginger Celery China cinnamon Along pepper	Oral solution	Appéti-kid	digestive disorders (poor appetite, digestive spasms and flatulence)
<i>Anethum sowa</i> <i>Pimpinella anisum</i> <i>Mentha piperita</i>	Dill Anise Mint	Oral solution	baby gaz	digestive disorders (colic, gas, abdominal pain, regurgitation, hiccups)
<i>Adhatoda vasica</i> <i>Ocimum sanctum</i> <i>Solanum xanthocarpum</i> <i>Viola odorata</i> <i>Jenipersus communis</i> <i>Clerodendrum serratum</i> <i>Piper longum</i> <i>Curcuma longa</i> <i>Piper nigrum</i>	Malabr nut Basil Kantakari Frangrant violet Juniper Clerodendron Along pepper Turmeric Black pepper	Oral solution	Bronchonet	respiratory disorders (cough, mild respiratory infections)
<i>Eucalyptus globulus</i>	Blue gum	Oral solution	Flupex	respiratory disorders (bronchial secretions, bronchitis and tracheobronchites)
<i>Hedera helix L.</i>	Ivy	oral solution based the dry extract of leaves	Liblab (prospan)	bronchial disorders (inflammation of respiratory system, chronic bronchial inflammation)

<i>Thymus vulgaris</i>	Thym	Oral solution	Tymoseptine	respiratory disorders (sore throat, hoarseness, productive cough)
<i>Hedychium spicatum</i> <i>Emblica officinalis</i> <i>Citrus limon</i> <i>Carum copticum</i> <i>Embelia ribes</i> <i>Piper longum</i> <i>Zingiber officinalis</i> <i>Caryophyllus aromaticus</i> <i>Cinnamomum cassia</i> <i>Eleteria cardamome</i> <i>Myristicafragrans</i>	Wild ginger Amla Lemon Ajwain False black pepper Along pepper Ginger Clover China cinnamon Green cardamon Nutmeg	Oral solution	Vomiteb	digestive disorders (vomiting, nausea)
<i>Ocimum sanctum</i> <i>Glycerrhiza glabra</i> <i>Curcuma longa</i> <i>Zingiber officinalis</i> <i>Adhatoda vasica</i> <i>Solanum indicum</i> <i>Imularacemosa</i> <i>Piper cubeba</i> <i>Terminalia belerica</i> <i>Aloe barbadensis</i>	Basil Licorice Turmeric Ginger Malabr nut Poison Berry Pushkarmoola Cubeb Bahera Aloe	Oral solution	Zecuf	respiratory disorders (cough, pharyngitis, laryngitis, bronchitis, beginning of pertussis, sore throat, persistent hiccups)
<i>Eucalyptus globulus</i>	Blue gum	suppository	Camphobiotic	respiratory (influenza states, benign acute bronchial affections, bronchitis)
<i>Foeniculum vulgare</i> <i>Pimpinella anisum</i>	Fennel Saunf-Hindi	Tablet	Carboline	digestive disorders (Carminative effect)
<i>Carica papaya</i> <i>Hordeum vulgare</i> <i>Ananas sativus</i>	Papaya Barley Pineapple	Tablet	Effidigest	troubles digestifs (digestion lente,ballonnement, sensation de lourdeur, somnolence après repas)
<i>Ginkgo biloba</i>	Ginkgo	Tablet	Ginkor fort	disorders of venous circulation legs and symptoms related to hemoroiidaire crisis
<i>Echinacea purpurea</i>	Cone flower	Tablet	Neovox	soothes the throat, soothe coughs, strengthens the defenses of the immune system
<i>Ginkgo biloba</i>	Ginkgo	Tablet	Menoptic	maintenance of memory, intellectual performance and vision
<i>Aesculus hippocastanum</i>	Horse-chestnut	Tablet	Phyveine	hemorrhoids, heavy legs, swollen ankles, varicose veins and capillary fragility
<i>Tagetes erecta</i>	Marigold	Tablet	Suvéal duo	maintaining operation of nervous system reduce fatigue
<i>Arctium lappa</i>	Burdock	Lotion	Saforelle	intimate hygiene
<i>Persea americana</i>	Avocado	Pomade	Biafine	erythema secondary to radiation treatment, first and second degree burns skin wound uninfected
<i>Eucalyptus globulus</i>	Blue gum	pomade	Moov	inflammation and articular pain
<i>Malva Sylvestris</i> <i>Matricaria Chamomilla</i>	Round dock Chamomile	eyewash	Angio-drop	anti-inflammatory

Table 1: The results of the survey 2 in the table; all the pharmaceutical products based on medicinal plants found at pharmacists.

Conclusion

This study allowed us to conclude that, the medicinal plants are much more used by married women of age ranging from 30 to 45 years. There is a massive use of medicinal plants affect the digestive system this is may be due to obesity disseminated in the study region where the diet rich in fat.

The analysis of the Algerian bibliography of medicinal plants showed that the data relating to medicinal plants regional are very fragmentary and dispersed, [7,8] even the know-how is currently being held by few people. In addition, the accelerated destruction in particular

by the drought and the rights of natural spaces, makes it more and more difficult the discovery, exploitation and the backup of the potential of this type where this study was carried out in the western region of Algeria (Mostaganem, Oran, Relizane, Mascara, Saida, Tlemcen, Naama). The information's of medicinal plants [9] found at this study will help us to make a catalog of these plants at this part of Algeria and gather the most information about the therapeutic uses practices by the local population.

References

1. Fakim AG (2006) Review Medicinal plants: Traditions of yesterday and drugs of tomorrow. Molecular Aspects of Medicine 27: 1-93.

2. Ang-Lee MK, Moss J, Yuan CS (2006) Herbal medicines and perioperative care. *JAMA* 286: 208–216.
3. Dakuyov M (2010) Contribution to the study of traditional medicine in the Burkinabe ethno-pharmacological investigation cascades Region. *Dakar* 63: 104.
4. Benkhiguel O, Zidane L, Fadli M, et al. (2011) Etude ethnobotanique des plantes médicinales dans la région de Mechraâ Bel Ksiri (Région du Gharb du Maroc). *Acta Bot Barc* 53: 191–216.
5. Daoudi A, Zerkani S, Nassiri L, et al. (2013) Inventaire des plantes médicinales de la commune d'Agelmoûss – Province de Khénifra-Maroc. *Science Lib; Editions Mersenne* 5, n°131012, 19.
6. Bulletin de la météo d'Algérie 2007.
7. Quyou A (2003) Mise au point d'une base de données sur les plantes médicinales. Exemple d'utilisation pratique de cette base. Thèse de Doct. Univ. Ibn Tofail. Fac. Sci. Kénitra, Maroc. 110.
8. Reguieg L (2011) Using medicinal plants in Algeria. *American journal of food and nutrition*.
9. Valdes B, Rejdali M, Kadmir AE, Jury A, Monts JM (2002) Catalogues des plantes vasculaires du Nord du Maroc, incluant des clés d'identification. *Madrid*. 2: 1498.