



First inventory of medicinal plants used for the treatment of functional intestinal disorders in the region of Sidi Aissa (M'sila, Algeria)

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Abstract

The ethno-botanical surveys carried out using the questionnaire sheets made it possible to inventory 17 medicinal species intended for the treatment of functional intestinal disorders and to collect as much information as possible concerning local traditional therapeutic uses in the region of Sidi Aissa. The leaves and seeds are the most used part, while the mode of preparation differs according to the plant but the decoction and the infusion remain the most widespread mode. These results can be considered as a source of information for scientific research in the field of phytochemistry and pharmacology.

Keywords: M'sila, Sidi Aissa, medicinal plants, ethno-botany

Introduction

Medicinal plants constitute a precious heritage and a real treasure for humanity, and are in great demand in the world and more particularly in developing countries. These medicinal plants are still a source of medical care in developing countries due to the lack of a modern medicinal system. Alongside the programs of some international organizations such as the World Health Union (IUCN), which is interested in promoting the conservation of biodiversity and the sustainable use of natural resources in North Africa, and also the involvement of local communities in the biodiversity conservation [20, 34].

Functional intestinal disorders are frequent symptoms that represent one of the main reasons for consultation for a digestive symptom. The prevalence of this condition in the world population is estimated to be 15–20% [15].

Despite progress in pharmacology, the therapeutic use of medicinal plants is very present in certain countries of the world and especially in developing countries. According to the World Health Organization (WHO), nearly 80% of the populations of developing countries in the African region use traditional medicine [41].

These medicinal plants are important for pharmacological research and drug synthesis not only when their constituents are used directly as therapeutic agent but also as raw material for drug synthesis or model for pharmacologically active compounds [1].

Traditional herbal medicine was well developed in Algeria, but the use of conventional medicine is the cause of a neglect of these ancestral practices, which risk falling into oblivion [31].

The carrying out of ethnobotanical surveys in the region of Sidi Aissa aims to obtain a floristic inventory of the medicinal plants used by the population in the treatment of functional intestinal disorders and the collection of as much information as possible on the therapeutic uses practiced in the study area. The preservation of this knowledge constitutes a stake for the conservation and the valorization of the resources and this within the framework of the sustainable development of the region of Sidi Aissa.

Materials and method

Geographical location of the study area

The Daïra of Sidi Aissa is an administrative district located in the wilaya of M'Sila. The daïra brings together the three communes of Sidi Aissa, Bouti Sayah and Beni Ilmane. It is limited to the north by Dirrha and Maamora, to the east by Hammam Dalaa and Tarmont, to the south by Ain El Hadjel and Sidi ameur, finally by Birine and Ain Ouksir to the west (Fig. 1, 2).

Weather

The climate in M'sila is semi-arid with cold winters. The Köppen climate classification is BSk. The average temperature is 18.6°C and the average annual rainfall does not exceed 250 mm.

The mountainous massifs receive larger quantities of water, of the order of 400–500 mm in the Saharan Atlas and which can reach more than 600 mm in the Monts du Hodna and the Aurès-Belezma.

Ethnobotanical surveys

The ethnobotanical surveys on medicinal plants were carried out during the months of March and April 2022 using a questionnaire sheet, these surveys allowed us to draw up a list of medicinal plants used by the population of Sidi Aissa in traditional herbal medicine. and those used in the treatment of functional bowel disorders.

The scientific identification of the Arabic vernacular names given by the informants was carried out in a parallel way by revisiting the herbalists in the presence of a botanist (K.

Rebbas). The identification of the species was made by the flora of Quezel & Santa (1962-1963)^[30] and the updating of the botanical nomenclature was carried out using the index of the North African database (Dobignard & Chatelain, 2010-2013)^[13].

There are three methods of ethnobotanical surveys, which are the most used, and the most appropriate to our case study, where we filled out 140 survey sheets with people who have knowledge of the therapeutic use of plants.

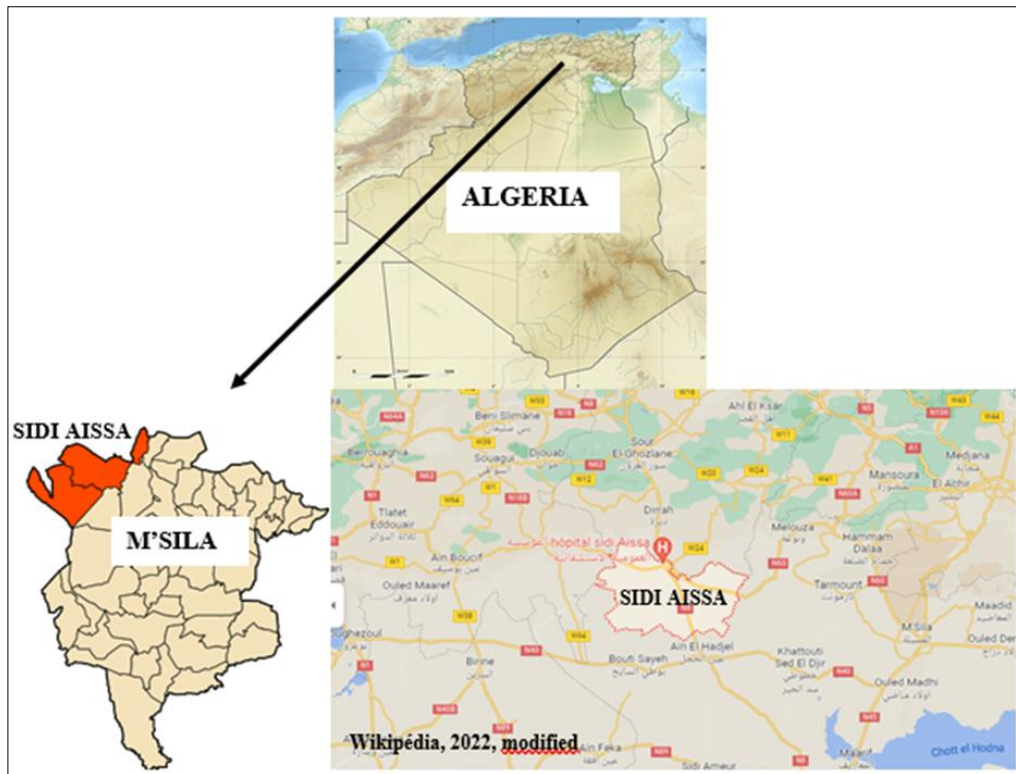


Fig 1: Geographical location of the study area

Surveys of the rural population consists of asking questions to villagers about the plants used in traditional medicine, the parts of the plant used, the methods of preparation, and the types of diseases treated by each plant.

Surveys of herbalists make it possible to draw up a list of spontaneous medicinal plants in the study area. This survey allowed us to collect the necessary information concerning the medicinal plants displayed for sale, the therapeutic uses, the dosage and the diseases treated by each plant.

Surveys of traditional healers show that some family members have significant knowledge of plants of medicinal interest and possess healing gifts. The pharmacological knowledge of plants from traditional healers makes it possible to identify the basic concepts of the perception of the natural environment and the description of diseases^[4].

Questionnaire sheets

The tool of our survey is a form consists of two parts, the first is based on the person surveyed (age, sex, level of education and professional situation), the second part collects information about each plant medicinal plant studied, this information makes it possible to assess the knowledge of the plant, its use, the prescription and the method of preparation recommended by each of the people questioned.



Fig 2: General view of the landscape of sisi aissa (9.04.2022, photos k. rebbas)

Results and discussion

The results obtained from the ethnobotanical surveys are expressed in technical sheets which consist in highlighting the characteristics of the medicinal plants used by the population of the study area. List of medicinal plants used by the population in the treatment of functional intestinal disorders and their therapeutic properties and traditional uses can be found in Appendix 1.

choice between traditional medicine and clinical medicine

The ethnobotanical survey of medicinal plants carried out with the population of Sidi Aissa and the collection of data concerning therapeutic uses, allowed us to describe, classify, and inventory medicinal plants, this floristic inventory highlights a floristic richness of 17 species belonging to 09 botanical families.

Regarding the uses of medicinal plants and the treatment based on these plants and in general, it was found that a large number of people in the population of the study area use phytotherapy and others prefer medicine. clinical.

Use of medicinal plants according to the survey profile

Both men and women are concerned with the use of medicinal plants, however, women use traditional medicine much more than men, because women have multiple functions and responsibilities as mothers that they must take care of. their families, especially their children.

Older people in the 45 to 70 age group use medicinal plants more than other age groups, as their knowledge and experience on the use of plants in traditional medicine.

The transmission of knowledge of the uses and properties of medicinal plants from one generation to another is in danger because it is not always ensured.

According to the censuses carried out with the people who use medicinal plants and according to their level of study, the results obtained show that the illiterate are the most users of the medicinal species followed respectively by the people who have the secondary level, the average level then the university level.

Information about the herbal drug according to the diseases treated

Plants of the Apiaceae family have an important place in herbal medicine in the treatment of functional digestive disorders. This is explained by the pharmacological properties of this family: stimulation of digestive secretions, stimulation of gastric motility, antispasmodic properties, antiseptic properties, and carminative properties^[10,37,40].

The species most cited by patients were: *Pimpinella anisum*, *Thymus algeriensis*, *Carum carvi*, *Cuminum cymimum*, *Paronychia argentea*, *Verbena officinalis* and *Zingiber officinalis*. The most used part was the grains, and the most practiced mode of preparation was the infusion, this is explained by the simplicity of this method to prepare the plants^[6].

Conclusion

In this contribution, we have identified 17 medicinal plants belonging to 09 botanical families. The leaves and seeds are the most used part; infusion and decoction are the most applied methods of preparation.

The study area has a great floristic diversity of interest in terms of medicinal plants intended for the treatment of

functional intestinal disorders, the most used of which are *Pimpinella anisum*, *Thymus algeriensis*, *Carum carvi*, *Cuminum cymimum*, *Paronychia argentea*, *Verbena officinalis* and *Zingiber officinalis*.

The multiplication of these ethnobotanical studies in the regions bordering the study area will make it possible to better understand the potential in this field, to assess the risks resulting from the use of certain toxic plants and to adopt a new management approach. for the protection and preservation of natural resources.

Picking must be done with caution because the strong pressure of picking leads to a decrease in productivity and the reduction or loss of biodiversity, this way of harvesting leads to the scarcity, and even the risk of total disappearance of certain species.

Many plants are threatened with extinction in the absence of cultivation. In this context, we propose the cultivation of the most used plants in this region which have been the subject of conclusive scientific work and which are used in human therapy in many countries, because the needs of the pharmaceutical industry in medicinal plants are multiplied.

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