Ethnomedicinal studies on plants used against digestive system disorders by the people of Rif, Morocco

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Introduction

People have long histories on the uses of traditional medicinal and aromatic plants for medical purposes in the world, and nowadays, this is highly actively promoted [1]. In all ancient civilizations and in all continents, one finds traces of this use. Thus, even today, despite the progress of pharmacology, the therapeutic use of plants is very present in some countries, especially in developing countries. Ethnopharmacological surveys are conducted to document the practice of herbal medicine among rural and ethnic communities [2]. Morocco, by its biogeographical position, offers a very rich ecological and floristic diversity constituting a true plant genetic reserve, with about 4,500 species belonging to 940 genera and 135 families, the mountainous regions of Rif and Atlas being the most important areas for endemism [3]. This biodiversity is characterized by a very marked endemism that [4] allows it to occupy a privileged place among the Mediterranean countries to be a which have a long medical tradition and traditional know-how based on medicinal and aromatic plants [5]. Indeed, traditional medicine has always occupied an important place in the traditions of medication in Morocco and the Rif region is a concrete example.

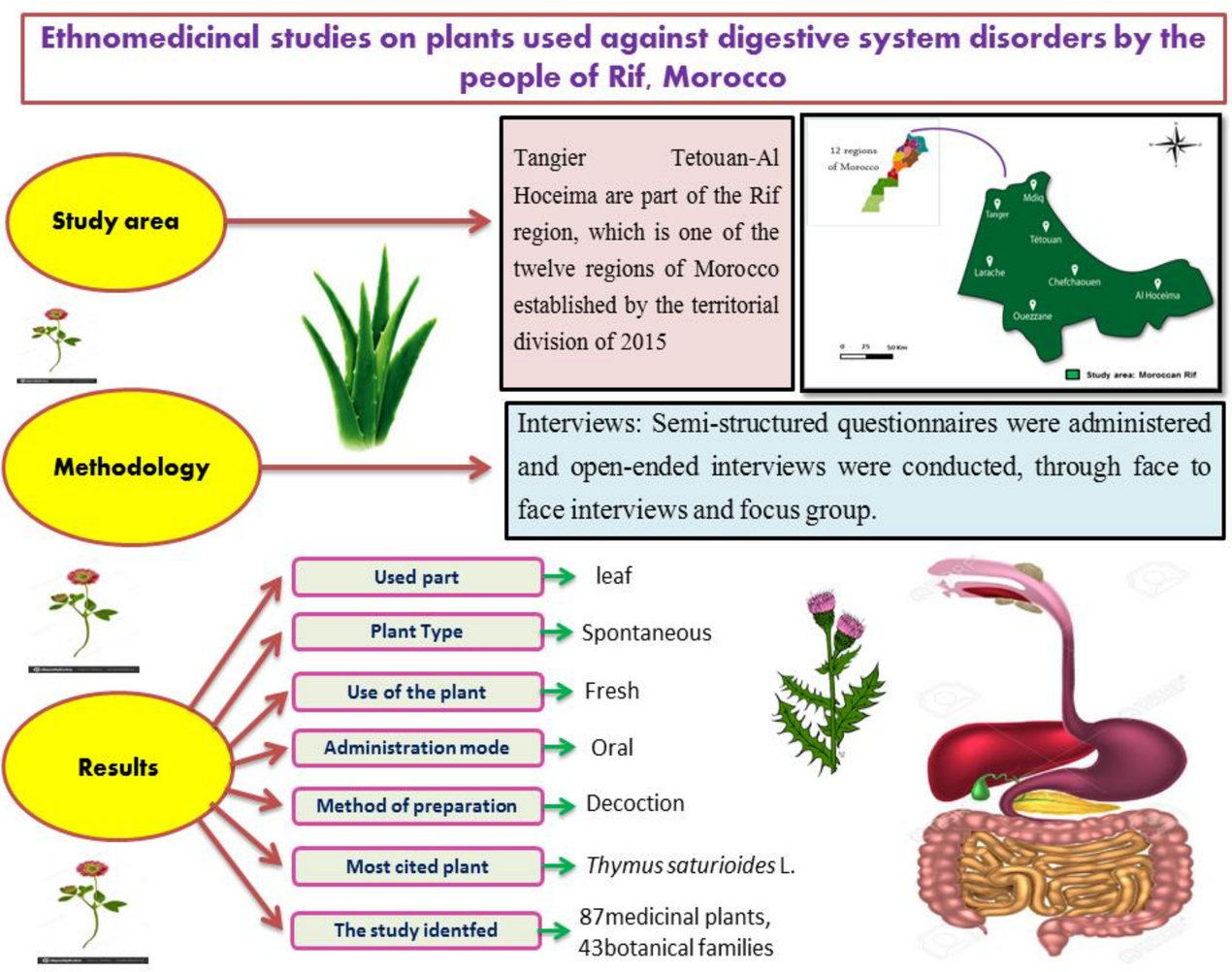
The analysis of the Moroccan medicinal bibliography shows that the data on regional medicinal plants are very fragmentary and dispersed, due to of the few thousand plant species. The medicinal species counted do not exceed the 600 species or 14.28% of the total Moroccan flora [6]. We believe that the heritage of the medicinal flora requires regular monitoring and evaluation in terms of quality and quantity.

Accordingly, we conducted this ethnobotanical study in the Moroccan Rif, which has a considerable lithological, structural, biological and floristic diversity. The purpose of the present investigations was to evaluate MAPs that grow in the study area with the aim to contribute to indigenous knowledge of MAPs and to analyze the results concerning the existing relationships between medicinal species and digestive system diseases. Indeed, it is very important to transform this traditional knowledge into scientific knowledge in order to revalue it, to preserve it and use it rationally.

Methods

In order to gather information on MAPs used for treating digestive system disorders, an ethnobotanical survey was conducted from June 30th, 2016 to June 1st, 2018. Semi-structured questionnaires were administered and free listings were conducted, through face to face interviews and focus groups, adopting the standard methodology followed by Martin [9]. The inclusion criterion includes qualified healthcare professionals such as pharmacists, herbalists, practitioners and therapists. While the exclusion criteria were informants who are not living in the study area. Totally, 732 informants within aged 17 to 95 were randomly selected for interviews (pharmacists, herbalists, practitioners and therapists) in the study area (hospitals, pharmacies, houses, mosques, and weekly markets). The healthcare professionals were informed about the objective of this study, after having them sign a consent form, they were regularly to collect and document indigenous knowledge of plants usage against digestive system diseases. The questionnaire used consists of two parts: the first part deals with the demographic characteristic of the informants and the second one focuses on the plants used in the treatment of the diseases. (Appendix A). The sample is made up of 400 females and 332 males from different socio-economic strata, chosen at random from the Rif's population. In this study, the sample is developed using a stratified random sampling method [10] to conduct various surveys from a site to another in the study area. According to this sampling method, we have divided our study area into sites (Sn), so we have 28 sites that correspond to the number of divisions in the study area

Graphics / Images



Abstract

Background: Medicinal and aromatic plants are a considerable source of active substances which are exploited in the treatment of several diseases. This study was carried out in the Rif (North of Morocco), it aimed to identify medicinal and aromatic plant used by the local people to treat digestive system diseases, together with the associated ethnomedicinal knowledge.

Methods: The ethnomedical information collected was from 732 traditional healers using semi-structured interviews, free listing and focus group. Family use value (FUV), use value (UV), plant part value (PPV), fidelity level (FL) and Informant Agreement Ratio (IAR) were employed in data analysis. Medicinal and aromatic plant were collected, identified and kept at the natural resources and biodiversity laboratory, Ibn Tofail University, Kenitra.

Results: During the present study 87 medicinal plant species belonging to 43 families has been documented. The most frequent ailments reported were gastric ulcers (IAR = 0.97). The majority of the remedies were prepared from decoction (42.12%). Leaves were the most frequently used plant part (PPV = 0.344) and *Thymus saturejoides* Coss. (UV = 0.240) was the specie most commonly prescribed by local herbalists.

Conclusions: The results of this study showed that people living in the Rif of Morocco are still dependent on medicinal and aromatic plants. The documented plants can serve as a basis for further studies on the regions medicinal plants knowledge and for future phytochemical and pharmacological studies.

Conclusions

Our study revealed that the local traditional healers of Rif, northern Morocco are rich in ethnomedicinal knowledge and majority of people rely on plant based remedies for common health problems like gastric ulcers, duodenal ulcers, diarrhea, constipation and gallstones. The survey also revealed that all the traditional healers have strong faith on ethnomedicines although they were less conscious about the documentation and preservation of medicinal and aromatic plants and ethnomedicinal folklore. Based on the results of this study, higher use value, preference ranking scores, and fidelity level values of the recorded medicinal and aromatic plant species would empower the future pharmaceutical and phytochemical studies and conservation practices. In this connection, attention should be drawn to the conservations of traditional medicinal plants and associated indigenous knowledge in the Moroccan Rif area to sustain them in the future.