Alexandria Journal of Medicine (2013) **49**, 261–264

Alexandria University Faculty of Medicine

Alexandria Journal of Medicine

www.sciencedirect.com

ORIGINAL ARTICLE

Use of hypoglycemic plants by Tunisian diabetic patients

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Received 15 October 2012; accepted 31 January 2013
Available online 30 March 2013

KEYWORDS

Diabetes mellitus;
Herbal medicine;
Plants

Abstract *Introduction:* The recourse to the herbal medicines in treating diabetes is frequent in Africa and especially in Tunisia. Its practice is transmitted orally and ritually from generation to generation. The objectives of this study are to determine the plants used, their methods of preparation, consumption and profile of patients who use them (habitat, profession, gender, age ...).
Patients and methods: A questionnaire concerning the use of herbal medicines has been proposed to diabetic patients consulting in the National Institute of Nutrition of Tunis, on the output of the medical consultation of diabetes.
Results: Two hundred patients responded. 23% of patients were using herbal medicine. The main plants used are gum arabic (71.7%) fenugreek (28.3%) of white artemisia (21.7%) and marrube (10.9%). 28.3% of them have type 1 diabetes. The average duration of diabetes was 10.5 ± 6.9 years, 72.4% of patients reduced their dosages of drug treatment because of the onset of hypoglycemia.
Conclusions: The use of herbal medicines is frequent in the therapeutic arsenal of type 2 diabetes in Tunisia. This practice must however be based on the findings of scientific studies which are still scarce. The conditions of their utilization must be defined and users should be warned against potential side effects.

1. Introduction

Traditional medicine very much exists in the world and, despite the progress of modern medicine, it remains an important pillar in the treatment of various diseases including chronic diseases in many countries. Traditional medicine has to this day an important place in Tunisia that is at the conglomeration of several civilizations, where the use of traditional medi-

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Peer review under responsibility of Alexandria University Faculty of Medicine.

Production and hosting by Elsevier

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http://dx.doi.org/10.1016/j.ajme.2013.01.006

cine is a matter of concern especially in the management of diabetes which is a common disease in this country.

2. Patients and methods

We decided to study consumption of plants known for their hypoglycemic effect among 200 diabetic patients followed up at the National Institute of Nutrition in Tunisia chosen at random. Patients were asked about their age, occupation, habitat and socio economic level. Information concerning diabetes (age, type, treatment, glycemic control) was taken directly from the patient records.

Based on reports by patients we tried to know the most commonly used herbs, recipes of preparation, their origin, pace and timing of their consumption, possible modifications of antidiabetic drug treatment and the effects of these plants.

3. Result

3.1. Characteristics of the population

46 out of 200 patients admitted to consuming or having consumed hypoglycemic plants representing 23% of the population studied. Of 46 patients 32 were women and 14 men. The average age was 51 years with a range of 36 to 65. Table 1, Figs 1 and 2.

3.2. Characteristics of diabetes

28.3% of the population consuming plants have type 1 diabetes and 71.3% have type 2 diabetes mellitus. Some of the patients are treated by insulin. The mean duration of diabetes was 10.51 ± 6.91 years. Most patients were users of hypoglycemic plants who do not follow regular lifestyle advice.

3.3. The use of hypoglycemic plants

Table 2.The main plants used are:

– Gum arabic(louben) 71.7%.
– Fenugreek (helba) 28.3%.
– Sagebrush (chih) 21.7%.
– White horehound (Marroubium) 10.9%.

Other hypoglycemic plants less often cited were occasionally consumed by patients Table 3. In order to lower blood sugar, it is: Aloe – colocynth – mallow – Prickly pear – juniper – grapefruit – agave.

44.2% of diabetics interviewed are recent consumers (few months), 34.9% reported having used them in the past and 20.9% consider themselves regular consumers for years.

The majority of patients get their supplies from herbalists (89.1%), while others prefer to cultivate them themselves.

Table 1 Distribution of patients by gender.

Sex	Number	Percentage
Female	32	69.6
Male	14	30.4

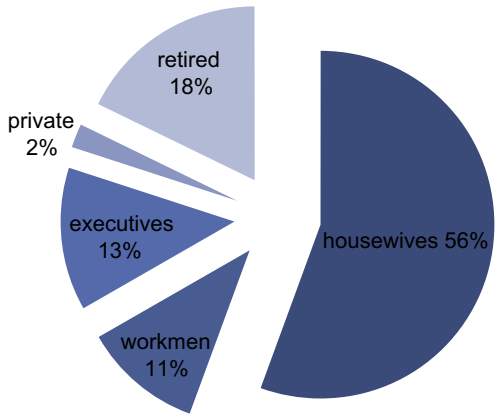


Figure 1 Distribution of patients according to their profession.

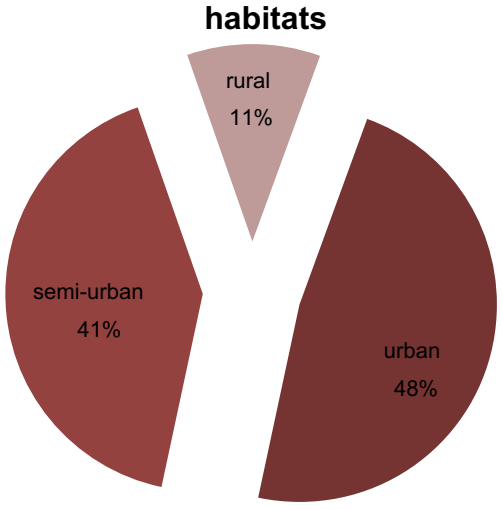


Figure 2 Distribution of patients according to their habitats.

It is used daily (67.4%) or several times a day (26.1%) as preparations (decoction, infusion ...) and basically fasting (67.4%).

85% of patients surveyed said they maintained their drug treatment in association with the consumption of plants, but 72.4% admitted to having reduced the doses due to the occurrence of hypoglycemia.

Improved assays and functional signs of diabetes were noted with 75.9% of patients. Hypoglycemia that required oral resucrage was reported by 20% of patients. Side effects of digestive disorder (diarrhea, constipation, pain ...) and type of hypotension were reported by 40% of patients.

4. Discussion

In this study we report and determine the prevalence of medicinal plant usage among diabetic patients and explore some possible patient characteristics.

Other studies have focused on the consumption of hypoglycemic plants by diabetic patients also using the questionnaire method in our series. The result was found in 23% of consum-

Table 2 Main plants used.

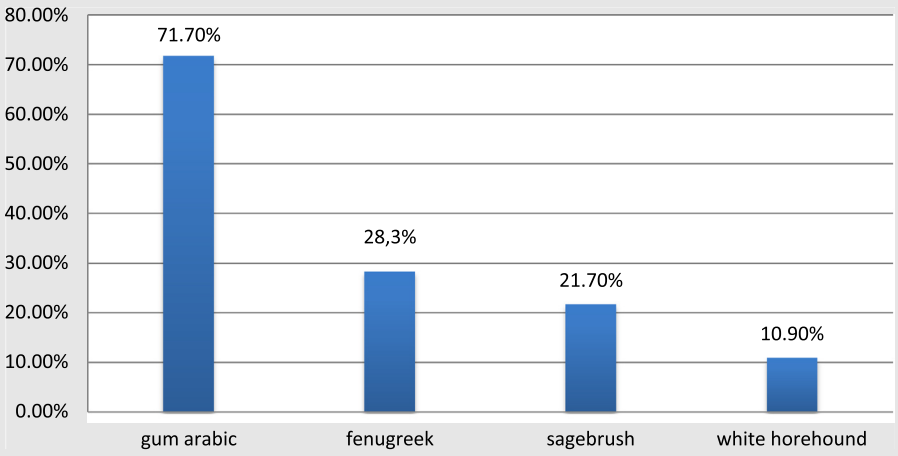
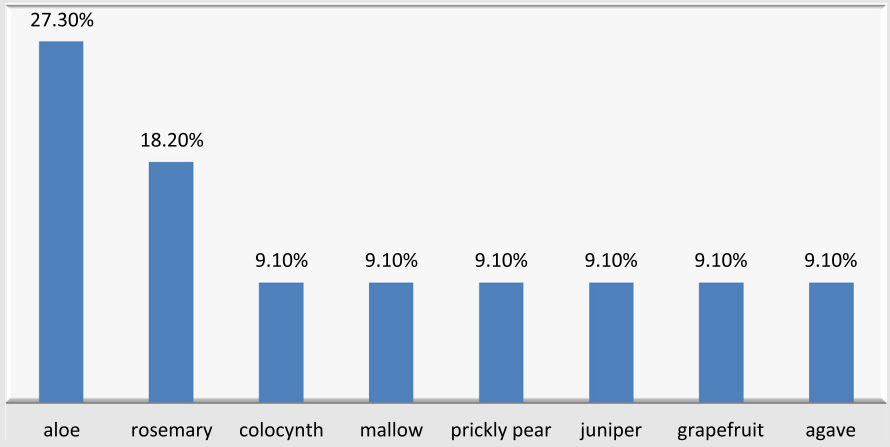


Table 3 Other plants used.



ers, this rate reached 80% in Morocco[1] and 33% in a study conducted in Guinea.[2]

In our study, the use of medicinal plants was independent of socio–demographic factors. These findings differ from the American and Australian studies, which both found several associations between demographic factors and plants usage.[13,14]

Studies have shown that people use medicinal plants to explore the potential benefits purported therein[15] and others use them for chronic illnesses for which they feel herbs may offer a superior benefit than conventional medicine.[16]

The high number of women who use medicinal plants as compared to men (69.6% for women against 30.4% men) was found in the Moroccan study[1] and the percentage is higher among women at home compared to those who work.

We propose that cultural influences and perceptions of the efficacy of plants may be more important determinants of their use and may override socioeconomic factors such as educational level and economics in our environment.

The most important plants used by diabetics are firstly the gum arabic widely consumed by the majority of diabetics and widespread in Tunisia, which hypolipidemic and hypoglycemic effects are recognized.[3] Secondly there is fenugreek also the most widely used plant in Morocco and Quebec.[4] Fenugreek is well known for its traditional use as hypoglycemic plant,[5,6] having been the subject of several studies confirming its beneficial effects in diabetes.[4,7–10] The sagebrush is also well known for its traditional use as hypoglycemic plant.[12,11,7]

Although we did not enquire from users why they took medicinal herbs, several reasons have been given by researchers for the increased prevalence of plant utilization. These include failure of modern medicine to cure the underlying problem,[15] and the perception that medicinal plants are cheaper than conventional medicines.[1] Some other attractions to

alternative therapies may be related to the power of the underlying philosophy they share, which involves closeness to nature, spirituality, and the fact that these therapies often go along with the cultural beliefs of the people.[15] Another possible explanation is the cultural beliefs of Africans that illnesses have a 'spiritual' origin. Patients are thus interested in finding an explanation for their symptoms or the root cause of their problems. In Tunisia, the use of herbal remedies, perceived to be cheaper, may be on the increase due to the poor economic status and the increasing costs of orthodox medicines.

Before the advent of modern medicine in Tunisia, herbal medicines had been the mainstay of treatment for various ailments and were dispensed by traditional herbalists involved in their cultivation and preparation. The observed use of herbal remedies in our study may be linked to this cultural background and history.

Continuing research is necessary to elucidate the pharmacological activities of the many herbal remedies now being used to treat many diseases because many herbal remedies have not undergone careful scientific assessment, and some have the potential to cause serious toxic effects and major drug-to-drug interactions.

5. Conclusions

Diabetes is a chronic disease whose incidence is steadily increasing in all countries.

Based on popular culture many diabetics in a ritual manner use plants for the treatment of diabetes, in order to reduce the daily dosage of antidiabetic treatments, to improve their efficiency successfully. Healthcare providers should be familiar with the most common herbal medicines, especially their potential for adverse effects and drug interactions so that they can advise patients against their use.

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