



# Use of Herbal Products in Type 2 Diabetic Patients

## Tip 2 Diyabetik Hastalarda Bitkisel Ürün Kullanımı

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### Abstract

**Aim:** Use of herbal products is relatively common among general population. We aimed to study the use of herbal products for any reason in patients with type 2 diabetes mellitus (DM).

**Methods:** A questionnaire containing objective questions was filled for 120 type 2 diabetic patients. This form included socio-demographic characteristics, DM history, other comorbidities, diabetic complications, details about the use of the herbal product and knowledge of the physician.

**Results:** 60.8% of patients were female, 86.7% were married and 65% were primary school graduates. The mean age was 57.4±11.1 years. 52.1% of patients used one or more herbal products after diagnosis of DM, while 10% used before diagnosis. 48.4% of subjects provided them from herb and spice sellers and 29% from gardens and vineyards. Only 6.5% of patients decided to use them on the advice of a health-care professional. 82.3% of subjects did not inform their physician. There was no relationship of use of herbal products, its frequency, type of the product and advisor with gender, marriage status and education status.

**Conclusion:** Use of complementary and alternative medicine among diabetic patients is quite frequent and considering the low rate of informing the physician, placing restriction on these products as well as education of patients is of prime importance. (*The Medical Bulletin of Haseki 2015; 53:214-9*)

**Key Words:** Complementary and alternative medicine, chronic disease, diabetes mellitus, herbal product

### Özet

**Amaç:** Bitkisel ürün kullanımı genel toplumda nispeten yaygındır. Tip 2 diabetes mellituslu (DM) hastalarda herhangi bir amaçla bitkisel ürün kullanımını çalışmayı amaçladık.

**Yöntemler:** Yüz yirmi tip 2 diyabetik hasta için objektif sorulardan oluşan bir anket formu dolduruldu. Bu anket formu sosyo-demografik özellikleri, DM hikayesini, diğer komorbiditeleri, diyabetik komplikasyonları, bitkisel ürün kullanımı ile ilgili detayları ve hekimin bilgisi olup olmadığını içeriyordu.

**Bulgular:** Hastaların %60,8'i kadın, %86,7'i evli ve %65'i ilkokul mezunu idi. Ortalama yaş 57,4±11,1 yıl idi. Hastaların %52,1'i DM tanısından sonra bir veya daha fazla bitkisel ürün kullanmışken %10'u tanı öncesinde kullanmıştır. Bitkisel ürünleri %48,4 oranında aktarlardan, %29 oranında bağ ve bahçelerden elde etmişlerdi. Hastaların sadece %6,5'i bir sağlık çalışanının önerisi ile bitkisel ürün kullanmaya karar vermişti. Hastaların %82,3'ü hekimlerini bilgilendirmemiştir. Bitkisel ürün kullanımı, sıklığı, türü ve tavsiye eden kişi ile cinsiyet, medeni hal ve eğitim durumu arasında ilişki yoktu.

**Sonuç:** Diyabetik hastalarda bitkisel ürün kullanımı oldukça siktir ve hekimi bilgilendirme oranının düşüklüğü göz önüne alındığında bu ürünlerin satışının sınırlandırılması ve hastaların eğitimi büyük önem taşır. (*Haseki Tıp Bülteni 2015; 53:214-9*)

**Anahtar Sözcükler:** Tamamlayıcı ve alternatif tıp, kronik hastalık, diabetes mellitus, bitkisel ürün

## Introduction

Diabetes mellitus (DM) is a chronic metabolic disease with multi organ involvement that increases the susceptibility of tissues and organs to toxicity (1). The prevalence of DM in the adult population of Turkey has been reported to be 13.7% in 2010 (2). The treatment of DM is of prime importance due to potential complications and impairment in quality of life. Studies on the development of new drugs for the treatment of type 2 DM are increasing due to high potential of hepatotoxicity and nephrotoxicity of the conventional oral antidiabetic agents (3). Plants are an important source for these new drugs. More than 400 types of plants and more than 120 natural products are used as supplements besides various vitamins and minerals for the treatment of diabetic patients. It has been shown that many natural products have positive effects on the treatment of DM (3).

Complementary and alternative medicine (CAM) comprises treatment methods in concordance with the conventional ones. According to the definition of the National Institute of Health, CAM involves all health services, methods and practices including theories and beliefs other than the dominant methods for a defined period of time in a defined population or culture (4).

A study conducted in USA reported the percentage of patients who had used at least one method of alternative medicine in one year as 33.8% in 1990 and 42.1% in 1997 (5). Another study have found the prevalence rates of CAM use to be between 9% and 65%; and reported that the rate increases with years (4). In another study from Turkey, 92.9% of individuals older than 65 years of age were found to use drugs without prescription; and 89.3% were reported to have used herbal mixes (6). Media certainly plays an important role in the increasing rates of these products.

Being aware of the use of these products by a large population of individuals in disease groups without consulting a physician help to increase the consciousness of the health care workers, and to take measures about the subject. We aimed to study the use of herbal products in patients followed up with the diagnosis of type 2 DM.

## Methods

The presented study was conducted with 120 patients with type 2 DM diagnosed according to the American Diabetes Association criteria and were followed up in our outpatient clinic. Age was not an inclusion criterion. Those who were appropriate for verbal communication and willing to participate were included. Informed consent was obtained from all patients. Ethics approval was not needed, due to noninterventional nature of the study for which ethical approval is not necessary.

A questionnaire form of objective questions (Table 1) was filled for every patient by a single investigator. The questionnaire included socio-demographic characteristics of the patients, history of DM, other comorbidities, presence of diabetic complications, the type and the duration of the use of herbal product, the place from which the product was obtained, the person who advised the product and the knowledge of the physician who follows the patient. Query forms were filled according to the answers of the patients without searching for an evidence or additional examinations and laboratory analysis for determination of comorbidities.

Data were analyzed using SPSS (Statistical Package for Social Sciences) program for Windows version 15.0. Numerical values were expressed as mean  $\pm$  standard deviation. Student t-test and the Mann-Whitney U test were used for comparison of quantitative data with normal or abnormal distribution, respectively. Chi-square test was used for comparison of nonnumerical data. Results were evaluated at 95% confidence interval and p values below 0.05 were regarded as statistically significant.

## Results

Male/female ratio and the mean age of the 120 patients involved in the study were 47/73 and  $57.4 \pm 11.1$  (31-85) years, respectively. Hundred and four patients (86.7%) were married, 15 (12.5%) were widow and one patient (0.8%) was single.

Sixty-five patients (54.2%) were primary school graduates, 10 patients (8.3%) intermediary school, 15 patients (12.5%) high school and three patients (2.5%) were university graduates, while 27 patients (22.5%) did not have any education. Their job was trade in 11 patients (9.2%), retired worker in 30 patients (25%), government service in one patient (0.8%), labor in one patient (0.8%) and other jobs in nine patients (7.5%); while 68 patients (56.7%) were housewives.

Ninety-three patients (77.5%) were insulin-dependent. The mean duration of the diagnosis of type 2 DM and the duration of treatment were  $3.96 \pm 0.25$  years and  $3.95 \pm 0.31$  years, respectively. The reported micro and macrovascular complications were diabetic retinopathy in 36 patients (30%), diabetic nephropathy in 16 patients (13.3%), cardiovascular disease in 41 patients (34.2%) and cerebral vascular disease in six patients (5%). The major comorbidities that the patients mentioned were hypertension (40.8%), hyperlipidemia (11.7%), noncoronary cardiac diseases (4.2%), chronic liver disease (13.3%), pulmonary disease (9.2%), dyspepsia (9.2%), and thyroid gland disease (7.5%). Seventy-three patients (60.8%) reported to have at least one major surgical operation previously.

<b>Table 1. The questionnaire used for the study</b>	
<b>Patient number</b>	<b>Name:</b> <b>Marriage status: Married/Single/Widow</b>
<b>Gender:</b> <b>Occupation:</b>	<b>Age:</b> <b>Weight/Height:</b>
<p><b>Diagnosis:</b> Type 2 diabetes mellitus a. Insulin dependent b. Non-insulin dependent The duration of diabetes mellitus in years: Diabetic complications: -Diabetic nephropathy a. Yes/No b. Duration in years -Diabetic retinopathy a. Yes/No b. Duration in years -Coronary heart disease a. Yes/No b. Duration in years -Cerebrovascular disease a. Yes/No b. Duration in years</p>	<p>Educational status: Cannot read and write Primary school Intermediary school High school University</p> <p>When the treatment of DM was started?</p>
<p>Comorbidities: Chronic liver disease Peptic ulcer Psychiatric diseases (anxiety, depression, psychosis, etc) Any surgical intervention Others</p>	
<p>Did you use any herbal product before the start of treatment of your disease? Yes No Which products did you use? a. Plants and grass b. Herbal teas c. Foods d. Tablets e. Other 3. How long did you use these products? (months)</p>	
<p>Did you use any herbal product after the start of treatment of your disease? Yes No Which products did you use? a. Plants and grass b. Herbal teas c. Foods d. Tablets e. Other 3. How long did you use these products? (months)</p>	
<p>Did you observe any benefit of these products? No Yes (specify) Did you observe any adverse effect of the product No Yes (specify)</p>	

<b>Table 1. The questionnaire used for the study</b>
Where did you obtain the product? Pharmacy Herbs and spice seller Ordered from internet or by phone Market or bazaar From vineyard Others (specify)
Who advised you to use this product? Neighbor, relative, friend Another patient Learned from internet Learned from television program Newspaper/Periodicals A health care worker Others (specify)
What was the occupation of the advisor? Health care worker Any job unrelated with health Media worker
Was the product searched for? No Yes (by whom?)
How frequently did you use the product? Once or twice a day Once in 2-3 days Once in a week Once in 15 days Once a month Other (specify)
Did you inform your physician about the use of this product?
What was the cost of the product?

<b>Table 2. Details about the herbal product used</b>		
<b>Timing of use of the herb</b>	<b>Before the diagnosis of DM (n=12; 10%)</b>	<b>After the diagnosis of DM (n=62; 52.1%)</b>
Duration of use (months)	2.33±0.78	1.85±0.80
The type of the herb:		
Various grasses and plants	6 patients (50%)	31 patients (50%)
Herbal teas	4 patients (33.3%)	17 patients (27.4%)
Tablets	2 patients (16.7%)	2 patients (3.2%)
Herbal food products	-	12 patients (19.4%)
The place that the product was gained		
Herb and spice seller		30 patients (48.4%)
Vineyard		18 patients (29%)
Market, bazaar		13 (21%)
Internet order		1 patient (1.6%)

Data about the timing and duration of the use and type of the herbal product are summarized in Table 2 and Figure 1.

The answer to the question 'Who advised the herb?' was a friend or relative in 46%, another patient in 19.4%, television programs in 19.4%, health-care worker

(physician, dietitian, nurse) in 6.5%, internet in 3.2%, and others in 4.8%. Only one patient expressed that he/she searched for the ingredient of the herbal product.

The frequency of use was once or twice daily in 58%, twice a week in 4.5%, once a week in 17.4%, twice a month in 4.3%, and once a month in 5.8% of patients (Figure 2).

The way of intake was different; some reported (6.5%) boiling the plant and then drinking it; and some (35.5%) taking the herbal product in the form of tea. The type of the herbal product was thyme in 14 patients (22.6%), nettle in 9 patients (14.5%), parsley in 10 patients (16.1%), cinnamon in 10 patients (16.1%), and olive leaves in 7 patients (11.3%).

Fifty-one patients (82.3%) did not inform their physician about the intake of the herbal product. Thirty-five percent of patients reported that they were better with the herb; and 65% had no side effect.

Gender, marriage and education status did not have any effect on the use of herbal products, its frequency, type of the product, the advisor, and giving information to the physician

## Discussion

Regarding the high prevalence rates of DM which is 13.7% in our country (2) and the higher susceptibility to toxic agents in diabetic subjects, physicians should have knowledge about the demographic data on the use of herbal products in these patients. There are no broad-based studies of the use of herbs by diabetic patients in our country and we think that the presented study will be valuable in the field.

The prevalence of the use of herbal products in our study was similar with the previous ones. Krousel-Wood et al. (7) reported that 22.7% of 326 type 2 diabetic patients had used CAM before the diagnosis of their disease; and 61% used them after the diagnosis.

The high rate of not giving information about the use of herbs to the physicians (82.3%) is an alarming finding. This rate was reported by Ali-Shtayeh et al. (8) as 68%. This fact is probably due to the thought of the patients that products of plants are totally harmless; or fear of a negative attitude by the physician. Therefore, physicians should ask for a possible use of these products in case of unexpected deterioration in the clinical or laboratory status of their patients.

Another important finding of the presented study was that about half of the patients used herbs with the advice of a person other than health-care workers. Kav et al. (9) reported a similar rate in their study. It was stated in a study by Kara et al. (10) that 84.4% of patients used CAM with the advice of family members and friends; 9.4% had them

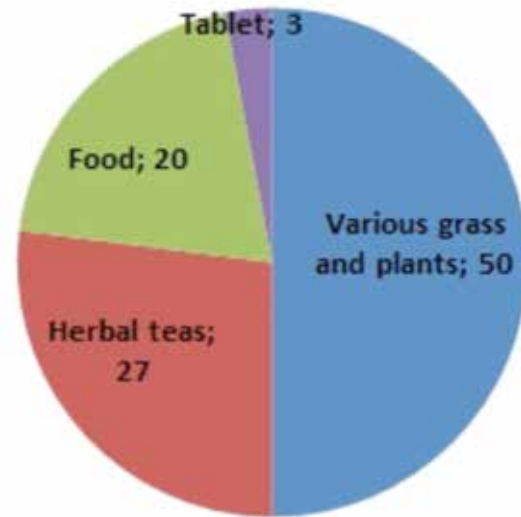


Figure 1. The type of the herbal product (%)

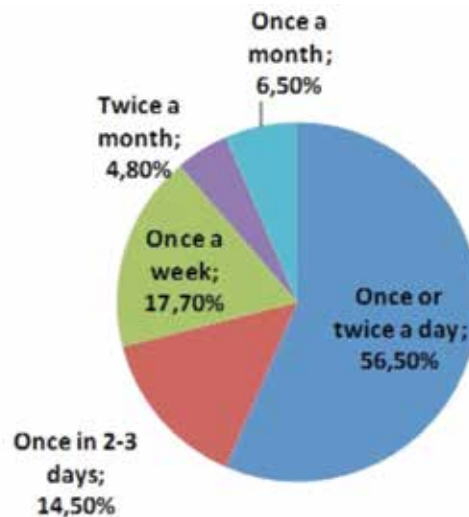


Figure 2. The frequency of use of herbal products after the diagnosis of diabetes mellitus

from media marketing (television-radio-internet), 9.4% gained them from herb and spice sellers; and 6.3% have bought them by gaining information from written data. Similar rates were reported by another study conducted by Ali-Shtayeh et al. (8). These data show that not only patients but also the close relatives of them should be educated about this subject.

The majority of patients gained CAM from sources that are not controlled and safe. This brings with it the fact that the efficiency, safety and possible side effects are not clearly known.

We detected no effect of gender, marriage and educational status on the rate of use of CAM in diabetic patients. Kav et al. (9) evaluated 216 patients with

gastrointestinal diseases for the use of CAM. They reported that 79% of subjects were married, 62.5% were female and 40% of them were high school graduates (9). The rate of educated patients was significantly higher than that found in our study. Villa-Caballero et al. (11) found that 71.4% of patients using CAM were male, 59.1% were university graduates. Two more studies have reported female predominance among patients using herbal products (7,12). In a cross-sectional study by Kara et al. (10) conducted in hemodialysis population, gender and marriage status did not affect the use of CAM; and 53.5% of patients were primary school graduates. In their study, Ali-Shtayeh et al. (8) and Manya et al. found no relationship of use of herbal products with gender, marriage and educational status (13). These data should alert the physicians about the fact that all patients including both undereducated and well educated ones need to be informed about herbal products.

The frequency of diabetic complication in patients using CAM was considerably high in our study as well as in other studies (11,12). This fact is important due to use of multiple medications in this group increasing the risk of interactions between drugs and herbs. Questioning this group about CAM use is more important.

The use of CAM products has been reported to be higher after the diagnosis of a chronic disease as in our study (8,9,11,13). Therefore, patients newly diagnosed with a chronic disease should be regarded as a candidate to use CAM and should be educated about the subject.

The percentage of patients stating that they felt better after the use of CAM was reported to be 37.5% and 71.7% in studies by Kara et al. (10) and Ali-Shtayeh et al. (11), respectively. This rate was 35% in our study. Although it is impossible to evaluate the efficiency of these products due to lack of randomized controlled studies, it is observed that the majority of patients were pleased with them. In addition, 65% of patients reported no side effect.

### Conclusion

Use of CAM in diabetic patients is quite frequent. It is used through the advice of individuals other than health care workers. Considering the low rate of individuals informing their physician, placing restriction on these products as well as education of the patients is of prime importance.

**Ethics Committee Approval:** It was taken, **Informed Consent:** Consent form was filled out by all participants, **Concept:** Fuat Şar, Mustafa Yenigün, Savaş Öztürk,

Rümeysa Kazancıoğlu, **Design:** Yaprak Pelin Gündoğdu, Meltem Gürsu, Savaş Öztürk, **Data Collection or Processing:** Yaprak Pelin Gündoğdu, Mehmet Yamak, Oktay Özkan, **Analysis or Interpretation:** Meltem Gürsu, Savaş Öztürk, **Literature Search:** Yaprak Pelin Gündoğdu, Mehmet Yamak, Oktay Özkan, **Writing:** Meltem Gürsu, Savaş Öztürk, **Peer-review:** External and Internal peer-reviewed, **Conflict of Interest:** No conflict of interest was declared by the authors, **Financial Disclosure:** The authors declared that this study has received no financial support.

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