

Perception of Hyperlipidemic Subjects Regarding The Use of Phytotherapy And Dietetics in The Management of The Disease

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Abstract

Introduction: The dyslipidemia is one of the most common problems of public health. The pharmacology only has not always demonstrated absolute efficiency in the support of this disease, and it has been proved that certain complementary measures were useful to take, among others dietetic and phytotherapy.

Material and methods: For the purpose of assessing the perception of hyperlipidemic subjects in relation to the use of phytotherapy and dietetics in the support of their illness, a survey was conducted over 60 patients taken at random during the consultation at the clinic El Haouaria to assess the knowledge on foods and plants, lipid-lowering drugs, and their places in the food habits from dyslipidemic, and 10 traditional healers of Souk El Blat and Souk El Balgha in Nabeul in order to gather the knowledge concerning the plants which are frequently recommended in the treatment.

Results: The majority of investigated hyperlipidemic subjects were aged women, mostly illiterate ones. The survey has enabled us to select a dozen medicinal plants to treat dyslipidemia, but sometimes within bad practices of traditional medicine because of the insufficient knowledge of the sick and the herbalists. The garlic is the most consumed in the treatment of dyslipidemia.

The majority approve the importance of diet in the treatment.

Discussion: The analysis of the results showed that the more the socioeconomic level of the sick persons is low, the more their attitude towards food is favorable, and herbalists are visited only by people with good academic level.

Conclusion: Dietetics and the traditional medicine occupy an important place in the region of El Haouaria, which reflects the importance of such practices and the Tunisian population.

Introduction

Cardiovascular disease represents a serious health problem and a major cause of death and disability worldwide, and dyslipidemia is a major parameter of cardiovascular risk. Clinically, the results of numerous epidemiological studies and large intervention trials conducted over many years have shown that it is possible to reduce the incidence of cardiovascular disease through lipid-lowering treatment through diet, herbal medicine, or medication. The remedy or drug, like medicine, is as old as humanity [1–4]. Plants were the primary source of raw materials, but were replaced by chemical synthesis, which became the almost sole and inexhaustible source of drugs. However, given the increase in the adverse effects of synthetic drugs and the very high cost of certain pharmaceutical products, we are witnessing an increased use of traditional plants and natural products [5,6]. Dietary therapy is equally effective when used alone, as well as when combined with

statins [7]. Although the additional cholesterol reductions it produces may seem small or insignificant, dietary therapy can achieve lipid targets in many cases—for example, when statins alone do not achieve these targets, when statins are associated with intolerable side effects, when some patients prefer not to take medications if possible, and when patients find pharmacological treatment too expensive. It seems reasonable to broaden our approach to heart health and remember that the effects of healthy eating go beyond therapeutic changes in cholesterol levels. It is time to re-evaluate the importance of eating well, not only for lipid management, but also for heart health in general. It is in this context that we first carried out an ethnobotanical survey among people suffering from dyslipidemia in order to know their perceptions regarding the use of traditional plants, and secondly, we carried out a survey among traditional herbalists to know the plants used that they prescribe, as well as the preparation methods that they propose to people with dyslipidemia to treat this disease.

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Methodology

We conducted a cross-sectional descriptive survey among dyslipidemic patients randomly selected during the outpatient consultation for metabolic diseases at El Haouaria Hospital in the Cap Bon region of Tunisia. Our work involved 60 patients who agreed to participate voluntarily after explaining the study objectives in collaboration with medical and paramedical staff during the outpatient consultation.

To study the prescribed plants and their usage patterns, we conducted a survey among 10 herbalists located in two specialized locations, "Souk El Blat in Tunis" and "Souk El Balgha in Nabeul," who were voluntary cooperators after explanation of the objectives of the study. This involves knowing in particular the local name and the vernacular name, the parts of the plant used which they prescribe to consulting patients and also the methods of use.

Data collection was carried out using two pre-tested questionnaires, one of which was reserved for recruited dyslipidemic patients and the other for traditional herbalists.

Statistical analysis

Data were entered using Microsoft Excel 2010 software. Statistical analysis was performed using SPSS version 19 software.

Results

Patient survey

The survey involved 25 men (41.7%) and 35 women (58.3%). The average ages of both sexes are close; that of women is (62.62 ± 10.04) and that of men is (60.20 ± 11.576) years ($p = 0.379$).

More than half of the respondents are illiterate or have a primary education level (Figure 1).

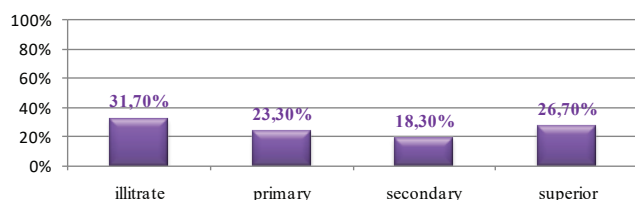


Figure 1: Distribution of respondents according to level of education

The majority of respondents (68.3%) are unemployed, given their average age and educational level, as shown in Figure 2.

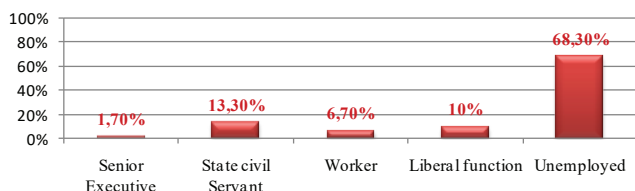


Figure 2: Distribution of respondents according to their profession

The average duration of dyslipidemia among the respondents is (10.25 ± 3.609) years.

Attitude and perception of the patients surveyed towards the use of traditional plants for the treatment of dyslipidemia

Our results show that 80% of men and 77% of women surveyed find traditional plants useful and beneficial in the treatment of dyslipidemia, as shown in Table I.

Table I: Attitude and Perception of respondents towards the use of plants

		Sex	
		Men	Woman
Attitude towards the use of traditional plants for the treatment of dyslipidemia	Useful and beneficial	20 80%	27 77,1%
	I don't agree	5 20%	8 22.9%
Total	25	35	

Habit of use of certain plants for the treatment of dyslipidemia by patients

The results below from our survey present the different plants and traditional alternatives used by patients as adjuvants to drug treatments for dyslipidemia.

a/ Garlic:

36.7% of patients frequently use garlic as a lipid-lowering plant.

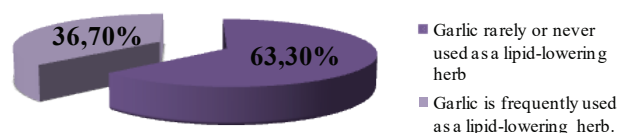


Figure 3: Frequency of use of garlic to treat dyslipidemia

Our results show that 36% of men and 37.1% of women frequently consume garlic to treat their dyslipidemia. The majority (64% and 62.9%) consume it rarely or never.

In what follows, and to better illustrate our results from this section, we have grouped by convention:

- Primary education and illiteracy as unsatisfactory.
- Secondary and higher education as satisfactory.
- Unemployed sick people and manual workers as unsatisfactory.
- Civil servants, self-employed professionals, and senior managers as satisfactory.

We note that to treat their dyslipidemia, patients with a low level of education have more recourse to frequent consumption of garlic than those with a satisfactory level.

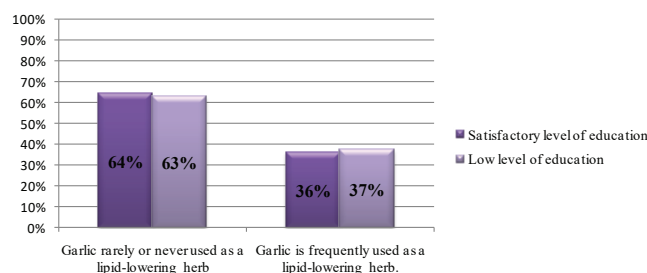


Figure 4: Frequency of use of garlic to treat dyslipidemia according to the level of education of the patients surveyed.

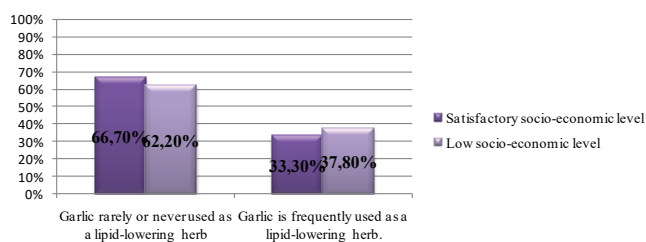


Figure 5: Frequency of use of garlic to treat dyslipidemia according to the socioeconomic level of the patients surveyed

Furthermore, Figure 5 shows that dyslipidemic patients surveyed with a low socioeconomic level consume garlic more frequently as a plant and food adjunct to drug treatment compared to patients with a satisfactory level.

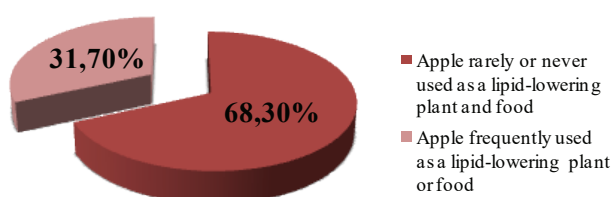


Figure 6: Frequency of use of apples to treat dyslipidemia

b/ Apples

Only 36% of men and 28.6% of women frequently consume apples to treat their dyslipidemia. The majority (64% and 71.4%) consume them rarely or never, as shown in Figure 7 below.

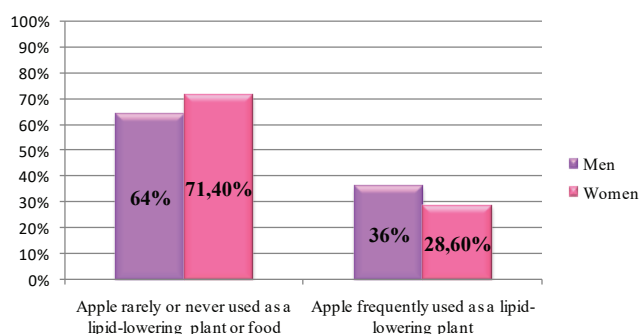


Figure 7: Frequency of use of apples to treat dyslipidemia by gender

Our results show that 27.3% of the subjects surveyed with a low level of education and 37% among those with a satisfactory level of education frequently consume apples to treat their dyslipidemia.

According to social status, our results show that 28.9% of dyslipidemic patients with a low socioeconomic level and 40% with a satisfactory socioeconomic level frequently consume apples in the treatment of dyslipidemia as an adjuvant to drug treatment.

c/ Fenugreek

The results of our survey show that 13% of the patients surveyed frequently use fenugreek as a lipid-lowering plant. A minority of respondents (8% of men and 17.1% of women) frequently consume fenugreek to treat their dyslipidemia. The majority (92% and 82.9%) consume it rarely or never, as shown in Figure 8.

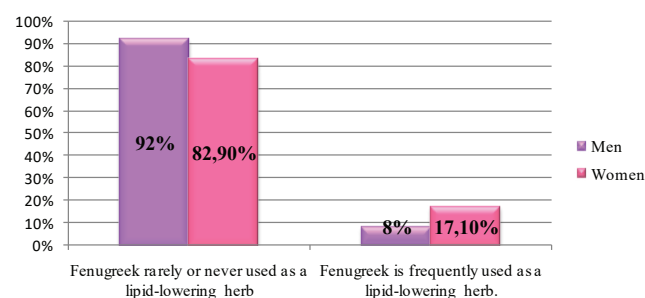


Figure 8: Frequency of use of fenugreek to treat dyslipidemia by sex

According to the level of education, we found that 18.2% of patients with a low level of education and 7.4% among those with a satisfactory level of education frequently consume fenugreek as an adjuvant to drug treatment of dyslipidemia.

Furthermore, among the patients surveyed who frequently consume fenugreek as an adjuvant to drug treatment for dyslipidemia, we found that 15.6% are of low socioeconomic level and 6.7% are of satisfactory socioeconomic level.

d/ Olive leaves

5% of patients frequently use olive leaves as a lipid-lowering plant.

No respondent with a satisfactory level of education frequently consumes olive leaves in their treatment, while only 9.1% of those with a low level do so.

As shown in Figure 9 below, no respondent of satisfactory socioeconomic level frequently consumes olive leaves in their treatment, while 6.7% of the low level do so daily.

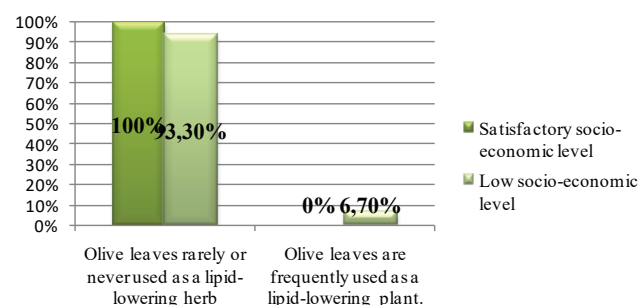


Figure 9: Frequency of olive leaves use to treat dyslipidemia according to the socioeconomic level of the patients surveyed

e/ Apple cider vinegar

All male dyslipidemic patients surveyed never consume apple cider vinegar to treat their dyslipidemia, while 5.7% of women are in the habit of consuming it daily as an adjuvant to drug treatment.

Patients' attitudes toward the use of dietary diet to treat dyslipidemia

Table 2. Attitude towards the use of a dietary diet to treat dyslipidemia by gender

		Sex	
		Men	Woman
Attitude toward the use of dietary diet to treat dyslipidemia	Useful and beneficial	22	32
		88%	91,4%
	I don't agree	3	3
Total		25	35

The majority of patients of both sexes endorse the usefulness of diet in the treatment of dyslipidemia.

Table III below illustrates the habit of dyslipidemic patients of both sexes to follow a dietary regimen as an adjuvant to drug treatment.

Table 3. Attitude towards the use of a dietary diet to treat dyslipidemia by gender

		Sex	
		Men	Woman
Suivi d'un régime diététique pour le traitement de la dyslipidémie	Always	8	10
		32%	28,6%
	Rarely	12	19
		48%	54,3%
	Never	5	6
		20%	17,1%
Total		25	35

These results show that 68% of dyslipidemic men and 71% of dyslipidemic women never or rarely follow a dietary regimen as an adjuvant to drug treatment.

For patients who regularly follow a diet for dyslipidemia, this was indicated by a doctor (79.9%), a dietitian (23.8%), or another dyslipidemic patient (52%).

Survey of traditional herbalists

The average age of the herbalists surveyed is 49.9 ± 8.975 years, with a minimum age of 44 and a maximum of 74 years.

Figure 10 below summarizes the sources of information used by the traditional herbalists to prescribe plants against dyslipidemia.

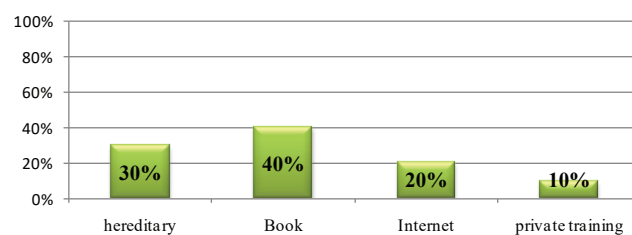


Figure 10: Documentary support used by the Herbalist

Attitude of the herbalist towards the place of traditional medicine

For the majority of herbalists (80%), traditional medicine cannot be a treatment but rather an adjuvant in the treatment of several diseases.

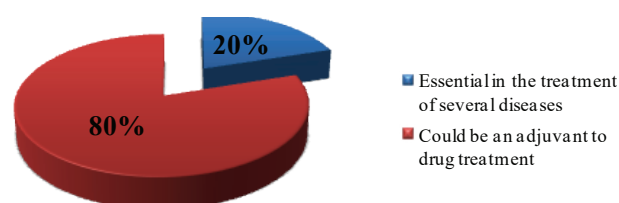


Figure 11. Attitude of the herbalist towards the place of traditional medicine

The main recipes prescribed by traditional herbalists in cases of dyslipidemia

Table IV below summarizes the different plants prescribed to dyslipidemic patients by herbalists, the doses, and methods of preparation.

Table 4. Recipes prescribed by herbalists to dyslipidemic patients

	Plant	Drug	Quantity	Vehicle	Form of use	Instructions for use
1	White mugwort	Stem and leaves	1 bouquet	1.5 liters of water	decoction	1 cup on an empty stomach 1 cup in the evening after dinner for 7 days
2	Ginger	Rhizome powder	2 teaspoons	Water	dissolution	1 cup in the morning after meals for 7 days
3	Ginger	Rhizome powder	1 teaspoon	Water	dissolution	1 cup a day for a month
4	White mugwort	Crushed stem and leaf	1 tablespoon	Water	decoction	1 cup per day for 10 days
5	White mugwort	Crushed stem and leaf	1 teaspoon	Water	decoction	1 cup on an empty stomach 1 cup in the evening after dinner for 5 week
6	Olive leaves	Leaf	Some leaves	Water	decoction	1 cup in the morning 1 cup in the evening after dinner for 1 month
7	Ginger	Rhizome powder	1 teaspoon	Warm water	Maceration 60 minutes and filtration	1 cup every other day at lunch after meals for 1 month
8	Ginger	Rhizome powder	1 teaspoon	½ liter of water	dissolution	1 cup in the morning for 20 days
9	White horehound	Flowering tops	1 bouquet (50g)	1 liter of water	Boil for 15 minutes	1 glass morning on an empty stomach and evening after dinner for 7 to 14 days

Discussion

Despite the remarkable progress achieved through prevention, pharmacological treatments, and surgery, cardiovascular disease remains a major cause of mortality in both men and women, and dyslipidemia is one of the major risk factors we can address. Dyslipidemia represents a serious health problem and therefore a significant cause of premature mortality, morbidity, and healthcare costs.

Clinically, the results of numerous epidemiological studies and large intervention trials conducted over many years have shown that it is possible to reduce the incidence of cardiovascular disease through lipid-lowering treatment through diet, herbal medicine, or medication [8–12]. The various forms of therapy must be complementary and not competitive. In this study, we assessed the perceptions of dyslipidemic patients regarding dietary and herbal treatment of dyslipidemia and identified the plants used. To address this objective, we conducted two surveys: the first among dyslipidemic patients at El Haouaria Hospital in Nabeul Governorate, and the second among several herbalists at Souk El Blat in Tunis and Souk El Balgha in Nabeul.

Our main results showed:

• Survey of dyslipidemic patients

The majority of dyslipidemics surveyed are elderly women (the average age is 62.62 ± 10.04 years), most of whom are illiterate and have suffered from this disease for an average of 10 years. In terms of nutrition, and in order to prevent complications of dyslipidemia according to their perception, patients suffering from this chronic disease frequently consume garlic, apple cider vinegar, fenugreek, and olive leaves. For the majority of these patients, “garlic” is the most cited and well-liked food.

Indeed, to evaluate the hypolipidemic action of garlic, several controlled trials [13] were carried out in humans under very variable conditions and over a limited period. A systematic review of 10 randomized controlled trials, selected from 18 studies published before 2000, attempted to establish the reality of the hypolipidemic action of garlic in healthy subjects with moderate hypercholesterolemia. The authors conclude that garlic cannot replace the hypolipidemic agents proposed in allopathy. Its use can be tolerated but is not recommended as an alternative treatment.

Furthermore, traditional medicine attributes hypolipidemic properties to fenugreek. This activity has been demonstrated in animals and in humans in animal trials, which are confirmed in humans. They noted a significant reduction in the level of triglycerides. Non-significant reductions in the level of total cholesterol and HDL cholesterol were recorded. It would constitute, according to Canadian researchers, a promising treatment for the metabolic syndrome [14].

An experiment [15] to evaluate the impact of apple cider vinegar on some biochemical parameters in rats subjected to a high-fat diet showed that taking apple cider vinegar can correct certain metabolic disturbances linked to the consumption of a high-fat diet by reducing hyperglycemia and hypercholesterolemia.

Our results showed that 28% of patients were completely unaware of lipid-lowering foods and only trusted the medications prescribed by their doctors. Similarly, we found that women consume foods more often than men to treat their illness.

It was also noted among the dyslipidemic patients surveyed that those with lower educational and socioeconomic status consumed more garlic, fenugreek, olive leaves, and apple cider vinegar to treat dyslipidemia.

Concerning the use of herbal medicine and traditional plants, our results showed that the majority of respondents use traditional medicine, but sometimes with the false use of certain plants in some patients, such as sage, which has no effect on dyslipidemia. This reflects a modest and insufficient level of knowledge of patients regarding medicinal plants in relation to their illness.

We found from the results that patients showed interest in traditional dietetics and herbal medicine not because of their awareness, but rather because of the high cost of medicines for a population with a modest and low socioeconomic level.

These results are consistent with those of a national cross-sectional epidemiological survey conducted among dyslipidemic patients in France in 2004 [15]. Its main objective was to describe the adherence of dyslipidemic patients to the hygiene and dietary rules associated with hypocholesterolemic treatment according to their sociodemographic and clinical profile. The study of eating behaviors shows that 24.9% of patients adhere poorly to the food hygiene rules. Adherence is better among women and patients over 60 years old, and among retired people, than among active people or unemployed people.

Furthermore, it has been noted that the use of traditional medicine is not reserved for a particular class of the population. This is explained by the widespread idea among the population that traditional medicine is a gentle medicine that does not present adverse or toxic effects, and the existing proximity between patient and therapist, which is manifested in the familiarity of the discourse and the easy access to herbalists' shops.

The results of our study showed that 68% of respondents use herbal medicine, with a risk of misuse and adverse effects.

• Survey of Traditional Herbalists

Our main results showed that traditional practitioners, in order to provide treatment for dyslipidemia using plants, draw inspiration from ancestral practices transmitted from generation to generation, from the conduct of the Prophet (PBUH), and sometimes from works written in Arabic available on the market at low prices, in which the therapeutic virtues of plants and other medical treatments are transcribed.

Our results also showed that the plants are prescribed by the traditional practitioner in the same way, without taking into account the terrain and the defects that the patients present, which could induce a delay in the elimination of the product and its accumulation in the body, leading to the appearance of side effects.

We observed a complete ignorance among the traditional practitioners we visited and surveyed regarding the botanical characteristics, chemical composition, and toxicity of the prescribed plants [16].

The notion of dosage is most often random: handful, large or small glass, spoon—this imprecision is the origin of an insufficient therapeutic dose or intoxication by excess drugs. Among the other shortcomings noted during our investigation:

- The products used are generally poorly stored.
- There is no expiry date or means of monitoring their effectiveness.
- The prescribed plants undergo pharmaceutical operations (infusion, decoction, maceration, etc.), which could lead to the destruction or loss of the active substance or, on the contrary, not allow its extraction.

- The duration of treatment is, in the majority of cases, imprecise.

The treatment is generally continued until recovery. The time to stop it is judged by the patient himself based on the alleviation or disappearance of the symptoms. These serious inaccuracies could lead to the use of insufficient doses and, consequently, to treatment failure or expose the patient to an overdose of active substances and lead to side effects or even toxicity.

Thus, the use of traditional medicine includes several risks because, according to our survey, traditional practitioners do not indicate precautions regarding the use of plants, and most are not aware of the side effects and toxicity of the plants used.

All these serious deficiencies pose risks for patients who consult these traditional herbalists, and are due, among other things, to the modest level of education of these herbalists surveyed, who are illiterate or have a primary or intermediate level of education.

Thus, the recipes they recommend to dyslipidemic patients are passed on to them by their parents, acquired through their own experience, or often recipes they have read in old books on traditional medicinal plants.

For this reason, they sometimes recommend plants that are not related to dyslipidemia, such as sage (*Salvia officinalis*), field wormwood (*Artemisia campestris*), and common globewort (*Globularia vulgaris*).

The results of our survey of traditional practitioners show that they must undergo training or be well supervised to understand the plant's characteristics, chemical composition, pharmacological properties, indications, side effects, contraindications, effective dosage, duration of therapy, and possible interactions with other plants or drug treatments, so that use is justified, treatment is effective, and side effects are minimal.

Treating dyslipidemia with herbal medicine involves seeking out plants whose chemical composition reveals the presence of elements and chemical molecules useful against this severe and serious disease in terms of complications [16].

Conclusion

Dyslipidemias are very common metabolic pathologies, and their management depends on the precise diagnosis of dyslipidemia, but reducing the risk of cardiovascular events in affected individuals also requires assessing this risk. In addition to treatment, therapeutic and nutritional education of patients and their family members is necessary.

Our results showed the anarchic recourse of dyslipidemic patients to therapeutic dietetics and the use of traditional plants recommended by untrained traditional practitioners. Dietetics, as an adjunct to drug treatment, must be reconsidered as a therapy in its own right. It is an effective and inexpensive treatment, constituting, in primary prevention, the first essential step in the therapeutic management of dyslipidemia. Its points of impact are multiple, and its benefits go well beyond the evolution of simple biological figures.

Herbal medicine remains an essential component of the therapeutic arsenal. Phytomedicines derived from the plants

offered can contribute to the treatment of dyslipidemia and, on the other hand, to its prevention by incorporating these plants into our dietary habits.

This traditional knowledge and know-how, passed down from father to son, acquired from certain works, inspired by the Koran and the conduct of the Prophet, deserves particular attention from the scientific community concerned.

Traditional medicine offers us several perspectives and opens the way to potentially promising research. It constitutes an invaluable and inexhaustible source of information that must be exploited.

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